



# UNITED STATES PATENT AND TRADEMARK OFFICE

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| APPLICATION NO. | ISSUE DATE | PATENT NO. | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|------------|------------|---------------------|------------------|
| 16/368,811      | 08/11/2020 | 10742774   | PMOR01201           | 8099             |

92045 7590 07/22/2020  
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):

Jenam Tech, LLC, Longview, TX;  
Robert Paul Morris, 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](http://SelectUSA.gov).

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Robert Paul Morris

Application No.: 16/368,811

File Date: 2019-03-28

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

Confirmation No.: 8099

Examiner: Moustafa M MEKY

Art Unit: 2457

Docket No.: PMOR0120I

Date: Jun 24, 2020

**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 06/22/2020, please enter the following remarks.

**Remarks:**

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

2. 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:
- detecting a time period parameter field in a TCP-variant packet received by a second node from a first node; identifying metadata in the time period parameter field for a time period, during which no packet is received from the first node in a data stream of a TCP-variant connection and processed by the second node to keep the TCP-variant connection active; and calculating, by the second node and based on the metadata, a timeout attribute associated with the TCP-variant connection for being used to at least partially close the TCP-variant connection [claims 22 & 104]; and
  - receiving information for use in: detecting a time period that results in a non-TCP connection being subject to at least partial deactivation, and sending a non-TCP packet that is based on the information and that includes a time period parameter field identifying metadata; and sending, to a second node and for setting up 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 [claim 63].

In response, applicant respectfully points out that features of at least some of the independent claims (e.g., 22, 63, and 104) are not necessarily the same as those the Examiner has highlighted above. For example, Claim 22 is directed to a technique "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" and "detecting a time period parameter field in the TCP-variant packet," in the context claimed.

As additional, non-exhaustive examples, Claims 22, 63, and 104 recite the following, respectively:

22. 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 a time period parameter field in the TCP-variant packet;

identifying metadata in the time period parameter field for a time period,  
during which no packet is received from the first node in a data stream of the  
TCP-variant connection and processed by the second node to keep the TCP-  
variant connection active; and

calculating, by the second node and based on the metadata, a timeout  
attribute associated with the TCP-variant connection for being used to at least  
partially close the TCP-variant connection.

63. A method comprising:

using at least a portion of a first node:

receiving information for use in: detecting a time period that results in a non-TCP connection being subject to at least partial deactivation, and sending a non-TCP packet that is based on the information and that includes a time period parameter field identifying metadata; and

sending, to a second node and for setting up 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.

104. An apparatus comprising:

a non-transitory memory storing instruction means; and

processors means in communication with the non-transitory memory, wherein the processor means executes the instructions means 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 a time period parameter field in the TCP-variant packet;

identifying metadata in the time period parameter field for a time period, during which no packet is received from the first node in a data stream of the TCP-variant connection and processed by the second node to keep the TCP-variant connection active; and

calculating, by the second node and based on the metadata, a timeout attribute associated with the TCP-variant connection for being used to at least partially close the TCP-variant 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.

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: 24 Jun 2020  
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Dallas, Texas 75229-0655  
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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 06/22/2020  
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. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 16/368,811      | 03/28/2019  | Robert Paul Morris   | PMOR01201           | 8099             |

**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 | <del>SMALL</del><br>LARGE | <del>\$500</del><br>\$1000 | \$0.00              | \$0.00               | <del>\$500</del><br>\$1000 | 09/22/2020 |

| 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 24 Jun 2020  
Type or printed name Patrick Caldwell Registration No. 44580

| Electronic Patent Application Fee Transmittal        |                 |                                                                                                              |               |                             |
|------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------|---------------|-----------------------------|
| <b>Application Number:</b>                           |                 | 16368811                                                                                                     |               |                             |
| <b>Filing Date:</b>                                  |                 | 28-Mar-2019                                                                                                  |               |                             |
| <b>Title of Invention:</b>                           |                 | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION |               |                             |
| <b>First Named Inventor/Applicant Name:</b>          |                 | Robert Paul Morris                                                                                           |               |                             |
| <b>Filer:</b>                                        |                 | Patrick Edgar Caldwell                                                                                       |               |                             |
| <b>Attorney Docket Number:</b>                       |                 | PMOR0120I                                                                                                    |               |                             |
| Filed as Large Entity                                |                 |                                                                                                              |               |                             |
| <b>Filing Fees for   Utility under 35 USC 111(a)</b> |                 |                                                                                                              |               |                             |
| <b>Description</b>                                   | <b>Fee Code</b> | <b>Quantity</b>                                                                                              | <b>Amount</b> | <b>Sub-Total in USD(\$)</b> |
| <b>Basic Filing:</b>                                 |                 |                                                                                                              |               |                             |
| <b>Pages:</b>                                        |                 |                                                                                                              |               |                             |
| <b>Claims:</b>                                       |                 |                                                                                                              |               |                             |
| <b>Miscellaneous-Filing:</b>                         |                 |                                                                                                              |               |                             |
| <b>Petition:</b>                                     |                 |                                                                                                              |               |                             |
| <b>Patent-Appeals-and-Interference:</b>              |                 |                                                                                                              |               |                             |
| <b>Post-Allowance-and-Post-Issuance:</b>             |                 |                                                                                                              |               |                             |
| UTILITY APPL ISSUE FEE                               | 1501            | 1                                                                                                            | 1000          | 1000                        |

| Description        | Fee Code | Quantity | Amount | Sub-Total in USD(\$) |
|--------------------|----------|----------|--------|----------------------|
| Extension-of-Time: |          |          |        |                      |
| Miscellaneous:     |          |          |        |                      |
| Total in USD (\$)  |          |          |        | 1000                 |

## Electronic Acknowledgement Receipt

|                                             |                                                                                                              |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| <b>EFS ID:</b>                              | 39821657                                                                                                     |
| <b>Application Number:</b>                  | 16368811                                                                                                     |
| <b>International Application Number:</b>    |                                                                                                              |
| <b>Confirmation Number:</b>                 | 8099                                                                                                         |
| <b>Title of Invention:</b>                  | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION |
| <b>First Named Inventor/Applicant Name:</b> | Robert Paul Morris                                                                                           |
| <b>Customer Number:</b>                     | 92045                                                                                                        |
| <b>Filer:</b>                               | Patrick Edgar Caldwell                                                                                       |
| <b>Filer Authorized By:</b>                 |                                                                                                              |
| <b>Attorney Docket Number:</b>              | PMOR0120I                                                                                                    |
| <b>Receipt Date:</b>                        | 24-JUN-2020                                                                                                  |
| <b>Filing Date:</b>                         | 28-MAR-2019                                                                                                  |
| <b>Time Stamp:</b>                          | 23:45:47                                                                                                     |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                                                                                  |

### Payment information:

|                                                                                                                |                  |
|----------------------------------------------------------------------------------------------------------------|------------------|
| Submitted with Payment                                                                                         | yes              |
| Payment Type                                                                                                   | CARD             |
| Payment was successfully received in RAM                                                                       | \$ 1000          |
| RAM confirmation Number                                                                                        | E20206NN46041326 |
| Deposit Account                                                                                                |                  |
| Authorized User                                                                                                |                  |
| The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: |                  |

| <b>File Listing:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                         |                                              |                                          |                  |                  |
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| Document Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Document Description                    | File Name                                    | File Size(Bytes)/<br>Message Digest      | Multi Part /.zip | Pages (if appl.) |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Post Allowance Communication - Incoming | PMOR0120I_Comments-L_vF_24-Jun-2020.pdf      | 197438                                   | no               | 5                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                         |                                              | fc2a47e49b045ed5b4414c6a4f87823957cd50dc |                  |                  |
| <b>Warnings:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                         |                                              |                                          |                  |                  |
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                         |                                              |                                          |                  |                  |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Issue Fee Payment (PTO-85B)             | PMOR0120I_fee-transmittal_vF_24-Jun-2020.pdf | 129950                                   | no               | 1                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                         |                                              | daa83854ae941b169e8ce1a2a3815e3e200ec73b |                  |                  |
| <b>Warnings:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                         |                                              |                                          |                  |                  |
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                         |                                              |                                          |                  |                  |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Fee Worksheet (SB06)                    | fee-info.pdf                                 | 30299                                    | no               | 2                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                         |                                              | 926f3d3766aa9d45b6fa52fbcdd46eef161715b  |                  |                  |
| <b>Warnings:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                         |                                              |                                          |                  |                  |
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                         |                                              |                                          |                  |                  |
| <b>Total Files Size (in bytes):</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                         |                                              | 357687                                   |                  |                  |
| <p><b>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.</b></p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b><br/> 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.</p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b><br/> 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.</p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b><br/> 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.</p> |                                         |                                              |                                          |                  |                  |



# 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 06/22/2020  
The Caldwell Firm, LLC  
PO Box 59655  
Dept. SVIPGP  
Dallas, TX 75229

EXAMINER

MEKY, MOUSTAFA M

ART UNIT PAPER NUMBER

2457

DATE MAILED: 06/22/2020

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 16/368,811      | 03/28/2019  | Robert Paul Morris   | PMOR0120I           | 8099             |

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            | 09/22/2020 |

**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](http://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.

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92045 7590 06/22/2020  
The Caldwell Firm, LLC  
PO Box 59655  
Dept. SVIPGP  
Dallas, TX 75229

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**Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being 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. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 16/368,811      | 03/28/2019  | Robert Paul Morris   | PMOR0120I           | 8099             |

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            | 09/22/2020 |

| 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

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| APPLICATION NO.                                                            | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|----------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 16/368,811                                                                 | 03/28/2019  | Robert Paul Morris   | PMOR0120I           | 8099             |
| 92045                                                                      | 7590        | 06/22/2020           | EXAMINER            |                  |
| The Caldwell Firm, LLC<br>PO Box 59655<br>Dept. SVIPGP<br>Dallas, TX 75229 |             |                      | MEKY, MOUSTAFA M    |                  |
|                                                                            |             |                      | ART UNIT            | PAPER NUMBER     |
|                                                                            |             |                      | 2457                |                  |
| DATE MAILED: 06/22/2020                                                    |             |                      |                     |                  |

## 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.

|                               |                                      |                                            |                                |
|-------------------------------|--------------------------------------|--------------------------------------------|--------------------------------|
| <b>Notice of Allowability</b> | <b>Application No.</b><br>16/368,811 | <b>Applicant(s)</b><br>Morris, Robert Paul |                                |
|                               | <b>Examiner</b><br>Moustafa M Meky   | <b>Art Unit</b><br>2457                    | <b>AIA (FITF) Status</b><br>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 filed 05/29/2020.  
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on \_\_\_\_\_.

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

3. ☒ The allowed claim(s) is/are 22-104. 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](http://www.uspto.gov/patents/init_events/pph/index.jsp) or send an inquiry to [PPHfeedback@uspto.gov](mailto: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. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                              | 5. <input type="checkbox"/> Examiner's Amendment/Comment                             |
| 2. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date 05/29/2020. | 6. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| 3. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material _____.        | 7. <input type="checkbox"/> Other _____.                                             |
| 4. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____.                                   |                                                                                      |

|                                                      |  |
|------------------------------------------------------|--|
| /MOUSTAFA M MEKY/<br>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.

1. Claims 22-104 are allowable in view of the prior art of record.

***Reasons for Allowance***

2. 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:

- detecting a time period parameter field in a TCP-variant packet received by a second node from a first node; identifying metadata in the time period parameter field for a time period, during which no packet is received from the first node in a data stream of a TCP-variant connection and processed by the second node to keep the TCP-variant connection active; and calculating, by the second node and based on the metadata, a timeout attribute associated with the TCP-variant connection for being used to at least partially close the TCP-variant connection [claims 22 & 104]; and
- receiving information for use in: detecting a time period that results in a non-TCP connection being subject to at least partial deactivation, and sending a non-TCP packet that is based on the information and that includes a time period parameter field identifying metadata; and sending, to a second node and for setting up 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 [claim 63].

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. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

4. 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 <https://ppair-my.uspto.gov/pair/PrivatePair>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MOUSTAFA M MEKY/  
Primary Examiner, Art Unit 2457 06/16/2020

|                                          |                                       |  |                                                                   |             |
|------------------------------------------|---------------------------------------|--|-------------------------------------------------------------------|-------------|
| <b><i>Notice of References Cited</i></b> | Application/Control No.<br>16/368,811 |  | Applicant(s)/Patent Under<br>Reexamination<br>Morris, Robert Paul |             |
|                                          | Examiner<br>Moustafa M Meky           |  | Art Unit<br>2457                                                  | Page 1 of 1 |

**U.S. PATENT DOCUMENTS**

| * |   | Document Number<br>Country Code-Number-Kind Code | Date<br>MM-YYYY | Name      | CPC Classification | US Classification |
|---|---|--------------------------------------------------|-----------------|-----------|--------------------|-------------------|
| * | A | US-6757248-B1                                    | 06-2004         | Li; Xiang | H04L1/1858         | 370/235           |
|   | B |                                                  |                 |           |                    |                   |
|   | C |                                                  |                 |           |                    |                   |
|   | D |                                                  |                 |           |                    |                   |
|   | E |                                                  |                 |           |                    |                   |
|   | F |                                                  |                 |           |                    |                   |
|   | G |                                                  |                 |           |                    |                   |
|   | H |                                                  |                 |           |                    |                   |
|   | I |                                                  |                 |           |                    |                   |
|   | J |                                                  |                 |           |                    |                   |
|   | K |                                                  |                 |           |                    |                   |
|   | L |                                                  |                 |           |                    |                   |
|   | M |                                                  |                 |           |                    |                   |

**FOREIGN PATENT DOCUMENTS**

| * |   | Document Number<br>Country Code-Number-Kind Code | Date<br>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.

U.S. Patent and Trademark Office  
PTO-892 (Rev. 01-2001)

**Notice of References Cited**

Part of Paper No. 20200616

|                                                                                                                  |                                              |                                                                       |
|------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------|
| <b>Issue Classification</b><br> | <b>Application/Control No.</b><br>16/368,811 | <b>Applicant(s)/Patent Under Reexamination</b><br>Morris, Robert Paul |
|                                                                                                                  | <b>Examiner</b><br>Moustafa M Meky           | <b>Art Unit</b><br>2457                                               |

|               |   |    |             |                |
|---------------|---|----|-------------|----------------|
| <b>CPC</b>    |   |    |             |                |
| <b>Symbol</b> |   |    | <b>Type</b> | <b>Version</b> |
| H04L          | / | 69 | /           | 16             |
|               |   |    | F           | 2013-01-01     |

|                             |             |            |                |                |
|-----------------------------|-------------|------------|----------------|----------------|
| <b>CPC Combination Sets</b> |             |            |                |                |
| <b>Symbol</b>               | <b>Type</b> | <b>Set</b> | <b>Ranking</b> | <b>Version</b> |
| /                           |             | /          |                |                |
|                             |             |            |                |                |

|                                                      |              |                              |                   |
|------------------------------------------------------|--------------|------------------------------|-------------------|
| NONE                                                 |              | <b>Total Claims Allowed:</b> |                   |
| (Assistant Examiner)                                 | (Date)       | 83                           |                   |
| /MOUSTAFA M MEKY/<br>Primary Examiner, Art Unit 2457 | 16 June 2020 | O.G. Print Claim(s)          | O.G. Print Figure |
| (Primary Examiner)                                   | (Date)       | 1                            | 3                 |

|                                                                                                                  |                                              |                                                                       |
|------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------|
| <b>Issue Classification</b><br> | <b>Application/Control No.</b><br>16/368,811 | <b>Applicant(s)/Patent Under Reexamination</b><br>Morris, Robert Paul |
|                                                                                                                  | <b>Examiner</b><br>Moustafa M Meky           | <b>Art Unit</b><br>2457                                               |

|                                     |   |    |      |
|-------------------------------------|---|----|------|
| <b>INTERNATIONAL CLASSIFICATION</b> |   |    |      |
| <b>CLAIMED</b>                      |   |    |      |
| G06F                                | / | 15 | / 16 |
| <b>NON-CLAIMED</b>                  |   |    |      |
| /                                   |   | /  |      |

|                                   |                 |
|-----------------------------------|-----------------|
| <b>US ORIGINAL CLASSIFICATION</b> |                 |
| <b>CLASS</b>                      | <b>SUBCLASS</b> |
|                                   |                 |

|                            |                                          |  |  |  |  |  |
|----------------------------|------------------------------------------|--|--|--|--|--|
| <b>CROSS REFERENCES(S)</b> |                                          |  |  |  |  |  |
| <b>CLASS</b>               | <b>SUBCLASS (ONE SUBCLASS PER BLOCK)</b> |  |  |  |  |  |
|                            |                                          |  |  |  |  |  |

|                                                      |              |                              |                   |
|------------------------------------------------------|--------------|------------------------------|-------------------|
| NONE                                                 |              | <b>Total Claims Allowed:</b> |                   |
| (Assistant Examiner)                                 | (Date)       | 83                           |                   |
| /MOUSTAFA M MEKY/<br>Primary Examiner, Art Unit 2457 | 16 June 2020 | O.G. Print Claim(s)          | O.G. Print Figure |
| (Primary Examiner)                                   | (Date)       | 1                            | 3                 |

|                                                                                                                  |                                              |                                                                       |
|------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------|
| <b>Issue Classification</b><br> | <b>Application/Control No.</b><br>16/368,811 | <b>Applicant(s)/Patent Under Reexamination</b><br>Morris, Robert Paul |
|                                                                                                                  | <b>Examiner</b><br>Moustafa M Meky           | <b>Art Unit</b><br>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        |       | 17       |       | 14       | 9     | 30       | 25    | 46       | 41    | 62       | 58    | 78       | 74    | 94       |
|       | 2        |       | 18       |       | 15       | 10    | 31       | 26    | 47       | 42    | 63       | 59    | 79       | 75    | 95       |
|       | 3        |       | 19       |       | 16       | 11    | 32       | 27    | 48       | 43    | 64       | 60    | 80       | 76    | 96       |
|       | 4        |       | 1        |       | 17       | 12    | 33       | 28    | 49       | 44    | 65       | 61    | 81       | 77    | 97       |
|       | 5        |       | 2        |       | 18       | 13    | 34       | 29    | 50       | 45    | 66       | 62    | 82       | 78    | 98       |
|       | 6        |       | 3        |       | 19       | 14    | 35       | 30    | 51       | 48    | 67       | 63    | 83       | 79    | 99       |
|       | 7        |       | 4        |       | 20       | 15    | 36       | 31    | 52       | 49    | 68       | 64    | 84       | 80    | 100      |
|       | 8        |       | 5        |       | 21       | 16    | 37       | 32    | 53       | 82    | 69       | 65    | 85       | 81    | 101      |
|       | 9        |       | 6        | 1     | 22       | 17    | 38       | 33    | 54       | 50    | 70       | 66    | 86       | 46    | 102      |
|       | 10       |       | 7        | 2     | 23       | 18    | 39       | 34    | 55       | 51    | 71       | 67    | 87       | 47    | 103      |
|       | 11       |       | 8        | 3     | 24       | 19    | 40       | 35    | 56       | 52    | 72       | 68    | 88       | 83    | 104      |
|       | 12       |       | 9        | 4     | 25       | 20    | 41       | 36    | 57       | 53    | 73       | 69    | 89       |       |          |
|       | 13       |       | 10       | 5     | 26       | 21    | 42       | 37    | 58       | 54    | 74       | 70    | 90       |       |          |
|       | 14       |       | 11       | 6     | 27       | 22    | 43       | 38    | 59       | 55    | 75       | 71    | 91       |       |          |
|       | 15       |       | 12       | 7     | 28       | 23    | 44       | 39    | 60       | 56    | 76       | 72    | 92       |       |          |
|       | 16       |       | 13       | 8     | 29       | 24    | 45       | 40    | 61       | 57    | 77       | 73    | 93       |       |          |

|                                                                            |                        |                              |                        |
|----------------------------------------------------------------------------|------------------------|------------------------------|------------------------|
| NONE                                                                       |                        | <b>Total Claims Allowed:</b> |                        |
| (Assistant Examiner)                                                       | (Date)                 | 83                           |                        |
| /MOUSTAFA M MEKY/<br>Primary Examiner, Art Unit 2457<br>(Primary Examiner) | 16 June 2020<br>(Date) | O.G. Print Claim(s)<br>1     | O.G. Print Figure<br>3 |

|                                                                                                                 |                                              |                                                                       |
|-----------------------------------------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------|
| <b><i>Search Notes</i></b><br> | <b>Application/Control No.</b><br>16/368,811 | <b>Applicant(s)/Patent Under Reexamination</b><br>Morris, Robert Paul |
|                                                                                                                 | <b>Examiner</b><br>Moustafa M Meky           | <b>Art Unit</b><br>2457                                               |

| CPC - Searched* |            |          |
|-----------------|------------|----------|
| Symbol          | Date       | Examiner |
| H04L 69/16      | 08/07/2019 | 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) | 08/07/2019 | MMM      |
| WEST (ALL FILES) | 01/21/2020 | MMM      |
| WEST (ALL FILES) | 06/16/2020 | MMM      |

| Interference Search |                       |            |          |
|---------------------|-----------------------|------------|----------|
| US Class/CPC Symbol | US Subclass/CPC Group | Date       | Examiner |
| H04L                | 69/16                 | 06/16/2020 | MMM      |

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|-----------------------------------------------------------------------------------------------------|------------------------|--------------------|
| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>( Not for submission under 37 CFR 1.99) | Application Number     | 16368811           |
|                                                                                                     | Filing Date            | 2019-03-28         |
|                                                                                                     | First Named Inventor   | Robert Paul Morris |
|                                                                                                     | Art Unit               | 2457               |
|                                                                                                     | Examiner Name          | Moustafa M MEKY    |
|                                                                                                     | Attorney Docket Number | PMOR0120I          |

| U.S.PATENTS                                                                                                |         |                                                                                                                                                                                                                                                                 |                            |                        |                                                 |                                                                        | Remove                                                                 |                |
|------------------------------------------------------------------------------------------------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|------------------------|-------------------------------------------------|------------------------------------------------------------------------|------------------------------------------------------------------------|----------------|
| Examiner Initial*                                                                                          | Cite No | Patent Number                                                                                                                                                                                                                                                   | Kind Code <sup>1</sup>     | 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.                |         |                                                                                                                                                                                                                                                                 |                            |                        |                                                 |                                                                        | Add                                                                    |                |
| U.S.PATENT APPLICATION PUBLICATIONS                                                                        |         |                                                                                                                                                                                                                                                                 |                            |                        |                                                 |                                                                        | Remove                                                                 |                |
| Examiner Initial*                                                                                          | Cite No | Publication Number                                                                                                                                                                                                                                              | Kind Code <sup>1</sup>     | 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. |         |                                                                                                                                                                                                                                                                 |                            |                        |                                                 |                                                                        | Add                                                                    |                |
| FOREIGN PATENT DOCUMENTS                                                                                   |         |                                                                                                                                                                                                                                                                 |                            |                        |                                                 |                                                                        | Remove                                                                 |                |
| Examiner Initial*                                                                                          | Cite No | Foreign Document Number <sup>3</sup>                                                                                                                                                                                                                            | Country Code <sup>2i</sup> | Kind Code <sup>4</sup> | Publication Date                                | Name of Patentee or Applicant of cited Document                        | Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear | T <sup>5</sup> |
|                                                                                                            | 1       | 1242882                                                                                                                                                                                                                                                         | EP                         | A2                     | 2002-09-25                                      | Hankinson et al.                                                       | Entire Document                                                        |                |
| If you wish to add additional Foreign Patent Document citation information please click the Add button     |         |                                                                                                                                                                                                                                                                 |                            |                        |                                                 |                                                                        | Add                                                                    |                |
| NON-PATENT LITERATURE DOCUMENTS                                                                            |         |                                                                                                                                                                                                                                                                 |                            |                        |                                                 |                                                                        | Remove                                                                 |                |
| Examiner Initials*                                                                                         | Cite No | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published. |                            |                        |                                                 |                                                                        |                                                                        | T <sup>5</sup> |

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

|                        |                    |
|------------------------|--------------------|
| Application Number     | 16368811           |
| Filing Date            | 2019-03-28         |
| First Named Inventor   | Robert Paul Morris |
| Art Unit               | 2457               |
| Examiner Name          | Moustafa M MEKY    |
| Attorney Docket Number | PMOR0120I          |

|    |                                                                                                                                                                                                                                                              |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | "Discussion Lists," IETF, available at <a href="https://www.ietf.org/how/lists/discussion/">https://www.ietf.org/how/lists/discussion/</a>                                                                                                                   |
| 2  | "IETF Announce Mailing List," IETF, April 2004                                                                                                                                                                                                               |
| 3  | "IETF Document Management System Datatracker 2 for Eggert," IETF, Datatracker                                                                                                                                                                                |
| 4  | "IETF TCP Maintenance," IETF, April 2004                                                                                                                                                                                                                     |
| 5  | "TCP Option Kind Numbers," Network Working Group, RFC 2780                                                                                                                                                                                                   |
| 6  | Apogee Communications, Rapport de Veille Technologique Securite No. 69, (Security Technology Watch Report) (April, 2004)                                                                                                                                     |
| 7  | Cristian Zamfir, Live Migration of User Environments Across WideArea Networks, Master's Thesis, Department of Computing Science, University of Glasgow (October, 2008)                                                                                       |
| 8  | F. Gont, "TCP Adaptive User TimeOut (AUTO) Option," Network Working Group, May 19, 2004                                                                                                                                                                      |
| 9  | IESG Statement: Normative and Informative References, Apr 19, 2006, available at <a href="https://www.ietf.org/blog/iesg-statement-normative-and-informative-references/">https://www.ietf.org/blog/iesg-statement-normative-and-informative-references/</a> |
| 10 | IETF Document Management System Datatracker 1 for Eggert, available at <a href="https://datatracker.ietf.org/doc/draft-eggert-tcpm-tcp-abort-timeout-option/">https://datatracker.ietf.org/doc/draft-eggert-tcpm-tcp-abort-timeout-option/</a>               |
| 11 | IETF face-to-face meeting (San Diego, August 2, 2004)                                                                                                                                                                                                        |

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| Attorney Docket Number | PMOR0120I          |

|    |                                                                                                                                                                                                                                                            |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12 | Internet Domain Survey, January 2010, Internet Systems Consortium available at <a href="https://downloads.isc.org/www/survey/reports/2010/01/">https://downloads.isc.org/www/survey/reports/2010/01/</a>                                                   |
| 13 | J. Moy, "The OSPF Specification," Network Working Group, RFC 1131, October 1989                                                                                                                                                                            |
| 14 | Jacobson et al, "TCP Extensions for High Performance," Network Working Group, RFC 1323, May 1002, available at <a href="https://tools.ietf.org/html/rfc1323">https://tools.ietf.org/html/rfc1323</a>                                                       |
| 15 | Jacobson et al, "TCP Extensions for Long-Delay Paths," Network Working Group, RFC 1072, October 1988, available at <a href="https://tools.ietf.org/html/rfc1072">https://tools.ietf.org/html/rfc1072</a>                                                   |
| 16 | Mathis et al, "TCP Selective Acknowledgment Options," Network Working Group, RFC 2018, October 1996, available at <a href="https://tools.ietf.org/html/rfc2018">https://tools.ietf.org/html/rfc2018</a>                                                    |
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| 18 | S. Bradner "IETF Working Group Guidelines and Procedures," Network Working Group, RFC 2418, Sept 1998                                                                                                                                                      |
| 19 | S. Bradner, "The Internet Standards Process -- Revision 3" Network Working Group, RFC 2026                                                                                                                                                                 |
| 20 | The Federal Networking Council, The Networking and Information Technology Research and Development Program, Oct 10, 1997, available at <a href="https://www.nitrd.gov/historical/fnc-material.aspx">https://www.nitrd.gov/historical/fnc-material.aspx</a> |

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

**EXAMINER SIGNATURE**

|                    |                   |                 |            |
|--------------------|-------------------|-----------------|------------|
| Examiner Signature | /MOUSTAFA M MEKY/ | Date Considered | 06/16/2020 |
|--------------------|-------------------|-----------------|------------|

\*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.

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

|                        |                    |
|------------------------|--------------------|
| Application Number     | 16368811           |
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| Examiner Name          | Moustafa M MEKY    |
| Attorney Docket Number | PMOR0120I          |

<sup>1</sup> See Kind Codes of USPTO Patent Documents at [www.USPTO.GOV](http://www.USPTO.GOV) or MPEP 901.04. <sup>2</sup> Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>3</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>4</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>5</sup> 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     | 16368811           |
| Filing Date            | 2019-03-28         |
| First Named Inventor   | Robert Paul Morris |
| Art Unit               | 2457               |
| Examiner Name          | Moustafa M MEKY    |
| Attorney Docket Number | PMOR0120I          |

**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)   | 2020-05-29 |
| 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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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.
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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

## WEST Search History for Application 16368811

**Creation Date: 2020061618:22**

### Prior Art Searches

| Query                                                  | DB                                             | Hits  | Op. | Plur. | Thes. | Date       |
|--------------------------------------------------------|------------------------------------------------|-------|-----|-------|-------|------------|
| <b>idle adj time</b>                                   | PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS | 50946 | ADJ | YES   |       | 08-07-2019 |
| <b>(idle adj time ) with timeout</b>                   | PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS | 421   | ADJ | YES   |       | 08-07-2019 |
| <b>(idle adj time with timeout ) with metadat</b>      | PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS | 0     | ADJ | YES   |       | 08-07-2019 |
| <b>(idle adj time with timeout ) with metadata</b>     | PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS | 14    | ADJ | YES   |       | 08-07-2019 |
| <b>idle adj1 time</b>                                  | PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS | 52568 | ADJ | YES   |       | 01-21-2020 |
| <b>(idle adj1 time ) with metadata</b>                 | PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS | 65    | ADJ | YES   |       | 01-21-2020 |
| <b>(idle adj1 time with metadata ) with timeout</b>    | PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS | 16    | ADJ | YES   |       | 01-21-2020 |
| <b>TCP adj2 (packet or connection)</b>                 | PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS | 68000 | ADJ | YES   |       | 06-16-2020 |
| <b>(TCP adj2 (packet or connection) ) with timeout</b> | PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS | 1424  | ADJ | YES   |       | 06-16-2020 |

|                                                                                                                                              |                                                |        |     |     |  |            |
|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|--------|-----|-----|--|------------|
| <b>(TCP adj2 (packet or connection) with timeout ) with (period or time or metadata)</b>                                                     | PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS | 407    | ADJ | YES |  | 06-16-2020 |
| <b>packet near5 (time or period or parameter or field)</b>                                                                                   | PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS | 322364 | ADJ | YES |  | 06-16-2020 |
| <b>(packet near5 (time or period or parameter or field) ) with (TCP adj2 (packet or connection) with timeout )</b>                           | PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS | 175    | ADJ | YES |  | 06-16-2020 |
| <b>(packet near5 (time or period or parameter or field) with TCP adj2 (packet or connection) with timeout ) with (metadata or attribute)</b> | PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS | 11     | ADJ | YES |  | 06-16-2020 |

## Electronic Acknowledgement Receipt

|                                             |                                                                                                              |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| <b>EFS ID:</b>                              | 39661911                                                                                                     |
| <b>Application Number:</b>                  | 16368811                                                                                                     |
| <b>International Application Number:</b>    |                                                                                                              |
| <b>Confirmation Number:</b>                 | 8099                                                                                                         |
| <b>Title of Invention:</b>                  | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION |
| <b>First Named Inventor/Applicant Name:</b> | Robert Paul Morris                                                                                           |
| <b>Customer Number:</b>                     | 92045                                                                                                        |
| <b>Filer:</b>                               | Patrick Edgar Caldwell                                                                                       |
| <b>Filer Authorized By:</b>                 |                                                                                                              |
| <b>Attorney Docket Number:</b>              | PMOR0120I                                                                                                    |
| <b>Receipt Date:</b>                        | 08-JUN-2020                                                                                                  |
| <b>Filing Date:</b>                         | 28-MAR-2019                                                                                                  |
| <b>Time Stamp:</b>                          | 23:36:48                                                                                                     |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                                                                                  |

### Payment information:

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

### File Listing:

| Document Number | Document Description  | File Name  | File Size(Bytes)/<br>Message Digest      | Multi Part /.zip | Pages (if appl.) |
|-----------------|-----------------------|------------|------------------------------------------|------------------|------------------|
| 1               | Non Patent Literature | Apogee.pdf | 2853853                                  | no               | 64               |
|                 |                       |            | 2925d7db74c020ec56be6c4f43904200ae17accc |                  |                  |

### Warnings:

|              |                       |                               |                                          |    |     |
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| Information: |                       |                               |                                          |    |     |
| 2            | Non Patent Literature | FNC.pdf                       | 760331                                   | no | 2   |
|              |                       |                               | b64f087a0a91d48ac2f691b30d142e96437281d3 |    |     |
| Warnings:    |                       |                               |                                          |    |     |
| Information: |                       |                               |                                          |    |     |
| 3            | Non Patent Literature | Gont.pdf                      | 45622                                    | no | 8   |
|              |                       |                               | c5df1769e1469cc24a772acec4f8f69c8d765840 |    |     |
| Warnings:    |                       |                               |                                          |    |     |
| Information: |                       |                               |                                          |    |     |
| 4            | Non Patent Literature | IETF_IESG_Statement.pdf       | 173306                                   | no | 2   |
|              |                       |                               | 8f759430e3be01797558104dab849d4caf966460 |    |     |
| Warnings:    |                       |                               |                                          |    |     |
| Information: |                       |                               |                                          |    |     |
| 5            | Non Patent Literature | IETFAnnounceApril2004.pdf     | 1328554                                  | no | 438 |
|              |                       |                               | 8679741e33c0d91f543fbf593706e606e5677162 |    |     |
| Warnings:    |                       |                               |                                          |    |     |
| Information: |                       |                               |                                          |    |     |
| 6            | Non Patent Literature | IETFDatatracker1forEggert.pdf | 103359                                   | no | 1   |
|              |                       |                               | dfda980a435490e3c6b8aab14e3a0c7742d2d7c3 |    |     |
| Warnings:    |                       |                               |                                          |    |     |
| Information: |                       |                               |                                          |    |     |
| 7            | Non Patent Literature | IETFDatatracker2.pdf          | 685074                                   | no | 1   |
|              |                       |                               | 891bb33331b3848576df6c8174a2c9b3b597fec9 |    |     |
| Warnings:    |                       |                               |                                          |    |     |
| Information: |                       |                               |                                          |    |     |
| 8            | Non Patent Literature | IETFMailingLists.pdf          | 204964                                   | no | 7   |
|              |                       |                               | b426d44a85847657dc37e21760bf04823f175b71 |    |     |
| Warnings:    |                       |                               |                                          |    |     |
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|--------------|-----------------------|---------------------------------|-------------------------------------------|----|-----|
| 9            | Non Patent Literature | IETFcpmmailinglistApril2004.pdf | 440028                                    | no | 15  |
|              |                       |                                 | abbde2e12676bec3ae2023410870bb3d583efd41  |    |     |
| Warnings:    |                       |                                 |                                           |    |     |
| Information: |                       |                                 |                                           |    |     |
| 10           | Non Patent Literature | InternetDomainSurvey.pdf        | 74836                                     | no | 2   |
|              |                       |                                 | d8e1921f9dbc91c0606f3eb9f4c1a126f9411444  |    |     |
| Warnings:    |                       |                                 |                                           |    |     |
| Information: |                       |                                 |                                           |    |     |
| 11           | Non Patent Literature | RFC879.pdf                      | 50683                                     | no | 11  |
|              |                       |                                 | 8d3efc8b0d39e1c4903956eb9d9ac946730e5ff6  |    |     |
| Warnings:    |                       |                                 |                                           |    |     |
| Information: |                       |                                 |                                           |    |     |
| 12           | Non Patent Literature | RFC1072.pdf                     | 63380                                     | no | 16  |
|              |                       |                                 | 4d2c4bd8f9e41b97f3e9ff8246452a292a606a74  |    |     |
| Warnings:    |                       |                                 |                                           |    |     |
| Information: |                       |                                 |                                           |    |     |
| 13           | Non Patent Literature | RFC1131.pdf                     | 1045032                                   | no | 107 |
|              |                       |                                 | f459b3dd048c296846ae1c85f4d96e03bafaf803  |    |     |
| Warnings:    |                       |                                 |                                           |    |     |
| Information: |                       |                                 |                                           |    |     |
| 14           | Non Patent Literature | RFC1323.pdf                     | 112206                                    | no | 37  |
|              |                       |                                 | 32878ae5364ba6fdb2ffd0632ae73dd9b9ccd0d8  |    |     |
| Warnings:    |                       |                                 |                                           |    |     |
| Information: |                       |                                 |                                           |    |     |
| 15           | Non Patent Literature | RFC2018.pdf                     | 54945                                     | no | 12  |
|              |                       |                                 | c815062fb089f9be6cc514cf973d6d51e06387673 |    |     |
| Warnings:    |                       |                                 |                                           |    |     |
| Information: |                       |                                 |                                           |    |     |

|                              |                       |                    |                                          |    |    |
|------------------------------|-----------------------|--------------------|------------------------------------------|----|----|
| 16                           | Non Patent Literature | RFC2026.pdf        | 111285                                   | no | 36 |
|                              |                       |                    | 61146d7d7bf77457edc3b08632b2c62a6c13730e |    |    |
| Warnings:                    |                       |                    |                                          |    |    |
| Information:                 |                       |                    |                                          |    |    |
| 17                           | Non Patent Literature | RFC2418.pdf        | 90444                                    | no | 26 |
|                              |                       |                    | 5e857e08ee818b4be4276a80ae6e8cd6126f022e |    |    |
| Warnings:                    |                       |                    |                                          |    |    |
| Information:                 |                       |                    |                                          |    |    |
| 18                           | Non Patent Literature | TCPKindnumbers.pdf | 680960                                   | no | 1  |
|                              |                       |                    | 545390bde609fb07f6bba505e35ced1ff0d89d13 |    |    |
| Warnings:                    |                       |                    |                                          |    |    |
| Information:                 |                       |                    |                                          |    |    |
| 19                           | Non Patent Literature | TCPMIETF60.pdf     | 162860                                   | no | 13 |
|                              |                       |                    | ee319522c4d882d7eb2353c3926a93a2694f31c0 |    |    |
| Warnings:                    |                       |                    |                                          |    |    |
| Information:                 |                       |                    |                                          |    |    |
| 20                           | Non Patent Literature | ZamfirThesis.pdf   | 2393736                                  | no | 99 |
|                              |                       |                    | d76fba8318dc153d03ab32db44f9fecc94cb939d |    |    |
| Warnings:                    |                       |                    |                                          |    |    |
| Information:                 |                       |                    |                                          |    |    |
| Total Files Size (in bytes): |                       |                    | 11435458                                 |    |    |

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**New Applications Under 35 U.S.C. 111**

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

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

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

**New International Application Filed with the USPTO as a Receiving Office**

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

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

|                      |                    |             |            |                               |                 |          |      |
|----------------------|--------------------|-------------|------------|-------------------------------|-----------------|----------|------|
| Application Number   | 16/368,811         | Filing Date | 2019-03-28 | Docket Number (if applicable) | PMOR0120I       | Art Unit | 2457 |
| First Named Inventor | Robert Paul Morris |             |            | Examiner Name                 | Moustafa M MEKY |          |      |

**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)   | 2020-05-29 |
| 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:                           |          | 16368811                                                                                                     |        |                      |
| Filing Date:                                  |          | 28-Mar-2019                                                                                                  |        |                      |
| 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:                       |          | PMOR0120I                                                                                                    |        |                      |
| 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     | 63                                                                                                           | 50     | 3150                 |
| Miscellaneous-Filing:                         |          |                                                                                                              |        |                      |
| Petition:                                     |          |                                                                                                              |        |                      |
| Patent-Appeals-and-Interference:              |          |                                                                                                              |        |                      |
| Post-Allowance-and-Post-Issuance:             |          |                                                                                                              |        |                      |

| Description                     | Fee Code | Quantity | Amount | Sub-Total in USD(\$) |
|---------------------------------|----------|----------|--------|----------------------|
| <b>Extension-of-Time:</b>       |          |          |        |                      |
| <b>Miscellaneous:</b>           |          |          |        |                      |
| RCE- 2ND AND SUBSEQUENT REQUEST | 2820     | 1        | 950    | 950                  |
| <b>Total in USD (\$)</b>        |          |          |        | <b>4100</b>          |

## Electronic Acknowledgement Receipt

|                                             |                                                                                                              |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| <b>EFS ID:</b>                              | 39582857                                                                                                     |
| <b>Application Number:</b>                  | 16368811                                                                                                     |
| <b>International Application Number:</b>    |                                                                                                              |
| <b>Confirmation Number:</b>                 | 8099                                                                                                         |
| <b>Title of Invention:</b>                  | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION |
| <b>First Named Inventor/Applicant Name:</b> | Robert Paul Morris                                                                                           |
| <b>Customer Number:</b>                     | 92045                                                                                                        |
| <b>Filer:</b>                               | Patrick Edgar Caldwell                                                                                       |
| <b>Filer Authorized By:</b>                 |                                                                                                              |
| <b>Attorney Docket Number:</b>              | PMOR0120I                                                                                                    |
| <b>Receipt Date:</b>                        | 29-MAY-2020                                                                                                  |
| <b>Filing Date:</b>                         | 28-MAR-2019                                                                                                  |
| <b>Time Stamp:</b>                          | 23:52:40                                                                                                     |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                                                                                  |

### Payment information:

|                                          |                  |
|------------------------------------------|------------------|
| Submitted with Payment                   | yes              |
| Payment Type                             | CARD             |
| Payment was successfully received in RAM | \$4100           |
| RAM confirmation Number                  | E20205SN52587541 |
| 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Information Disclosure Statement (IDS) Form (SB08) | PMOR0120I_IDS_vF_29-May-2020.pdf       | 1054182                                   | no               | 6                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                    |                                        | 1b0cc10c5d6ab9795cd54b1f339cea823676fe88  |                  |                  |
| Warnings:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                    |                                        |                                           |                  |                  |
| Information:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                    |                                        |                                           |                  |                  |
| A U.S. Patent Number Citation or a U.S. Publication Number Citation is required in the Information Disclosure Statement (IDS) form for autoloading of data into USPTO systems. You may remove the form to add the required data in order to correct the Informational Message if you are citing U.S. References. If you chose not to include U.S. References, the image of the form will be processed and be made available within the Image File Wrapper (IFW) system. However, no data will be extracted from this form. Any additional data such as Foreign Patent Documents or Non Patent Literature will be manually reviewed and keyed into USPTO systems. |                                                    |                                        |                                           |                  |                  |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Transmittal Letter                                 | PMOR0120I_IDS_XMTL_29-May-2020.pdf     | 55766                                     | no               | 2                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                    |                                        | 49a7486d0546db627f87924302e4f64f10406edb  |                  |                  |
| Warnings:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                    |                                        |                                           |                  |                  |
| Information:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                    |                                        |                                           |                  |                  |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Amendment Submitted/Entered with Filing of CPA/RCE | PMOR0120I_ROA_vF_29-May-2020.pdf       | 119071                                    | no               | 24               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                    |                                        | 7533e77c39238489e7ee0f7994a468ec06eadd771 |                  |                  |
| Warnings:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                    |                                        |                                           |                  |                  |
| Information:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                    |                                        |                                           |                  |                  |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Request for Continued Examination (RCE)            | PMOR0120I_USPTO_RCE_vF_29-May-2020.pdf | 1364031                                   | no               | 3                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                    |                                        | 794ccf435051a8bbb443fc23fc34bf29f0c5b23   |                  |                  |
| Warnings:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                    |                                        |                                           |                  |                  |
| Information:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                    |                                        |                                           |                  |                  |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Fee Worksheet (SB06)                               | fee-info.pdf                           | 32369                                     | no               | 2                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                    |                                        | e595ae93deb478fceb8a9d87cbe475a341040006  |                  |                  |
| Warnings:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                    |                                        |                                           |                  |                  |
| Information:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                    |                                        |                                           |                  |                  |
| Total Files Size (in bytes):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                    |                                        | 2625419                                   |                  |                  |

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**New Applications Under 35 U.S.C. 111**

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

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

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

**New International Application Filed with the USPTO as a Receiving Office**

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

|                                                                                                     |                        |                    |
|-----------------------------------------------------------------------------------------------------|------------------------|--------------------|
| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>( Not for submission under 37 CFR 1.99) | Application Number     | 16368811           |
|                                                                                                     | Filing Date            | 2019-03-28         |
|                                                                                                     | First Named Inventor   | Robert Paul Morris |
|                                                                                                     | Art Unit               | 2457               |
|                                                                                                     | Examiner Name          | Moustafa M MEKY    |
|                                                                                                     | Attorney Docket Number | PMOR0120I          |

| U.S.PATENTS                                                                                                |         |                                                                                                                                                                                                                                                                 |                            |                        |                                                 |                                                                          | Remove                                                                   |                |
|------------------------------------------------------------------------------------------------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|------------------------|-------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|----------------|
| Examiner Initial*                                                                                          | Cite No | Patent Number                                                                                                                                                                                                                                                   | Kind Code <sup>1</sup>     | 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.                |         |                                                                                                                                                                                                                                                                 |                            |                        |                                                 |                                                                          | Add                                                                      |                |
| U.S.PATENT APPLICATION PUBLICATIONS                                                                        |         |                                                                                                                                                                                                                                                                 |                            |                        |                                                 |                                                                          | Remove                                                                   |                |
| Examiner Initial*                                                                                          | Cite No | Publication Number                                                                                                                                                                                                                                              | Kind Code <sup>1</sup>     | Publication Date       | Name of Patentee or Applicant of cited Document | Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear |                                                                          |                |
|                                                                                                            | 1       |                                                                                                                                                                                                                                                                 |                            |                        |                                                 |                                                                          |                                                                          |                |
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| FOREIGN PATENT DOCUMENTS                                                                                   |         |                                                                                                                                                                                                                                                                 |                            |                        |                                                 |                                                                          | Remove                                                                   |                |
| Examiner Initial*                                                                                          | Cite No | Foreign Document Number <sup>3</sup>                                                                                                                                                                                                                            | Country Code <sup>2i</sup> | Kind Code <sup>4</sup> | Publication Date                                | Name of Patentee or Applicant of cited Document                          | Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear | T <sup>5</sup> |
|                                                                                                            | 1       | 1242882                                                                                                                                                                                                                                                         | EP                         | A2                     | 2002-09-25                                      | Hankinson et al.                                                         | Entire Document                                                          |                |
| If you wish to add additional Foreign Patent Document citation information please click the Add button     |         |                                                                                                                                                                                                                                                                 |                            |                        |                                                 |                                                                          | Add                                                                      |                |
| NON-PATENT LITERATURE DOCUMENTS                                                                            |         |                                                                                                                                                                                                                                                                 |                            |                        |                                                 |                                                                          | Remove                                                                   |                |
| Examiner Initials*                                                                                         | Cite No | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published. |                            |                        |                                                 |                                                                          |                                                                          | T <sup>5</sup> |

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

|                        |                    |
|------------------------|--------------------|
| Application Number     | 16368811           |
| Filing Date            | 2019-03-28         |
| First Named Inventor   | Robert Paul Morris |
| Art Unit               | 2457               |
| Examiner Name          | Moustafa M MEKY    |
| Attorney Docket Number | PMOR0120I          |

|    |                                                                                                                                                                                                                                                              |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | "Discussion Lists," IETF, available at <a href="https://www.ietf.org/how/lists/discussion/">https://www.ietf.org/how/lists/discussion/</a>                                                                                                                   |
| 2  | "IETF Announce Mailing List," IETF, April 2004                                                                                                                                                                                                               |
| 3  | "IETF Document Management System Datatracker 2 for Eggert," IETF, Datatracker                                                                                                                                                                                |
| 4  | "IETF TCP Maintenance," IETF, April 2004                                                                                                                                                                                                                     |
| 5  | "TCP Option Kind Numbers," Network Working Group, RFC 2780                                                                                                                                                                                                   |
| 6  | Apogee Communications, Rapport de Veille Technologique Securite No. 69, (Security Technology Watch Report) (April, 2004)                                                                                                                                     |
| 7  | Cristian Zamfir, Live Migration of User Environments Across WideArea Networks, Master's Thesis, Department of Computing Science, University of Glasgow (October, 2008)                                                                                       |
| 8  | F. Gont, "TCP Adaptive User TimeOut (AUTO) Option," Network Working Group, May 19, 2004                                                                                                                                                                      |
| 9  | IESG Statement: Normative and Informative References, Apr 19, 2006, available at <a href="https://www.ietf.org/blog/iesg-statement-normative-and-informative-references/">https://www.ietf.org/blog/iesg-statement-normative-and-informative-references/</a> |
| 10 | IETF Document Management System Datatracker 1 for Eggert, available at <a href="https://datatracker.ietf.org/doc/draft-eggert-tcpm-tcp-abort-timeout-option/">https://datatracker.ietf.org/doc/draft-eggert-tcpm-tcp-abort-timeout-option/</a>               |
| 11 | IETF face-to-face meeting (San Diego, August 2, 2004)                                                                                                                                                                                                        |

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

|                        |                    |
|------------------------|--------------------|
| Application Number     | 16368811           |
| Filing Date            | 2019-03-28         |
| First Named Inventor   | Robert Paul Morris |
| Art Unit               | 2457               |
| Examiner Name          | Moustafa M MEKY    |
| Attorney Docket Number | PMOR0120I          |

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

**EXAMINER SIGNATURE**

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

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

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

|                        |                    |
|------------------------|--------------------|
| Application Number     | 16368811           |
| Filing Date            | 2019-03-28         |
| First Named Inventor   | Robert Paul Morris |
| Art Unit               | 2457               |
| Examiner Name          | Moustafa M MEKY    |
| Attorney Docket Number | PMOR0120I          |

<sup>1</sup> See Kind Codes of USPTO Patent Documents at [www.USPTO.GOV](http://www.USPTO.GOV) or MPEP 901.04. <sup>2</sup> Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>3</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>4</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>5</sup> 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)

|                        |                    |
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| Application Number     | 16368811           |
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| First Named Inventor   | Robert Paul Morris |
| Art Unit               | 2457               |
| Examiner Name          | Moustafa M MEKY    |
| Attorney Docket Number | PMOR0120I          |

**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)   | 2020-05-29 |
| 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.

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4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Robert Paul Morris

Application No.: 16/368,811

File Date: 2019-03-28

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

Confirmation No.: 8099

Examiner: Moustafa M MEKY

Art Unit: 2457

Docket No.: PMOR0120I

Date: May 29, 2020

**INFORMATION DISCLOSURE STATEMENT  
UNDER 37 CFR §§ 1.56 AND 1.97(b)**

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 §§ 1.56 and 1.97. 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.: 16/368,811  
Date: May 29, 2020  
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). Additionally, one or more patents (e.g. 9923995) are the subject of pending Inter Partes Review (IPR2020-00742; IPR2020-00845).

This Information Disclosure Statement is believed to be filed within three months of the filing date of a national application other than a continued prosecution application, within three months of the date of entry of the national stage in an international application, before the mailing of a first Office action on the merits, or before the mailing of a first Office action after the filing of a request for continued examination. Accordingly, it is believed that no fees are due in connection with the filing of this Information Disclosure Statement.

Respectfully submitted,



Dated: 29 May 2020  
The Caldwell Firm, LLC  
PO Box 59655  
Dallas, Texas 75229-0655  
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Patrick E. Caldwell, Esq.  
Reg. No. 44,580

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

ROBERT PAUL MORRIS

Application No.: 16/368,811

File Date: 03-28-2019

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

Confirmation No.: 8099

Examiner: MEKY, MOUSTAFA M

Art Unit: 2457

Docket No.: PMOR0120I

Date: 5/29/2020

**AMENDMENT WITH SECOND  
REQUEST FOR CONTINUED EXAMINATION (RCE)**

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

Examiner:

In response to the Notice of Allowance mailed 2020-04-22, please consider the following  
believed to place the claims in condition for allowance.

**In the Claims:**

The claims have been amended as follows:

1.-21. (Cancelled)

22. (New) 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 a time period parameter field in the TCP-variant packet;

identifying metadata in the time period parameter field for a time period, during which no packet is received from the first node in a data stream of the TCP-variant connection and processed by the second node to keep the TCP-variant connection active; and

calculating, by the second node and based on the metadata, a timeout attribute associated with the TCP-variant connection for being used to at least partially close the TCP-variant connection.

23. (New) The apparatus of claim 22 wherein the apparatus is configured such that, during the time period, no packet is sent from the second node in another data stream of the TCP-variant connection for routing towards the first node.
24. (New) The apparatus of claim 22 wherein the apparatus is configured such that, during the time period, no packet is received from the first node in the data stream of the TCP-variant connection regardless whether being processed by the second node.
25. (New) The apparatus of claim 22 wherein the apparatus is configured such that the timeout attribute associated with the TCP-variant connection is for being used to completely close the TCP-variant connection.
26. (New) The apparatus of claim 22 wherein the apparatus is configured such that, during the time period, no packet is received from the first node in the data stream of the TCP-variant connection that is unacknowledged.
27. (New) The apparatus of claim 22 wherein the apparatus is configured such that the timeout attribute associated with the TCP-variant connection is capable of being used by the second node to unilaterally cause the TCP-variant connection to at least partially close.
28. (New) The apparatus of claim 22 wherein the apparatus is configured such that, during the time period, no packet is received, nor expected to be received, from the first node in the data stream of the TCP-variant connection.
29. (New) The apparatus of claim 22 wherein the apparatus is configured to establish a TCP connection in addition to establishing the TCP-variant connection.

30. (New) The apparatus of claim 22 wherein the apparatus is configured such that, during the time period, no packet is sent from the second node in any data stream of the TCP-variant connection.
31. (New) The apparatus of claim 22 wherein the apparatus is configured such that a user timeout attribute, that is separate from the timeout attribute, is utilized for controlling communication of one or more acknowledgment packets.
32. (New) The apparatus of claim 31 wherein the apparatus is configured such that the user timeout attribute is determined based on the time period.
33. (New) The apparatus of claim 22 wherein the apparatus is configured such that the time period starts in response to the second node sending a packet in another data stream of the TCP-variant connection for routing towards the first node.
34. (New) The apparatus of claim 33 wherein the apparatus is configured such that, during the time period, a keep-alive packet is sent in the another data stream of the TCP-variant connection for routing towards the first node, without restarting the time period.
35. (New) The apparatus of claim 22, wherein the apparatus is configured such that the time period starts based on the second node sending a keep-alive packet in another data stream of the TCP-variant connection for routing towards the first node.
36. (New) The apparatus of claim 22 wherein the apparatus is configured such that the TCP-variant connection is at least partially closed without any keep-alive packet caused to be communicated before the TCP-variant connection is at least partially closed.

37. (New) The apparatus of claim 22 wherein the apparatus is configured such that a keep-alive attribute, that is separate from the timeout attribute, is utilized for controlling communication of one or more keep-alive packets before an expiration of the time period.
38. (New) The apparatus of claim 37 wherein the apparatus is configured such that the keep-alive attribute is calculated based on the time period.
39. (New) The apparatus of claim 22 wherein the apparatus is configured such that the timeout attribute is used to at least partially close the TCP-variant connection, by the TCP-variant connection being at least partially closed based on the timeout attribute.
40. (New) The apparatus of claim 39 wherein the apparatus is configured such that the TCP-variant connection is at least partially closed, by the second node, without sending any packet for delivery to the first node during the time period.
41. (New) The apparatus of claim 22 wherein the apparatus is configured such that the second node sends a keep-alive packet during the time period.
42. (New) The apparatus of claim 22 wherein the apparatus of is configure such that the TCP-variant packet is not a synchronize (SYN) packet.
43. (New) The apparatus of claim 22 wherein the apparatus is configured such that the TCP-variant connection is not a TCP connection.
44. (New) The apparatus of claim 22 wherein the apparatus is configured such that the TCP-variant connection is not a standard TCP connection.

45. (New) The apparatus of claim 22 wherein the apparatus is configured such that at least one of: the timeout attribute is configured by a network application, or the metadata is configured by a network browser application.

46. (New) The apparatus of claim 22 wherein the apparatus is configured such that at least the calculating 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.

47. (New) The apparatus of claim 22 wherein the apparatus is configured such that the calculation of the timeout attribute results in a reduction of a number of keep-alive packets that are communicated which, in turn, results in a reduction in processing resources required for keep-alive packet processing and a reduction in network congestion, while further resulting in improved coordination between the first and second nodes in maintaining the TCP-variant connection.

48. (New) The apparatus of claim 22 wherein the apparatus is configured such that at least two of a keep-alive option, a user timeout, a retransmission timeout, and an acknowledgment timeout are based on the metadata.

49. (New) The apparatus of claim 22 wherein the apparatus is configured such that at least three of a keep-alive option, a user timeout, a retransmission timeout, and an acknowledgment timeout are based on the metadata.

50. (New) The apparatus of claim 22 wherein the apparatus is configured such that at least a keep-alive option is based on the metadata.

51. (New) The apparatus of claim 22 wherein the apparatus is configured such that at least a user timeout is based on the metadata.

52. (New) The apparatus of claim 22 wherein the apparatus is configured such that at least a retransmission timeout is based on the metadata.

53. (New) The apparatus of claim 22 wherein the apparatus is configured such that at least an acknowledgment timeout is based on the metadata.

54. (New) The apparatus of claim 22 wherein the apparatus is configured such that at least another timeout associated with the TCP-variant connection is based on the metadata.

55. (New) The apparatus of claim 22 wherein the apparatus is configured such that the time period is not a user timeout period.

56. (New) The apparatus of claim 22 wherein the apparatus is configured such that the timeout attribute is used to at least partially closed the TCP-variant connection, by the TCP-variant connection being at least partially closed based on the timeout attribute and at least one of a formula, an expression, a function, or a policy.

57. (New) The apparatus of claim 22 wherein the apparatus is configured such that:

the timeout attribute associated with the TCP-variant connection is capable of being used by the second node to unilaterally at least partially close the TCP-variant connection, without sending any packet for delivery to the first node during nor after the time period, by the TCP-variant connection being at least partially closed based on the timeout attribute and at least one of a formula, an expression, a function, or a policy;

the TCP-variant packet is not a synchronize (SYN) packet; and

the TCP-variant connection is not a standard TCP connection.

58. (New) The apparatus of claim 57 wherein the apparatus is configured such that:

the time period starts in response to the second node sending a keep-alive packet in another data stream of the TCP-variant connection for routing towards the first node; and

during the time period, another keep-alive packet is sent from the second node in the another data stream of the TCP-variant connection for routing towards the first node, without restarting the time period.

59. (New) The apparatus of claim 58 wherein the apparatus is configured such that:

a user timeout attribute, that is separate from the timeout attribute, is utilized for monitoring communication of one or more acknowledgment packets, where the user timeout attribute is determined based on the time period.

60. (New) The apparatus of claim 58 wherein the apparatus is configured such that:

a keep-alive attribute, that is separate from the timeout attribute, is utilized for controlling communication of one or more keep-alive packets before an expiration of the time period, where the keep-alive attribute is determined based on the time period.

61. (New) The apparatus of claim 22 wherein at least one of:

the apparatus is at least one component of the second node;

the second node is at least one component of the apparatus;

the TCP-variant includes a variant to the TCP;

the TCP-variant includes another protocol, other than TCP, that includes a variation of

TCP;

the TCP-variant includes another protocol, without TCP in its name, that includes a variation of TCP;

the TCP-variant includes one or more features of TCP, and one or more features not of TCP;

the TCP-variant packet includes one or more features of a TCP packet, and one or more features not of a TCP packet;

the TCP-variant connection includes one or more features of a TCP connection, and one or more features not of a TCP connection;

the TCP-variant packet is sent directly from the second node to the first node;

the TCP-variant packet is sent from the second node to the first node via at least one other node;

the time period parameter field is part of a data portion in the TCP-variant packet;

the time period parameter field is part of a header of the TCP-variant packet;

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

the timeout attribute is capable being different from the metadata;

the time period is specified in a number of seconds;

the time period is specified in a number of minutes;

the timeout attribute specifies a duration;

the TCP-variant packet is informational;

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

during the time period, a TCP-variant packet including data is sent to the first node where the TCP-variant packet including data is received from another node;

during the time period, a TCP-variant packet including data is sent to the first node where the TCP-variant packet including data is sent by the first node in the TCP connection;

during the time period, at least one packet is received from the first node in the data stream of the TCP-variant connection but is not processed by the second node;

the timeout attribute is used to at least partially closed the TCP-variant connection, by the TCP-variant connection being at least partially closed based on the timeout attribute;

- the time period parameter field includes an idle time period parameter field;
- the time period includes an idle time period;
- the time period parameter field does not include an idle time period parameter field;
- the time period does not include an idle time period;
- the second node includes a device, including a network interface, that is a component of the apparatus;
- the second node includes a network interface that is a component of the apparatus; or
- the apparatus includes a web server.

62. (New) The apparatus of claim 22 wherein a majority of:

- the apparatus is at least one component of the second node;
- the second node is at least one component of the apparatus;
- the TCP-variant includes a variant to the TCP;
- the TCP-variant includes another protocol, other than TCP, that includes a variation of TCP;
- the TCP-variant includes another protocol, without TCP in its name, that includes a variation of TCP;
- the TCP-variant includes one or more features of TCP, and one or more features not of TCP;
- the TCP-variant packet includes one or more features of a TCP packet, and one or more features not of a TCP packet;
- the TCP-variant connection includes one or more features of a TCP connection, and one or more features not of a TCP connection;
- the TCP-variant packet is sent directly from the second node to the first node;
- the TCP-variant packet is sent from the second node to the first node via at least one other node;
- the time period parameter field is part of a data portion in the TCP-variant packet;
- the time period parameter field is part of a header of the TCP-variant packet;
- the timeout attribute is capable being the same as the metadata;

- the timeout attribute is capable being different from the metadata;
- the time period is specified in a number of seconds;
- the time period is specified in a number of minutes;
- the timeout attribute specifies a duration;
- the TCP-variant packet is informational;
- the calculation of the timeout attribute includes at least one of modifying, or creating the timeout attribute;
- during the time period, a TCP-variant packet including data is sent to the first node where the TCP-variant packet including data is received from another node;
- during the time period, a TCP-variant packet including data is sent to the first node where the TCP-variant packet including data is sent by the first node in the TCP connection;
- during the time period, at least one packet is received from the first node in the data stream of the TCP-variant connection but is not processed by the second node;
- the timeout attribute is used to at least partially closed the TCP-variant connection, by the TCP-variant connection being at least partially closed based on the timeout attribute;
- the time period parameter field includes an idle time period parameter field;
- the time period includes an idle time period;
- the time period parameter field does not include an idle time period parameter field;
- the time period does not include an idle time period;
- the second node includes a device, including a network interface, that is a component of the apparatus;
- the second node includes a network interface that is a component of the apparatus; and
- the apparatus includes a web server.

63. (New) A method comprising:

using at least a portion of a first node:

receiving information for use in: detecting a time period that results in a non-TCP connection being subject to at least partial deactivation, and sending a non-TCP packet that is based on the information and that includes a time period parameter field identifying metadata; and

sending, to a second node and for setting up 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.

64. (New) The method of claim 63 wherein:

the determination of the timeout attribute results from a negotiation with the second node;

during the time period, no packet is received from the second node in a data stream of the non-TCP connection to keep the non-TCP connection active; and

the non-TCP packet is not a synchronize (SYN) packet.

65. (New) The method of claim 64 wherein:

the timeout attribute associated with the non-TCP connection is capable of being used to unilaterally cause the non-TCP connection to at least partially close, based on the timeout attribute and at least one of a formula, an expression, a function, or a policy;

the time period starts in response to the second node sending a keep-alive packet in the non-TCP connection for routing towards the first node; and

during the time period, another keep-alive packet is sent in the non-TCP connection for routing towards the first node, without restarting the time period.

66. (New) The method of claim 65 wherein the information is received from a network application.

67. (New) The method of claim 64 wherein:

a keep-alive attribute, that is separate from the timeout attribute, is utilized for controlling communication of one or more keep-alive packets before an expiration of the time period, where the keep-alive attribute is determined based on the time period.

68. (New) The method of claim 64 wherein, during the time period, no packet is sent from the first node in the non-TCP connection.

69. (New) The method of claim 63 wherein, during the time period, no packet is received from the second node in the non-TCP connection that is unacknowledged.

70. (New) The method of claim 64 wherein the timeout attribute associated with the non-TCP connection is for being used to completely close the non-TCP connection.

71. (New) The method of claim 64 wherein the timeout attribute associated with the non-TCP connection is used by the first node to unilaterally at least partially close the non-TCP connection.

72. (New) The method of claim 64 wherein the timeout attribute associated with the non-TCP connection is capable of being used by the first node to unilaterally at least partially close the non-TCP connection.

73. (New) The method of claim 64 and further comprising: setting up a TCP connection in addition to the non-TCP connection, where the timeout attribute is determined by being calculated.

74. (New) The method of claim 64 wherein a TCP connection is set up in advance of setting up the non-TCP connection.
75. (New) The method of claim 64 wherein a TCP connection is set up that is used to set up the non-TCP connection.
76. (New) The method of claim 64 wherein the time period restarts in response to the first node sending a keep-alive packet in the non-TCP connection for routing towards the second node.
77. (New) The method of claim 76 wherein, during the time period, another keep-alive packet is sent in the non-TCP connection for routing towards the second node.
78. (New) The method of claim 76 wherein, during the time period, another keep-alive packet is sent in the non-TCP connection for routing towards the second node, without restarting the time period.
79. (New) The method of claim 64 wherein a user timeout attribute, that is separate from the timeout attribute, is utilized for monitoring communication of one or more acknowledgment packets, where the user timeout attribute is determined based on the time period.
80. (New) The method of claim 64 wherein the non-TCP connection is at least partially closed, by the first node, without requiring transmission of any packet from the first node for delivery to the second node to directly cause the at least partial deactivation.

81. (New) The method of claim 64 wherein a keep-alive attribute, that is separate from the timeout attribute, is utilized for controlling communication of one or more keep-alive packets before an expiration of the time period.
82. (New) The method of claim 81 wherein the keep-alive attribute is determined based on the time period.
83. (New) The method of claim 64 wherein the first node sends a keep-alive packet during the time period without restarting the time period.
84. (New) The method of claim 64 wherein the timeout attribute associated with the non-TCP connection is capable of being used by the first node to unilaterally at least partially close the non-TCP connection, without sending to the second node any packet.
85. (New) The method of claim 64 wherein the timeout attribute associated with the non-TCP connection is capable of being used by the first node to unilaterally at least partially close the non-TCP connection, without sending to the second node any packet that is related to the detection of the time period.
86. (New) The method of claim 64 wherein the timeout attribute associated with the non-TCP connection is capable of being used by the first node to unilaterally at least partially close the non-TCP connection, without sending to the second node any packet for unilaterally at least partially closing the non-TCP connection.
87. (New) The method of claim 64 wherein the non-TCP connection is not a TCP extension.
88. (New) The method of claim 64 wherein the non-TCP connection is a protocol whose name does not include TCP.

89. (New) The method of claim 64 wherein at least one of a keep-alive option, a user timeout, a retransmission timeout, an acknowledgment timeout, or another timeout associated with the non-TCP connection, is based on the metadata.
90. (New) The method of claim 64 wherein at least two of a keep-alive option, a user timeout, a retransmission timeout, and an acknowledgment timeout is based on the metadata.
91. (New) The method of claim 64 wherein at least three of a keep-alive option, a user timeout, a retransmission timeout, and an acknowledgment timeout is based on the metadata.
92. (New) The method of claim 64 wherein the time period is not a user timeout period.
93. (New) The method of claim 64 wherein the first node includes a device including a network interface.
94. (New) The method of claim 64 wherein the first node includes a network interface.
95. (New) The method of claim 64 wherein the at least portion of the first node includes a wire connected to a network interface.
96. (New) The method of claim 64 wherein the at least portion of the first node includes a portion of a network serving as a network interface.
97. (New) The method of claim 64 wherein the determination of the timeout attribute results in a reduction of a number of keep-alive packets that are a communicated.
98. (New) The method of claim 64 wherein the determination of the timeout attribute results in a reduction of a number of keep-alive packets that are communicated which, in turn, results in a reduction in processing resources required for keep-alive packet processing.

99. (New) The method of claim 64 wherein the determination of the timeout attribute results in a reduction of a number of keep-alive packets that are communicated which, in turn, results in a reduction in network congestion.

100. (New) The method of claim 64 wherein the determination of the timeout attribute results in a reduction of a number of keep-alive packets that are communicated while further resulting in improved coordination between the first and second nodes in maintaining the non-TCP connection.

101. (New) The method of claim 64 and further comprising:

executing a network application that is configured to perform a 3-way TCP handshake for establishing a TCP connection that is different than the non-TCP connection, and wherein the network application is configured to establish the non-TCP connection instead of the TCP connection in order to permit negotiation, between the first and second nodes, of the timeout attribute, where the timeout attribute is not available in response to establishing the TCP connection, but is available in response to establishing the non-TCP connection so that the non-TCP connection is capable of being at least partially closed as a result of being inactive based on the timeout attribute.

102. (New) The method of claim 65 wherein at least one of:

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 time period parameter field is part of a data portion in the non-TCP packet;

the time period parameter field is part of a header of the non-TCP packet;

the 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 time period is specified in a number of seconds;
- the time period is specified in a number of minutes;
- the timeout attribute specifies a duration;
- the non-TCP includes one or more features of TCP, and one or more features not of TCP;
- the non-TCP packet includes one or more features of a TCP packet, and one or more features not of a TCP packet;
- the non-TCP connection includes one or more features of a TCP connection, and one or more features not of a TCP connection;
- the non-TCP packet is informational;
- the determination of the timeout attribute includes at least one of modifying, creating, or deleting the timeout attribute;
- during the 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;
- during the 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;
- during the time period, at least one packet is received from the first node in the non-TCP connection but is not processed by the second node;
- the timeout attribute is used to at least partially closed the non-TCP connection, by the non-TCP connection being at least partially closed based on the timeout attribute;
- the time period parameter field includes an idle time period parameter field;
- the time period includes an idle time period;
- the time period parameter field does not include an idle time period parameter field;
- the time period does not include an idle time period;
- the first node includes a web server;
- the information is for use in detecting the time period, by specifying a duration of the time period;
- the information is for use in detecting the time period, by specifying a duration of the time period for the detection thereof;

the time period results in the non-TCP connection being subject to the at least partial deactivation, by an expiration of the time period causing the non-TCP connection to be subject to the at least partial deactivation;

the time period results in the non-TCP connection being subject to the at least partial deactivation, by a detection thereof causing the non-TCP connection to be subject to the at least partial deactivation;

the non-TCP packet is generated based on the information, by being used to determine the metadata thereof;

the non-TCP packet is generated based on the information, by being used as the metadata thereof;

the non-TCP packet is generated based on the information, by being used to determine a content thereof other than the metadata;

the negotiation includes a one-way negotiation;

the negotiation includes a two-way negotiation;

the timeout attribute associated with the non-TCP connection is capable of being used by the first node to unilaterally at least partially close the non-TCP connection based on the at least one of the formula, the expression, the function, or the policy; by the at least one of the formula, the expression, the function, or the policy being utilized in connection with the timeout attribute;

the timeout attribute associated with the non-TCP connection is capable of being used by the first node to unilaterally at least partially close the non-TCP connection directly based on the at least one of the formula, the expression, the function, or the policy;

the timeout attribute associated with the non-TCP connection is capable of being used by the first node to unilaterally at least partially close the non-TCP connection indirectly based on the at least one of the formula, the expression, the function, or the policy; or

the timeout attribute associated with the non-TCP connection is capable of being used by the first node to unilaterally at least partially close the non-TCP connection based on the at least one of the formula, the expression, the function, or the policy; by the at least one of the

formula, the expression, the function, or the policy being utilized in connection with data other than the timeout attribute.

103. (New) The method of claim 65 wherein a majority of:
- 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 time period parameter field is part of a data portion in the non-TCP packet;
  - the time period parameter field is part of a header of the non-TCP packet;
  - the 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 time period is specified in a number of seconds;
  - the time period is specified in a number of minutes;
  - the timeout attribute specifies a duration;
  - the non-TCP packet includes one or more features of a TCP packet, and one or more features not of a TCP packet;
  - the non-TCP connection includes one or more features of a TCP connection, and one or more features not of a TCP connection;
  - the non-TCP packet is informational;
  - the determination of the timeout attribute includes at least one of modifying, creating, or deleting the timeout attribute;
  - during the 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;
  - during the 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;
  - during the time period, at least one packet is received from the first node in the non-TCP connection but is not processed by the second node;

the timeout attribute is used to at least partially closed the non-TCP connection, by the non-TCP connection being at least partially closed based on the timeout attribute.

the time period parameter field includes an idle time period parameter field;

the time period includes an idle time period;

the time period parameter field does not include an idle time period parameter field;

the time period does not include an idle time period;

the first node includes a web server;

the information is for use in detecting the time period, by specifying a duration of the time period;

the information is for use in detecting the time period, by specifying a duration of the time period for the detection thereof;

the time period results in the non-TCP connection being subject to the at least partial deactivation, by an expiration of the time period causing the non-TCP connection to be subject to the at least partial deactivation;

the time period results in the non-TCP connection being subject to the at least partial deactivation, by a detection thereof causing the non-TCP connection to be subject to the at least partial deactivation;

the non-TCP packet is generated based on the information, by being used to determine the metadata thereof;

the non-TCP packet is generated based on the information, by being used as the metadata thereof;

the non-TCP packet is generated based on the information, by being used to determine a content thereof other than the metadata;

the negotiation includes a one-way negotiation;

the negotiation includes a two-way negotiation;

the timeout attribute associated with the non-TCP connection is capable of being used by the first node to unilaterally at least partially close the non-TCP connection based on the at least one of the formula, the expression, the function, or the policy; by the at least one of the

formula, the expression, the function, or the policy being utilized in connection with the timeout attribute;

the timeout attribute associated with the non-TCP connection is capable of being used by the first node to unilaterally at least partially close the non-TCP connection directly based on the at least one of the formula, the expression, the function, or the policy;

the timeout attribute associated with the non-TCP connection is capable of being used by the first node to unilaterally at least partially close the non-TCP connection indirectly based on the at least one of the formula, the expression, the function, or the policy; and

the timeout attribute associated with the non-TCP connection is capable of being used by the first node to unilaterally at least partially close the non-TCP connection based on the at least one of the formula, the expression, the function, or the policy; by the at least one of the formula, the expression, the function, or the policy being utilized in connection with data other than the timeout attribute.

104. (New) An apparatus comprising:

a non-transitory memory storing instruction means; and

processors means in communication with the non-transitory memory, wherein the processor means executes the instructions means 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 a time period parameter field in the TCP-variant packet;

identifying metadata in the time period parameter field for a time period, during which no packet is received from the first node in a data stream of the TCP-variant

connection and processed by the second node to keep the TCP-variant connection active; and

calculating, by the second node and based on the metadata, a timeout attribute associated with the TCP-variant connection for being used to at least partially close the TCP-variant connection.

**Remarks:**

The claims have been clarified.

It is believed that all of the pending issues have been addressed. The claims are thus in condition for allowance. 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, except Claim 104, are intended to be construed under 35 U.S.C. 112, paragraph 6.

Respectfully submitted,



Dated: 29 May 2020  
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Patrick E. Caldwell, Esq.  
Reg. No. 44,580



# UNITED STATES PATENT AND TRADEMARK OFFICE

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## NOTICE OF ALLOWANCE AND FEE(S) DUE

92045 7590 04/22/2020  
The Caldwell Firm, LLC  
PO Box 59655  
Dept. SVIPGP  
Dallas, TX 75229

EXAMINER

MEKY, MOUSTAFA M

ART UNIT PAPER NUMBER

2457

DATE MAILED: 04/22/2020

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 16/368,811      | 03/28/2019  | Robert Paul Morris   | PMOR0120I           | 8099             |

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            | 07/22/2020 |

**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](http://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  
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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 04/22/2020  
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. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 16/368,811      | 03/28/2019  | Robert Paul Morris   | PMOR0120I           | 8099             |

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

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|----------------|---------------|---------------|---------------------|----------------------|------------------|------------|
| nonprovisional | SMALL         | \$500         | \$0.00              | \$0.00               | \$500            | 07/22/2020 |

| 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)

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

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

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

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

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

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

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

Authorized Signature \_\_\_\_\_

Date \_\_\_\_\_

Typed or printed name \_\_\_\_\_

Registration No. \_\_\_\_\_



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| APPLICATION NO.                                                            | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|----------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 16/368,811                                                                 | 03/28/2019  | Robert Paul Morris   | PMOR0120I           | 8099             |
| 92045                                                                      | 7590        | 04/22/2020           | EXAMINER            |                  |
| The Caldwell Firm, LLC<br>PO Box 59655<br>Dept. SVIPGP<br>Dallas, TX 75229 |             |                      | MEKY, MOUSTAFA M    |                  |
|                                                                            |             |                      | ART UNIT            | PAPER NUMBER     |
|                                                                            |             |                      | 2457                |                  |
| DATE MAILED: 04/22/2020                                                    |             |                      |                     |                  |

## 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.

|                               |                                      |                                            |                                |
|-------------------------------|--------------------------------------|--------------------------------------------|--------------------------------|
| <b>Notice of Allowability</b> | <b>Application No.</b><br>16/368,811 | <b>Applicant(s)</b><br>Morris, Robert Paul |                                |
|                               | <b>Examiner</b><br>Moustafa M Meky   | <b>Art Unit</b><br>2457                    | <b>AIA (FITF) Status</b><br>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 filed 04/03/2020.  
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on \_\_\_\_\_.

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

3. ☒ The allowed claim(s) is/are 1-20 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see [http://www.uspto.gov/patents/init\\_events/pph/index.jsp](http://www.uspto.gov/patents/init_events/pph/index.jsp) or send an inquiry to [PPHfeedback@uspto.gov](mailto: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. <input type="checkbox"/> Notice of References Cited (PTO-892)<br>2. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date 04/03/2020.<br>3. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material _____.<br>4. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. | 5. <input type="checkbox"/> Examiner's Amendment/Comment<br>6. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance<br>7. <input type="checkbox"/> Other _____. |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                      |  |
|------------------------------------------------------|--|
| /MOUSTAFA M MEKY/<br>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.

**Reasons for Allowance**

1. 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:

- detecting an idle time period parameter field in a TCP-variant packet received by a second node from a first node, identifying metadata in the idle time period parameter field for an idle time period and modifying, by the second node and based on the metadata, a timeout attribute associated with TCP-variant connection (claim 1);
- identifying metadata, that specifies a number of seconds or minutes in an idle time period parameter field in non-TCP packet received by a second node from a first node, detecting an idle time period and as a result, non-TCP connection being subject to deactivation; and determine, based on the metadata, a timeout attribute associated with the non-TCP connection; and performing a three-way TCP handshake for establishing a TCP connection that is different than the non-TCP connection (claim 15); and
- Detecting an idle time period from received idle information, generating, 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 sending, 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 determining a timeout attribute associated with the non-TCP connection (claim 18).

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."

2. 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 <https://ppair-my.uspto.gov/pair/PrivatePair>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MOUSTAFA M MEKY/  
Primary Examiner, Art Unit 2457  
04/13/2020

|                                                                                                                         |                                              |                                                                       |
|-------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------|
| <b><i>Issue Classification</i></b><br> | <b>Application/Control No.</b><br>16/368,811 | <b>Applicant(s)/Patent Under Reexamination</b><br>Morris, Robert Paul |
|                                                                                                                         | <b>Examiner</b><br>Moustafa M Meky           | <b>Art Unit</b><br>2457                                               |

|               |  |    |  |             |                |            |
|---------------|--|----|--|-------------|----------------|------------|
| <b>CPC</b>    |  |    |  |             |                |            |
| <b>Symbol</b> |  |    |  | <b>Type</b> | <b>Version</b> |            |
| H04L          |  | 69 |  | 16          | F              | 2013-01-01 |

|                             |  |  |             |            |                |                |
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| <b>CPC Combination Sets</b> |  |  |             |            |                |                |
| <b>Symbol</b>               |  |  | <b>Type</b> | <b>Set</b> | <b>Ranking</b> | <b>Version</b> |
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|                                                      |               |                              |                   |
|------------------------------------------------------|---------------|------------------------------|-------------------|
| NONE                                                 |               | <b>Total Claims Allowed:</b> |                   |
| (Assistant Examiner)                                 | (Date)        | 20                           |                   |
| /MOUSTAFA M MEKY/<br>Primary Examiner, Art Unit 2457 | 13 April 2020 | O.G. Print Claim(s)          | O.G. Print Figure |
| (Primary Examiner)                                   | (Date)        | 1                            | 3                 |

|                                                                                                                  |                                              |                                                                       |
|------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------|
| <b>Issue Classification</b><br> | <b>Application/Control No.</b><br>16/368,811 | <b>Applicant(s)/Patent Under Reexamination</b><br>Morris, Robert Paul |
|                                                                                                                  | <b>Examiner</b><br>Moustafa M Meky           | <b>Art Unit</b><br>2457                                               |

|                                     |   |    |      |
|-------------------------------------|---|----|------|
| <b>INTERNATIONAL CLASSIFICATION</b> |   |    |      |
| <b>CLAIMED</b>                      |   |    |      |
| G06F                                | / | 15 | / 16 |
| <b>NON-CLAIMED</b>                  |   |    |      |
| /                                   |   | /  |      |

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| <b>US ORIGINAL CLASSIFICATION</b> |                 |
| <b>CLASS</b>                      | <b>SUBCLASS</b> |
|                                   |                 |

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|----------------------------|------------------------------------------|--|--|--|--|--|
| <b>CROSS REFERENCES(S)</b> |                                          |  |  |  |  |  |
| <b>CLASS</b>               | <b>SUBCLASS (ONE SUBCLASS PER BLOCK)</b> |  |  |  |  |  |
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| NONE                                                 |               | <b>Total Claims Allowed:</b> |                   |
| (Assistant Examiner)                                 | (Date)        | 20                           |                   |
| /MOUSTAFA M MEKY/<br>Primary Examiner, Art Unit 2457 | 13 April 2020 | O.G. Print Claim(s)          | O.G. Print Figure |
| (Primary Examiner)                                   | (Date)        | 1                            | 3                 |

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|                                                                                                                  | <b>Examiner</b><br>Moustafa M Meky           | <b>Art Unit</b><br>2457                                               |

|                                                                                                                                                                                                         |          |       |          |       |          |       |          |       |          |       |          |       |          |       |          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------|----------|-------|----------|-------|----------|-------|----------|-------|----------|-------|----------|-------|----------|
| <input checked="" type="checkbox"/> Claims renumbered in the same order as presented by applicant <input type="checkbox"/> CPA <input checked="" type="checkbox"/> T.D. <input type="checkbox"/> R.1.47 |          |       |          |       |          |       |          |       |          |       |          |       |          |       |          |
| <b>CLAIMS</b>                                                                                                                                                                                           |          |       |          |       |          |       |          |       |          |       |          |       |          |       |          |
| Final                                                                                                                                                                                                   | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original |
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|                                                                                                                                                                                                         | 5        |       | 14       |       |          |       |          |       |          |       |          |       |          |       |          |
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|                                                                                                                                                                                                         | 7        |       | 16       |       |          |       |          |       |          |       |          |       |          |       |          |
|                                                                                                                                                                                                         | 8        |       | 17       |       |          |       |          |       |          |       |          |       |          |       |          |
|                                                                                                                                                                                                         | 9        |       | 18       |       |          |       |          |       |          |       |          |       |          |       |          |

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|------------------------------------------------------|---------------|------------------------------|-------------------|
| NONE                                                 |               | <b>Total Claims Allowed:</b> |                   |
| (Assistant Examiner)                                 | (Date)        | 20                           |                   |
| /MOUSTAFA M MEKY/<br>Primary Examiner, Art Unit 2457 | 13 April 2020 | O.G. Print Claim(s)          | O.G. Print Figure |
| (Primary Examiner)                                   | (Date)        | 1                            | 3                 |

|                                                                                                                 |                                              |                                                                       |
|-----------------------------------------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------|
| <b><i>Search Notes</i></b><br> | <b>Application/Control No.</b><br>16/368,811 | <b>Applicant(s)/Patent Under Reexamination</b><br>Morris, Robert Paul |
|                                                                                                                 | <b>Examiner</b><br>Moustafa M Meky           | <b>Art Unit</b><br>2457                                               |

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|------------------------|-------------|-----------------|
| <b>CPC - Searched*</b> |             |                 |
| <b>Symbol</b>          | <b>Date</b> | <b>Examiner</b> |
| H04L 69/16             | 08/07/2019  | MMM             |

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| <b>CPC Combination Sets - Searched*</b> |             |                 |
| <b>Symbol</b>                           | <b>Date</b> | <b>Examiner</b> |
|                                         |             |                 |

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|--------------------------------------|-----------------|-------------|-----------------|
| <b>US Classification - Searched*</b> |                 |             |                 |
| <b>Class</b>                         | <b>Subclass</b> | <b>Date</b> | <b>Examiner</b> |
|                                      |                 |             |                 |

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

|                     |             |                 |
|---------------------|-------------|-----------------|
| <b>Search Notes</b> |             |                 |
| <b>Search Notes</b> | <b>Date</b> | <b>Examiner</b> |
| WEST (ALL FILES)    | 08/07/2019  | MMM             |
| WEST (ALL FILES)    | 01/21/2020  | MMM             |

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| <b>Interference Search</b> |                              |             |                 |
| <b>US Class/CPC Symbol</b> | <b>US Subclass/CPC Group</b> | <b>Date</b> | <b>Examiner</b> |
| H04L                       | 69/16                        | 04/13/2020  | MMM             |

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|-----------------------------------------------------------------------------------------------------|------------------------|--------------------|
| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>( Not for submission under 37 CFR 1.99) | Application Number     | 16368811           |
|                                                                                                     | Filing Date            | 2019-03-28         |
|                                                                                                     | First Named Inventor   | Robert Paul Morris |
|                                                                                                     | Art Unit               | 2457               |
|                                                                                                     | Examiner Name          | Moustafa M MEKY    |
|                                                                                                     | Attorney Docket Number | PMOR0120I          |

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| Examiner Initial* | Cite No | Patent Number | Kind Code <sup>1</sup> | Issue Date | Name of Patentee or Applicant of cited Document | Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear |
|                   | 1       | 5371852       | A                      | 1994-12-06 | Attanasio et al.                                | Entire Document                                                          |
|                   | 2       | 6412009       | B1                     | 2002-06-25 | Erickson et al.                                 | Entire Document                                                          |
|                   | 3       | 6674713       | B1                     | 2004-01-06 | Berg et al.                                     | Entire Document                                                          |
|                   | 4       | 6704786       | B1                     | 2004-03-09 | Gupta et al.                                    | Entire Document                                                          |
|                   | 5       | 6880013       | B2                     | 2005-04-12 | Kashyap                                         | Entire Document                                                          |
|                   | 6       | 7035214       | B1                     | 2006-04-25 | Seddigh et al.                                  | Entire Document                                                          |
|                   | 7       | 7050940       | B2                     | 2006-05-23 | Basso et al.                                    | Entire Document                                                          |
|                   | 8       | 7152111       | B2                     | 2006-12-19 | Allred et al.                                   | Entire Document                                                          |

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

|                        |                    |
|------------------------|--------------------|
| Application Number     | 16368811           |
| Filing Date            | 2019-03-28         |
| First Named Inventor   | Robert Paul Morris |
| Art Unit               | 2457               |
| Examiner Name          | Moustafa M MEKY    |
| Attorney Docket Number | PMOR0120I          |

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|----|---------|----|------------|---------------|-----------------|
| 9  | 7428595 | B2 | 2008-09-23 | Deshpande     | Entire Document |
| 10 | 7848351 | B2 | 2010-12-07 | Kim et al.    | Entire Document |
| 11 | 7962623 | B2 | 2011-06-14 | Undery et al. | Entire Document |

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|--------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                    | 1       | Jon Postel, "Transmission Control Protocol," DARPA Internet Program Protocol Specification, RFC 793, dated September 1981                                                                                                                                       |                |

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

|                        |                    |
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| First Named Inventor   | Robert Paul Morris |
| Art Unit               | 2457               |
| Examiner Name          | Moustafa M MEKY    |
| Attorney Docket Number | PMOR0120I          |

|   |                                                                                                                    |
|---|--------------------------------------------------------------------------------------------------------------------|
| 2 | T Bova et al. "Reliable UDP Protocol" (Internet-Draft for the Internet Engineering Task Force, dated Feb 25, 1999) |
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**EXAMINER SIGNATURE**

|                    |                   |                 |            |
|--------------------|-------------------|-----------------|------------|
| Examiner Signature | /MOUSTAFA M MEKY/ | Date Considered | 04/13/2020 |
|--------------------|-------------------|-----------------|------------|

\*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.

<sup>1</sup> See Kind Codes of USPTO Patent Documents at [www.USPTO.GOV](http://www.USPTO.GOV) or MPEP 901.04. <sup>2</sup> Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>3</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>4</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>5</sup> 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     | 16368811           |
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| First Named Inventor   | Robert Paul Morris |
| Art Unit               | 2457               |
| Examiner Name          | Moustafa M MEKY    |
| Attorney Docket Number | PMOR0120I          |

**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)   | 2020-04-03 |
| 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.

|                                                                                                     |                        |                    |
|-----------------------------------------------------------------------------------------------------|------------------------|--------------------|
| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>( Not for submission under 37 CFR 1.99) | Application Number     | 16368811           |
|                                                                                                     | Filing Date            | 2019-03-28         |
|                                                                                                     | First Named Inventor   | Robert Paul Morris |
|                                                                                                     | Art Unit               | 2457               |
|                                                                                                     | Examiner Name          | Moustafa M MEKY    |
|                                                                                                     | Attorney Docket Number | PMOR0120I          |

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( Not for submission under 37 CFR 1.99)

|                        |                    |
|------------------------|--------------------|
| Application Number     | 16368811           |
| Filing Date            | 2019-03-28         |
| First Named Inventor   | Robert Paul Morris |
| Art Unit               | 2457               |
| Examiner Name          | Moustafa M MEKY    |
| Attorney Docket Number | PMOR0120I          |

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| 9  | 8700695 | B2 | 2014-04-15 | Sundarajan et al.  | Entire Document |
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|                    | 1       | "A Border Gateway Protocol 4 (BGP-4)" RFC 1771, published in March 1995, available at <a href="https://tools.ietf.org/html/rfc1771">https://tools.ietf.org/html/rfc1771</a> .                                                                                                                                                                                                                 |                |
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|                    | 3       | BT Mobile BlackBerry Enterprise Server 4.0, Information Sheet, published in 2005, available at <a href="https://www.bt.com/static/i/media/pdf/blackberry_ITadvice_june05.pdf">https://www.bt.com/static/i/media/pdf/blackberry_ITadvice_june05.pdf</a> .                                                                                                                                      |                |
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|                    | 5       | Cisco 7200 Series Router Architecture, published in February 2008, available at <a href="https://www.cisco.com/c/en/us/support/docs/routers/7200-series-routers/5810-arch-7200-5810.pdf">https://www.cisco.com/c/en/us/support/docs/routers/7200-series-routers/5810-arch-7200-5810.pdf</a> .                                                                                                 |                |
|                    | 6       | Cisco 7200 VXR Series Routers Data Sheet, published in 2008.                                                                                                                                                                                                                                                                                                                                  |                |
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|    |                                                                                                                                                                                                                                                                                                                                                                    |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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| 9  | Cisco IOS BGP Configuration Guide, Release 12.4T, Chapter: Configuring BGP Neighbor Session Options ("Cisco IOS BGP Options"), published in 2007, available at <a href="https://www.cisco.com/c/en/us/td/docs/ios/12_2sr/12_2srb/feature/guide/tbgp_c/brbpeer.html">https://www.cisco.com/c/en/us/td/docs/ios/12_2sr/12_2srb/feature/guide/tbgp_c/brbpeer.html</a> |
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| 12 | HP iPAQ H4000 Series User Guide, published in August 2003                                                                                                                                                                                                                                                                                                          |
| 13 | Hypertext Transfer Protocol – HTTP/1.1 RFC 2068, published in January 1997, available at <a href="https://tools.ietf.org/html/rfc2068">https://tools.ietf.org/html/rfc2068</a> .                                                                                                                                                                                   |
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| 15 | Jim Roskind, QUIC Quick UDP Internet Connections, Multiplexed Stream Transport Over UDP, 11/7/2013 (first draft earlier), available at <a href="https://www.ietf.org/proceedings/88/slides/slides-88-tsvarea-10.pdf">https://www.ietf.org/proceedings/88/slides/slides-88-tsvarea-10.pdf</a>                                                                       |
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| 18 | NetEx/IP™ for UNIX Systems Release 6.0 Software Reference Manual, published in 2004, available at <a href="http://www.netexsw.com/nesi/support/ReleasedDocs/Hxx0IP/man-hunxip-03.pdf">http://www.netexsw.com/nesi/support/ReleasedDocs/Hxx0IP/man-hunxip-03.pdf</a> .                                                                                              |

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|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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| 20 | Palm Treo 650 Manual, published in 2004, available at <a href="https://www.wireless.att.com/download/phone_manual/treo_650.pdf">https://www.wireless.att.com/download/phone_manual/treo_650.pdf</a> .                                                                                                                                          |
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| 25 | Sun Blade 1000 and Sun Blade 2000 Getting Started Guide, Part No. 816-3216-10, published in January 2002, available at <a href="https://docs.oracle.com/cd/E19127-01/blade1000.ws/816-3216-10/816-3216-10.pdf">https://docs.oracle.com/cd/E19127-01/blade1000.ws/816-3216-10/816-3216-10.pdf</a> .                                             |
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| Examiner Name          | Moustafa M MEKY    |
| Attorney Docket Number | PMOR0120I          |

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**EXAMINER SIGNATURE**

|                    |                   |                 |            |
|--------------------|-------------------|-----------------|------------|
| Examiner Signature | /MOUSTAFA M MEKY/ | Date Considered | 04/13/2020 |
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| Examiner Name          | Moustafa M MEKY    |
| Attorney Docket Number | PMOR0120I          |

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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)   | 2020-04-03 |
| 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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## REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL (Submitted Only via EFS-Web)

|                      |                    |             |            |                               |                 |          |      |
|----------------------|--------------------|-------------|------------|-------------------------------|-----------------|----------|------|
| Application Number   | 16/368,811         | Filing Date | 2019-03-28 | Docket Number (if applicable) | PMOR0120I       | Art Unit | 2457 |
| First Named Inventor | Robert Paul Morris |             |            | Examiner Name                 | Moustafa M MEKY |          |      |

**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  
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### 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

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|--------------------------------------------------|-------------------|---------------------|------------|
| Signature                                        | Patrick Caldwell/ | Date (YYYY-MM-DD)   | 2020-04-03 |
| Name                                             | Patrick Caldwell  | Registration Number | 44580      |

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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      |                 |                                                                                                              |               |                             |
|----------------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------|---------------|-----------------------------|
| <b>Application Number:</b>                         |                 | 16368811                                                                                                     |               |                             |
| <b>Filing Date:</b>                                |                 | 28-Mar-2019                                                                                                  |               |                             |
| <b>Title of Invention:</b>                         |                 | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION |               |                             |
| <b>First Named Inventor/Applicant Name:</b>        |                 | Robert Paul Morris                                                                                           |               |                             |
| <b>Filer:</b>                                      |                 | Patrick Edgar Caldwell                                                                                       |               |                             |
| <b>Attorney Docket Number:</b>                     |                 | PMOR0120I                                                                                                    |               |                             |
| Filed as Small Entity                              |                 |                                                                                                              |               |                             |
| <b>Filing Fees for Utility under 35 USC 111(a)</b> |                 |                                                                                                              |               |                             |
| <b>Description</b>                                 | <b>Fee Code</b> | <b>Quantity</b>                                                                                              | <b>Amount</b> | <b>Sub-Total in USD(\$)</b> |
| <b>Basic Filing:</b>                               |                 |                                                                                                              |               |                             |
| <b>Pages:</b>                                      |                 |                                                                                                              |               |                             |
| <b>Claims:</b>                                     |                 |                                                                                                              |               |                             |
| CLAIMS IN EXCESS OF 20                             | 2202            | 1                                                                                                            | 50            | 50                          |
| <b>Miscellaneous-Filing:</b>                       |                 |                                                                                                              |               |                             |
| <b>Petition:</b>                                   |                 |                                                                                                              |               |                             |
| <b>Patent-Appeals-and-Interference:</b>            |                 |                                                                                                              |               |                             |
| <b>Post-Allowance-and-Post-Issuance:</b>           |                 |                                                                                                              |               |                             |

| Description               | Fee Code | Quantity | Amount | Sub-Total in USD(\$) |
|---------------------------|----------|----------|--------|----------------------|
| <b>Extension-of-Time:</b> |          |          |        |                      |
| <b>Miscellaneous:</b>     |          |          |        |                      |
| RCE- 1ST REQUEST          | 2801     | 1        | 650    | 650                  |
| <b>Total in USD (\$)</b>  |          |          |        | <b>700</b>           |

## Electronic Acknowledgement Receipt

|                                             |                                                                                                              |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| <b>EFS ID:</b>                              | 39064155                                                                                                     |
| <b>Application Number:</b>                  | 16368811                                                                                                     |
| <b>International Application Number:</b>    |                                                                                                              |
| <b>Confirmation Number:</b>                 | 8099                                                                                                         |
| <b>Title of Invention:</b>                  | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION |
| <b>First Named Inventor/Applicant Name:</b> | Robert Paul Morris                                                                                           |
| <b>Customer Number:</b>                     | 92045                                                                                                        |
| <b>Filer:</b>                               | Patrick Edgar Caldwell                                                                                       |
| <b>Filer Authorized By:</b>                 |                                                                                                              |
| <b>Attorney Docket Number:</b>              | PMOR0120I                                                                                                    |
| <b>Receipt Date:</b>                        | 03-APR-2020                                                                                                  |
| <b>Filing Date:</b>                         | 28-MAR-2019                                                                                                  |
| <b>Time Stamp:</b>                          | 23:43:36                                                                                                     |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                                                                                  |

### Payment information:

|                                                                                                                |                  |
|----------------------------------------------------------------------------------------------------------------|------------------|
| Submitted with Payment                                                                                         | yes              |
| Payment Type                                                                                                   | CARD             |
| Payment was successfully received in RAM                                                                       | \$ 700           |
| RAM confirmation Number                                                                                        | E202043N43571353 |
| Deposit Account                                                                                                |                  |
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| File Listing:   |                                                    |                                          |                                          |                  |                  |
| Document Number | Document Description                               | File Name                                | File Size(Bytes)/ Message Digest         | Multi Part /.zip | Pages (if appl.) |
| 1               | Transmittal Letter                                 | PMOR0120I_IDS_20200403_Coversheet_vF.pdf | 55719                                    | no               | 2                |
|                 |                                                    |                                          | eabfd3e950f721d5271c6cac51bd951f5208d004 |                  |                  |
| Warnings:       |                                                    |                                          |                                          |                  |                  |
| Information:    |                                                    |                                          |                                          |                  |                  |
| 2               | Information Disclosure Statement (IDS) Form (SB08) | PMOR0120I_IDS_20200403-1_vF.pdf          | 1053481                                  | no               | 5                |
|                 |                                                    |                                          | 31763a2b736f58fc05b45b67d0da551f6270417c |                  |                  |
| Warnings:       |                                                    |                                          |                                          |                  |                  |
| Information:    |                                                    |                                          |                                          |                  |                  |
| 3               | Request for Continued Examination (RCE)            | PMOR0120I_USPTO_RCE_20200403_vF.pdf      | 1364036                                  | no               | 3                |
|                 |                                                    |                                          | 6e546e5e84158d73b4f31b5b6e400a518cd5c38b |                  |                  |
| Warnings:       |                                                    |                                          |                                          |                  |                  |
| Information:    |                                                    |                                          |                                          |                  |                  |
| 4               | Amendment Submitted/Entered with Filing of CPA/RCE | PMOR0120I_ROA_vF_03-Apr-2020.pdf         | 81322                                    | no               | 10               |
|                 |                                                    |                                          | 004fedfad9b70a63bc5ab9c74ce8046b3f0e849a |                  |                  |
| Warnings:       |                                                    |                                          |                                          |                  |                  |
| Information:    |                                                    |                                          |                                          |                  |                  |
| 5               | Non Patent Literature                              | draft-ietf-sigtran-reliable-udp-00.pdf   | 112150                                   | no               | 17               |
|                 |                                                    |                                          | d3373bd63f46cbfdaf351e03e591e2e4f2856949 |                  |                  |
| Warnings:       |                                                    |                                          |                                          |                  |                  |
| Information:    |                                                    |                                          |                                          |                  |                  |
| 6               | Non Patent Literature                              | rfc793.pdf                               | 432181                                   | no               | 81               |
|                 |                                                    |                                          | beab243f84257dad62b4ca934cf3a58d8ade9d51 |                  |                  |
| Warnings:       |                                                    |                                          |                                          |                  |                  |
| Information:    |                                                    |                                          |                                          |                  |                  |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                      |              |                                                                      |    |   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------|----------------------------------------------------------------------|----|---|
| 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Fee Worksheet (SB06) | fee-info.pdf | <div>32213</div> <div>b33c1450e8053aa55fd8901f24287c1233fc05f2</div> | no | 2 |
| <b>Warnings:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      |              |                                                                      |    |   |
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                      |              |                                                                      |    |   |
| <b>Total Files Size (in bytes):</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                      |              | 3131102                                                              |    |   |
| <p><b>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.</b></p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b><br/> 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.</p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b><br/> 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.</p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b><br/> 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.</p> |                      |              |                                                                      |    |   |

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Robert Paul Morris

Application No.: 16/368,811

File Date: 2019-03-28

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

Confirmation No.: 8099

Examiner: Moustafa M MEKY

Art Unit: 2457

Docket No.: PMOR0120I

Date: Apr 03, 2020

**INFORMATION DISCLOSURE STATEMENT  
UNDER 37 CFR §§ 1.56 AND 1.97(b)**

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 §§ 1.56 and 1.97. 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.: 16/368,811  
Date: Apr 03, 2020  
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). Additionally, one or more patents (e.g. 9923995) are the subject of pending Inter Partes Review (IPR2020-00742).

This Information Disclosure Statement is believed to be filed within three months of the filing date of a national application other than a continued prosecution application, within three months of the date of entry of the national stage in an international application, before the mailing of a first Office action on the merits, or before the mailing of a first Office action after the filing of a request for continued examination. Accordingly, it is believed that no fees are due in connection with the filing of this Information Disclosure Statement.

Respectfully submitted,



Dated: 03 Apr 2020  
The Caldwell Firm, LLC  
PO Box 59655  
Dallas, Texas 75229-0655  
Telephone: (214) 734-2313  
[pcaldwell@thecaldwellfirm.com](mailto:pcaldwell@thecaldwellfirm.com)

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

|                                                                                                     |                        |                    |            |
|-----------------------------------------------------------------------------------------------------|------------------------|--------------------|------------|
| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>( Not for submission under 37 CFR 1.99) | Application Number     |                    | 16368811   |
|                                                                                                     | Filing Date            |                    | 2019-03-28 |
|                                                                                                     | First Named Inventor   | Robert Paul Morris |            |
|                                                                                                     | Art Unit               |                    | 2457       |
|                                                                                                     | Examiner Name          | Moustafa M MEKY    |            |
|                                                                                                     | Attorney Docket Number |                    | PMOR0120I  |

| U.S.PATENTS       |         |               |                        |            |                                                 | <a href="#">Remove</a>                                                   |
|-------------------|---------|---------------|------------------------|------------|-------------------------------------------------|--------------------------------------------------------------------------|
| Examiner Initial* | Cite No | Patent Number | Kind Code <sup>1</sup> | Issue Date | Name of Patentee or Applicant of cited Document | Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear |
|                   | 1       | 5371852       | A                      | 1994-12-06 | Attanasio et al.                                | Entire Document                                                          |
|                   | 2       | 6412009       | B1                     | 2002-06-25 | Erickson et al.                                 | Entire Document                                                          |
|                   | 3       | 6674713       | B1                     | 2004-01-06 | Berg et al.                                     | Entire Document                                                          |
|                   | 4       | 6704786       | B1                     | 2004-03-09 | Gupta et al.                                    | Entire Document                                                          |
|                   | 5       | 6880013       | B2                     | 2005-04-12 | Kashyap                                         | Entire Document                                                          |
|                   | 6       | 7035214       | B1                     | 2006-04-25 | Seddigh et al.                                  | Entire Document                                                          |
|                   | 7       | 7050940       | B2                     | 2006-05-23 | Basso et al.                                    | Entire Document                                                          |
|                   | 8       | 7152111       | B2                     | 2006-12-19 | Allred et al.                                   | Entire Document                                                          |

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

|                        |                    |
|------------------------|--------------------|
| Application Number     | 16368811           |
| Filing Date            | 2019-03-28         |
| First Named Inventor   | Robert Paul Morris |
| Art Unit               | 2457               |
| Examiner Name          | Moustafa M MEKY    |
| Attorney Docket Number | PMOR0120I          |

|    |         |    |            |               |                 |
|----|---------|----|------------|---------------|-----------------|
| 9  | 7428595 | B2 | 2008-09-23 | Deshpande     | Entire Document |
| 10 | 7848351 | B2 | 2010-12-07 | Kim et al.    | Entire Document |
| 11 | 7962623 | B2 | 2011-06-14 | Undery et al. | Entire Document |

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|--------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                    | 1       | Jon Postel, "Transmission Control Protocol," DARPA Internet Program Protocol Specification, RFC 793, dated September 1981                                                                                                                                       |                |

**INFORMATION DISCLOSURE  
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| Examiner Name          | Moustafa M MEKY    |
| Attorney Docket Number | PMOR0120I          |

2

T Bova et al. "Reliable UDP Protocol" (Internet-Draft for the Internet Engineering Task Force, dated Feb 25, 1999)

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**EXAMINER SIGNATURE**

Examiner Signature

Date Considered

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

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

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

|                        |                    |
|------------------------|--------------------|
| Application Number     | 16368811           |
| Filing Date            | 2019-03-28         |
| First Named Inventor   | Robert Paul Morris |
| Art Unit               | 2457               |
| Examiner Name          | Moustafa M MEKY    |
| Attorney Docket Number | PMOR0120I          |

**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)   | 2020-04-03 |
| 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:

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3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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|                                                                                                     |                        |                    |            |
|-----------------------------------------------------------------------------------------------------|------------------------|--------------------|------------|
| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>( Not for submission under 37 CFR 1.99) | Application Number     |                    | 16368811   |
|                                                                                                     | Filing Date            |                    | 2019-03-28 |
|                                                                                                     | First Named Inventor   | Robert Paul Morris |            |
|                                                                                                     | Art Unit               |                    | 2457       |
|                                                                                                     | Examiner Name          | Moustafa M MEKY    |            |
|                                                                                                     | Attorney Docket Number |                    | PMOR0120I  |

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|                   | 1       | 5495480       | A                      | 1996-02-27 | Yoshida                                         | Entire Document                                                          |
|                   | 2       | 6273622       | B1                     | 2001-08-14 | Ben-David                                       | Entire Document                                                          |
|                   | 3       | 7002917       | B1                     | 2006-02-21 | Saleh                                           | Entire Document                                                          |
|                   | 4       | 7606191       | B1                     | 2009-10-20 | Breau et al.                                    | Entire Document                                                          |
|                   | 5       | 8031617       | B2                     | 2011-10-04 | Mogul et al.                                    | Entire Document                                                          |
|                   | 6       | 8228830       | B2                     | 2012-07-24 | Babin et al.                                    | Entire Document                                                          |
|                   | 7       | 8375134       | B2                     | 2013-02-12 | Herzog et al.                                   | Entire Document                                                          |
|                   | 8       | 8483095       | B2                     | 2013-07-09 | Hegde et al.                                    | Entire Document                                                          |

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

|                        |                    |
|------------------------|--------------------|
| Application Number     | 16368811           |
| Filing Date            | 2019-03-28         |
| First Named Inventor   | Robert Paul Morris |
| Art Unit               | 2457               |
| Examiner Name          | Moustafa M MEKY    |
| Attorney Docket Number | PMOR0120I          |

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| <b>Application Number:</b>                  | 16368811                                                                                                     |
| <b>International Application Number:</b>    |                                                                                                              |
| <b>Confirmation Number:</b>                 | 8099                                                                                                         |
| <b>Title of Invention:</b>                  | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION |
| <b>First Named Inventor/Applicant Name:</b> | Robert Paul Morris                                                                                           |
| <b>Customer Number:</b>                     | 92045                                                                                                        |
| <b>Filer:</b>                               | Patrick Edgar Caldwell                                                                                       |
| <b>Filer Authorized By:</b>                 |                                                                                                              |
| <b>Attorney Docket Number:</b>              | PMOR0120I                                                                                                    |
| <b>Receipt Date:</b>                        | 03-APR-2020                                                                                                  |
| <b>Filing Date:</b>                         | 28-MAR-2019                                                                                                  |
| <b>Time Stamp:</b>                          | 23:52:38                                                                                                     |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                                                                                  |

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| 16           | Non Patent Literature | 15_RFC3519.pdf  | 305505                                   | no | 35  |
|              |                       |                 | 0f4d627de281549a9deb5af8c8c85ce43b69d8f7 |    |     |
| Warnings:    |                       |                 |                                          |    |     |
| Information: |                       |                 |                                          |    |     |
| 17           | Non Patent Literature | 16_NetEx_C.pdf  | 899247                                   | no | 89  |
|              |                       |                 | 0c80801e9c9ee564bb3fdd805afcb5a530897750 |    |     |
| Warnings:    |                       |                 |                                          |    |     |
| Information: |                       |                 |                                          |    |     |
| 18           | Non Patent Literature | 17_NESi.pdf     | 8565429                                  | no | 149 |
|              |                       |                 | ff86b1c609549a7dfcd8eecf2ecf56107284553d |    |     |
| Warnings:    |                       |                 |                                          |    |     |
| Information: |                       |                 |                                          |    |     |
| 19           | Non Patent Literature | 18_thesis.pdf   | 2484430                                  | no | 107 |
|              |                       |                 | e8bdcde01392cf321eca96f56aa4ef407d602cc8 |    |     |
| Warnings:    |                       |                 |                                          |    |     |
| Information: |                       |                 |                                          |    |     |
| 20           | Non Patent Literature | 19_PalmTreo.pdf | 10767088                                 | no | 208 |
|              |                       |                 | a9f0b406230c585c0163b0f1ceac87c68acb448f |    |     |
| Warnings:    |                       |                 |                                          |    |     |
| Information: |                       |                 |                                          |    |     |
| 21           | Non Patent Literature | 20_Protocol.pdf | 2169270                                  | no | 14  |
|              |                       |                 | 3a95f5e070d32aef3eb69b6e9fd395e51798701  |    |     |
| Warnings:    |                       |                 |                                          |    |     |
| Information: |                       |                 |                                          |    |     |
| 22           | Non Patent Literature | 21_RFC3267.pdf  | 396031                                   | no | 50  |
|              |                       |                 | 33ee2d2ef4365afe64e4c6e95eda3693019bd9f1 |    |     |
| Warnings:    |                       |                 |                                          |    |     |
| Information: |                       |                 |                                          |    |     |

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|--------------|-----------------------|-----------------|------------------------------------------|----|------|
| 23           | Non Patent Literature | 22_RFC1122.pdf  | 716435                                   | no | 117  |
|              |                       |                 | 2808738ab42ace6f8ab59c7fd87ede05b73a7069 |    |      |
| Warnings:    |                       |                 |                                          |    |      |
| Information: |                       |                 |                                          |    |      |
| 24           | Non Patent Literature | 23_RFC2960.pdf  | 835087                                   | no | 135  |
|              |                       |                 | 4f7e54e0a5570a7a3d23ba1d9d01e9bde9533e8b |    |      |
| Warnings:    |                       |                 |                                          |    |      |
| Information: |                       |                 |                                          |    |      |
| 25           | Non Patent Literature | 24_SunBlade.pdf | 2180072                                  | no | 64   |
|              |                       |                 | 1cad43f4ae86be89080a399b5be8a6a90f3d1696 |    |      |
| Warnings:    |                       |                 |                                          |    |      |
| Information: |                       |                 |                                          |    |      |
| 26           | Non Patent Literature | 25_Eggert.pdf   | 170779                                   | no | 20   |
|              |                       |                 | 6649856d812780bfc1b7cfc157189d8f133fe3ca |    |      |
| Warnings:    |                       |                 |                                          |    |      |
| Information: |                       |                 |                                          |    |      |
| 27           | Non Patent Literature | 26_RFC5482.pdf  | 173874                                   | no | 15   |
|              |                       |                 | c312891c9e71d7fa053649f434f747dc7ee2b2d1 |    |      |
| Warnings:    |                       |                 |                                          |    |      |
| Information: |                       |                 |                                          |    |      |
| 28           | Non Patent Literature | 27_Richar.pdf   | 17309012                                 | no | 1059 |
|              |                       |                 | b6607f804fa2849985ea280788620c8c611ed2a8 |    |      |
| Warnings:    |                       |                 |                                          |    |      |
| Information: |                       |                 |                                          |    |      |
| 29           | Non Patent Literature | 28_RFC793.pdf   | 663591                                   | no | 176  |
|              |                       |                 | cb8ee69fec4cd5d6f320b8dd922fe00019328b0f |    |      |
| Warnings:    |                       |                 |                                          |    |      |
| Information: |                       |                 |                                          |    |      |

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| 30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Non Patent Literature | 29_Cisco7200.pdf | 474463                                  | no | 6 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                  | 3cd60378e9494c9cd9bc2ae28c6a2025d0fca07 |    |   |
| <b>Warnings:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                       |                  |                                         |    |   |
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                       |                  |                                         |    |   |
| <b>Total Files Size (in bytes):</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                       |                  | 62162948                                |    |   |
| <p><b>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.</b></p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b><br/> 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.</p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b><br/> 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.</p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b><br/> 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.</p> |                       |                  |                                         |    |   |

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

ROBERT PAUL MORRIS

Application No.: 16/368,811

File Date: 03-28-2019

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

Confirmation No.: 8099

Examiner: MEKY, MOUSTAFA M

Art Unit: 2457

Docket No.: PMOR0120I

Date: 4/3/2020

**AMENDMENT  
WITH  
REQUEST FOR CONTINUED EXAMINATION (RCE)**

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

Examiner:

In response to the Notice of Allowance mailed 2020-01-28, please consider the following  
believed to place the claims in condition for allowance.

**In the Claims:**

The claims have been amended as follows:

1. (Previously Presented) 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. (Previously Presented) The apparatus of claim 1 wherein the apparatus is configured such that the timeout attribute is an attribute of a keep-alive.
3. (Previously Presented) 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. (Previously Presented) 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. (Previously Presented) 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. (Previously Presented) 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. (Previously Presented) 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. (Previously Presented) 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. (Previously Presented) The apparatus of claim 8 wherein the apparatus is configured such that the algorithm is determined based on at least one particular attribute.

10. (Previously Presented) 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. (Previously Presented) 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. (Previously Presented) 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. (Previously Presented) 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. (Previously Presented) 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. (Previously Presented) 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. (Previously Presented) 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. (Previously Presented) 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. (Previously Presented) 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. (Previously Presented) 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. (Previously Presented) 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.

21. (New) The apparatus of claim 19 wherein a majority 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; and
- 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.

**Remarks:**

The claims have been clarified.

It is believed that all of the pending issues have been addressed. The claims are thus in condition for allowance. 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.

Respectfully submitted,



Dated: 03 Apr 2020  
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|                                                                                                                                 |                                                                                          |                                                                                                                                                                                                                               |       |                                            |                                    |                           |  |                                       |           |                     |    |
|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------------------------------------|------------------------------------|---------------------------|--|---------------------------------------|-----------|---------------------|----|
| <b>PATENT APPLICATION FEE DETERMINATION RECORD</b><br>Substitute for Form PTO-875                                               |                                                                                          |                                                                                                                                                                                                                               |       | Application or Docket Number<br>16/368,811 |                                    | Filing Date<br>03/28/2019 |  | <input type="checkbox"/> To be Mailed |           |                     |    |
| ENTITY: <input type="checkbox"/> LARGE <input checked="" type="checkbox"/> SMALL <input type="checkbox"/> MICRO                 |                                                                                          |                                                                                                                                                                                                                               |       |                                            |                                    |                           |  |                                       |           |                     |    |
| <b>APPLICATION AS FILED - PART I</b>                                                                                            |                                                                                          |                                                                                                                                                                                                                               |       |                                            |                                    |                           |  |                                       |           |                     |    |
|                                                                                                                                 |                                                                                          | (Column 1)                                                                                                                                                                                                                    |       |                                            | (Column 2)                         |                           |  |                                       |           |                     |    |
| FOR                                                                                                                             |                                                                                          | NUMBER FILED                                                                                                                                                                                                                  |       |                                            | NUMBER EXTRA                       |                           |  | RATE (\$)                             | FEE (\$)  |                     |    |
| <input type="checkbox"/> BASIC FEE<br>(37 CFR 1.16(a), (b), or (c))                                                             |                                                                                          | N/A                                                                                                                                                                                                                           |       |                                            | N/A                                |                           |  | N/A                                   |           |                     |    |
| <input type="checkbox"/> SEARCH FEE<br>(37 CFR 1.16(k), (l), or (m))                                                            |                                                                                          | N/A                                                                                                                                                                                                                           |       |                                            | N/A                                |                           |  | N/A                                   |           |                     |    |
| <input type="checkbox"/> EXAMINATION FEE<br>(37 CFR 1.16(o), (p), or (q))                                                       |                                                                                          | N/A                                                                                                                                                                                                                           |       |                                            | N/A                                |                           |  | N/A                                   |           |                     |    |
| TOTAL CLAIMS<br>(37 CFR 1.16(i))                                                                                                |                                                                                          | minus 20 =                                                                                                                                                                                                                    |       |                                            | *                                  |                           |  | x \$50 =                              |           |                     |    |
| INDEPENDENT CLAIMS<br>(37 CFR 1.16(h))                                                                                          |                                                                                          | minus 3 =                                                                                                                                                                                                                     |       |                                            | *                                  |                           |  | x \$230 =                             |           |                     |    |
| <input type="checkbox"/> 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). |       |                                            |                                    |                           |  |                                       |           |                     |    |
| <input type="checkbox"/> 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                     |  |                                       |           |                     |    |
| <b>APPLICATION AS AMENDED - PART II</b>                                                                                         |                                                                                          |                                                                                                                                                                                                                               |       |                                            |                                    |                           |  |                                       |           |                     |    |
|                                                                                                                                 |                                                                                          | (Column 1)                                                                                                                                                                                                                    |       |                                            | (Column 2)                         |                           |  | (Column 3)                            |           |                     |    |
| <b>AMENDMENT</b>                                                                                                                | 04/03/2020                                                                               | CLAIMS REMAINING AFTER AMENDMENT                                                                                                                                                                                              |       |                                            | HIGHEST NUMBER PREVIOUSLY PAID FOR |                           |  | PRESENT EXTRA                         | RATE (\$) | ADDITIONAL FEE (\$) |    |
|                                                                                                                                 | Total<br>(37 CFR 1.16(i))                                                                | * 21                                                                                                                                                                                                                          | Minus |                                            |                                    | ** 20                     |  |                                       | = 1       | x \$50 =            | 50 |
|                                                                                                                                 | Independent<br>(37 CFR 1.16(h))                                                          | * 3                                                                                                                                                                                                                           | Minus |                                            |                                    | *** 3                     |  |                                       | = 0       | x \$230 =           | 0  |
|                                                                                                                                 | <input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))                           |                                                                                                                                                                                                                               |       |                                            |                                    |                           |  |                                       |           |                     |    |
|                                                                                                                                 | <input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) |                                                                                                                                                                                                                               |       |                                            |                                    |                           |  |                                       |           |                     |    |
|                                                                                                                                 |                                                                                          |                                                                                                                                                                                                                               |       |                                            |                                    |                           |  | TOTAL ADD'L FEE                       | 50        |                     |    |
| <b>AMENDMENT</b>                                                                                                                |                                                                                          | CLAIMS REMAINING AFTER AMENDMENT                                                                                                                                                                                              |       |                                            | HIGHEST NUMBER PREVIOUSLY PAID FOR |                           |  | PRESENT EXTRA                         | RATE (\$) | ADDITIONAL FEE (\$) |    |
|                                                                                                                                 | Total<br>(37 CFR 1.16(i))                                                                | *                                                                                                                                                                                                                             | Minus |                                            |                                    | **                        |  |                                       | =         | x \$0 =             |    |
|                                                                                                                                 | Independent<br>(37 CFR 1.16(h))                                                          | *                                                                                                                                                                                                                             | Minus |                                            |                                    | ***                       |  |                                       | =         | x \$0 =             |    |
|                                                                                                                                 | <input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))                           |                                                                                                                                                                                                                               |       |                                            |                                    |                           |  |                                       |           |                     |    |
|                                                                                                                                 | <input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) |                                                                                                                                                                                                                               |       |                                            |                                    |                           |  |                                       |           |                     |    |
|                                                                                                                                 |                                                                                          |                                                                                                                                                                                                                               |       |                                            |                                    |                           |  | TOTAL ADD'L FEE                       |           |                     |    |
| * If the entry in column 1 is less than the entry in column 2, write "0" in column 3.                                           |                                                                                          |                                                                                                                                                                                                                               |       |                                            |                                    |                           |  | LIE                                   |           |                     |    |
| ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".                                       |                                                                                          |                                                                                                                                                                                                                               |       |                                            |                                    |                           |  | /NICOLE L NICHOLSON/                  |           |                     |    |
| *** 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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The Caldwell Firm, LLC  
PO Box 59655  
Dept. SVIPGP  
Dallas, TX 75229



**Courtesy Reminder for  
Application Serial No: 16/368,811**

Attorney Docket No: PMOR01201

Customer Number: 92045

Date of Electronic Notification: 01/28/2020

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:

pcaldwell@thecaldwellfirm.com

eoofficeaction@appcoll.com

To view your correspondence online or update your email addresses, please visit us anytime at **<https://ppair-my.uspto.gov/pair/PrivatePair>**.

If you have any questions, please email the Electronic Business Center (EBC) at [EBC@uspto.gov](mailto:EBC@uspto.gov) or call 1-866-217-9197.



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
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## NOTICE OF ALLOWANCE AND FEE(S) DUE

92045 7590 01/28/2020  
The Caldwell Firm, LLC  
PO Box 59655  
Dept. SVIPGP  
Dallas, TX 75229

EXAMINER

MEKY, MOUSTAFA M

ART UNIT

PAPER NUMBER

2457

DATE MAILED: 01/28/2020

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 16/368,811      | 03/28/2019  | Robert Paul Morris   | PMOR0120I           | 8099             |

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            | 04/28/2020 |

**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](http://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 01/28/2020  
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. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 16/368,811      | 03/28/2019  | Robert Paul Morris   | PMOR0120I           | 8099             |

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            | 04/28/2020 |

| 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 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_

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

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

(A) NAME OF ASSIGNEE

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

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

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

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

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

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

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

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

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

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

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

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

Authorized Signature \_\_\_\_\_

Date \_\_\_\_\_

Typed or printed name \_\_\_\_\_

Registration No. \_\_\_\_\_



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| APPLICATION NO.                                                            | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|----------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 16/368,811                                                                 | 03/28/2019  | Robert Paul Morris   | PMOR0120I           | 8099             |
| 92045                                                                      | 7590        | 01/28/2020           | EXAMINER            |                  |
| The Caldwell Firm, LLC<br>PO Box 59655<br>Dept. SVIPGP<br>Dallas, TX 75229 |             |                      | MEKY, MOUSTAFA M    |                  |
|                                                                            |             |                      | ART UNIT            | PAPER NUMBER     |
|                                                                            |             |                      | 2457                |                  |
| DATE MAILED: 01/28/2020                                                    |             |                      |                     |                  |

## 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.

|                               |                               |                                     |                         |
|-------------------------------|-------------------------------|-------------------------------------|-------------------------|
| <b>Notice of Allowability</b> | Application No.<br>16/368,811 | Applicant(s)<br>Morris, Robert Paul |                         |
|                               | Examiner<br>Moustafa M Meky   | Art Unit<br>2457                    | AIA (FITF) Status<br>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 terminal disclaimer filed 01/07/2020.  
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on \_\_\_\_\_.

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

3. ☒ The allowed claim(s) is/are 1-20 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see [http://www.uspto.gov/patents/init\\_events/pph/index.jsp](http://www.uspto.gov/patents/init_events/pph/index.jsp) or send an inquiry to [PPHfeedback@uspto.gov](mailto: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. <input type="checkbox"/> Notice of References Cited (PTO-892)                                                  | 5. <input type="checkbox"/> Examiner's Amendment/Comment                             |
| 2. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____.          | 6. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| 3. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material _____. | 7. <input type="checkbox"/> Other _____.                                             |
| 4. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____.                            |                                                                                      |

|                                                      |  |
|------------------------------------------------------|--|
| /MOUSTAFA M MEKY/<br>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.

***Reasons for Allowance***

1. 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:

- detecting an idle time period parameter field in a TCP-variant packet received by a second node from a first node, identifying metadata in the idle time period parameter field for an idle time period and modifying, by the second node and based on the metadata, a timeout attribute associated with TCP-variant connection (claim 1);
- identifying metadata, that specifies a number of seconds or minutes in an idle time period parameter field in non-TCP packet received by a second node from a first node, detecting an idle time period and as a result, non-TCP connection being subject to deactivation; and determine, based on the metadata, a timeout attribute associated with the non-TCP connection; and performing a three-way TCP handshake for establishing a TCP connection that is different than the non-TCP connection (claim 15); and
- Detecting an idle time period from received idle information, generating, 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 sending, 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 determining a timeout attribute associated with the non-TCP connection (claim 18).

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."

2. 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 <https://ppair-my.uspto.gov/pair/PrivatePair>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MOUSTAFA M MEKY/  
Primary Examiner, Art Unit 2457      01/21/2020

|                                                                                                                  |                                              |                                                                       |
|------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------|
| <b>Issue Classification</b><br> | <b>Application/Control No.</b><br>16/368,811 | <b>Applicant(s)/Patent Under Reexamination</b><br>Morris, Robert Paul |
|                                                                                                                  | <b>Examiner</b><br>Moustafa M Meky           | <b>Art Unit</b><br>2457                                               |

|               |  |    |  |             |                |            |
|---------------|--|----|--|-------------|----------------|------------|
| <b>CPC</b>    |  |    |  |             |                |            |
| <b>Symbol</b> |  |    |  | <b>Type</b> | <b>Version</b> |            |
| H04L          |  | 69 |  | 16          | F              | 2013-01-01 |

|                             |  |             |            |                |                |
|-----------------------------|--|-------------|------------|----------------|----------------|
| <b>CPC Combination Sets</b> |  |             |            |                |                |
| <b>Symbol</b>               |  | <b>Type</b> | <b>Set</b> | <b>Ranking</b> | <b>Version</b> |
|                             |  |             |            |                |                |

|                                                      |                 |                              |                   |
|------------------------------------------------------|-----------------|------------------------------|-------------------|
| NONE                                                 |                 | <b>Total Claims Allowed:</b> |                   |
| (Assistant Examiner)                                 | (Date)          | 20                           |                   |
| /MOUSTAFA M MEKY/<br>Primary Examiner, Art Unit 2457 | 21 January 2020 | O.G. Print Claim(s)          | O.G. Print Figure |
| (Primary Examiner)                                   | (Date)          | 1                            | 3                 |

|                                                                                                                  |                                              |                                                                       |
|------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------|
| <b>Issue Classification</b><br> | <b>Application/Control No.</b><br>16/368,811 | <b>Applicant(s)/Patent Under Reexamination</b><br>Morris, Robert Paul |
|                                                                                                                  | <b>Examiner</b><br>Moustafa M Meky           | <b>Art Unit</b><br>2457                                               |

|                                     |   |    |   |
|-------------------------------------|---|----|---|
| <b>INTERNATIONAL CLASSIFICATION</b> |   |    |   |
| <b>CLAIMED</b>                      |   |    |   |
| G06F                                | / | 15 | / |
|                                     | / |    | / |
| <b>NON-CLAIMED</b>                  |   |    |   |
|                                     | / |    | / |

|                                   |                 |
|-----------------------------------|-----------------|
| <b>US ORIGINAL CLASSIFICATION</b> |                 |
| <b>CLASS</b>                      | <b>SUBCLASS</b> |
|                                   |                 |

|                            |                                          |  |  |  |  |  |
|----------------------------|------------------------------------------|--|--|--|--|--|
| <b>CROSS REFERENCES(S)</b> |                                          |  |  |  |  |  |
| <b>CLASS</b>               | <b>SUBCLASS (ONE SUBCLASS PER BLOCK)</b> |  |  |  |  |  |
|                            |                                          |  |  |  |  |  |

|                                                      |                 |                              |                   |
|------------------------------------------------------|-----------------|------------------------------|-------------------|
| NONE                                                 |                 | <b>Total Claims Allowed:</b> |                   |
| (Assistant Examiner)                                 | (Date)          | 20                           |                   |
| /MOUSTAFA M MEKY/<br>Primary Examiner, Art Unit 2457 | 21 January 2020 | O.G. Print Claim(s)          | O.G. Print Figure |
| (Primary Examiner)                                   | (Date)          | 1                            | 3                 |

|                                                                                                                  |                                              |                                                                       |
|------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------|
| <b>Issue Classification</b><br> | <b>Application/Control No.</b><br>16/368,811 | <b>Applicant(s)/Patent Under Reexamination</b><br>Morris, Robert Paul |
|                                                                                                                  | <b>Examiner</b><br>Moustafa M Meky           | <b>Art Unit</b><br>2457                                               |

|                                                                                                                                                                                                         |          |       |          |       |          |       |          |       |          |       |          |       |          |       |          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------|----------|-------|----------|-------|----------|-------|----------|-------|----------|-------|----------|-------|----------|
| <input checked="" type="checkbox"/> Claims renumbered in the same order as presented by applicant <input type="checkbox"/> CPA <input checked="" type="checkbox"/> T.D. <input type="checkbox"/> R.1.47 |          |       |          |       |          |       |          |       |          |       |          |       |          |       |          |
| <b>CLAIMS</b>                                                                                                                                                                                           |          |       |          |       |          |       |          |       |          |       |          |       |          |       |          |
| Final                                                                                                                                                                                                   | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original |
|                                                                                                                                                                                                         | 1        |       | 10       |       | 19       |       |          |       |          |       |          |       |          |       |          |
|                                                                                                                                                                                                         | 2        |       | 11       |       | 20       |       |          |       |          |       |          |       |          |       |          |
|                                                                                                                                                                                                         | 3        |       | 12       |       |          |       |          |       |          |       |          |       |          |       |          |
|                                                                                                                                                                                                         | 4        |       | 13       |       |          |       |          |       |          |       |          |       |          |       |          |
|                                                                                                                                                                                                         | 5        |       | 14       |       |          |       |          |       |          |       |          |       |          |       |          |
|                                                                                                                                                                                                         | 6        |       | 15       |       |          |       |          |       |          |       |          |       |          |       |          |
|                                                                                                                                                                                                         | 7        |       | 16       |       |          |       |          |       |          |       |          |       |          |       |          |
|                                                                                                                                                                                                         | 8        |       | 17       |       |          |       |          |       |          |       |          |       |          |       |          |
|                                                                                                                                                                                                         | 9        |       | 18       |       |          |       |          |       |          |       |          |       |          |       |          |

|                                                      |                 |                              |                   |
|------------------------------------------------------|-----------------|------------------------------|-------------------|
| NONE                                                 |                 | <b>Total Claims Allowed:</b> |                   |
| (Assistant Examiner)                                 | (Date)          | 20                           |                   |
| /MOUSTAFA M MEKY/<br>Primary Examiner, Art Unit 2457 | 21 January 2020 | O.G. Print Claim(s)          | O.G. Print Figure |
| (Primary Examiner)                                   | (Date)          | 1                            | 3                 |

|                                                                                                          |                                              |                                                                       |
|----------------------------------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------|
| <b>Search Notes</b><br> | <b>Application/Control No.</b><br>16/368,811 | <b>Applicant(s)/Patent Under Reexamination</b><br>Morris, Robert Paul |
|                                                                                                          | <b>Examiner</b><br>Moustafa M Meky           | <b>Art Unit</b><br>2457                                               |

|                        |             |                 |
|------------------------|-------------|-----------------|
| <b>CPC - Searched*</b> |             |                 |
| <b>Symbol</b>          | <b>Date</b> | <b>Examiner</b> |
| H04L 69/16             | 08/07/2019  | MMM             |

|                                         |             |                 |
|-----------------------------------------|-------------|-----------------|
| <b>CPC Combination Sets - Searched*</b> |             |                 |
| <b>Symbol</b>                           | <b>Date</b> | <b>Examiner</b> |
|                                         |             |                 |

|                                      |                 |             |                 |
|--------------------------------------|-----------------|-------------|-----------------|
| <b>US Classification - Searched*</b> |                 |             |                 |
| <b>Class</b>                         | <b>Subclass</b> | <b>Date</b> | <b>Examiner</b> |
|                                      |                 |             |                 |

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

|                     |             |                 |
|---------------------|-------------|-----------------|
| <b>Search Notes</b> |             |                 |
| <b>Search Notes</b> | <b>Date</b> | <b>Examiner</b> |
| WEST (ALL FILES)    | 08/07/2019  | MMM             |
| WEST (ALL FILES)    | 01/21/2020  | MMM             |

|                            |                              |             |                 |
|----------------------------|------------------------------|-------------|-----------------|
| <b>Interference Search</b> |                              |             |                 |
| <b>US Class/CPC Symbol</b> | <b>US Subclass/CPC Group</b> | <b>Date</b> | <b>Examiner</b> |
| H04L                       | 69/16                        | 01/21/2020  | MMM             |

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## WEST Search History for Application 16368811

Creation Date: 2020012110:19

### Prior Art Searches

| Query                                        | DB                                             | Hits  | Op. | Plur. | Thes. | Date       |
|----------------------------------------------|------------------------------------------------|-------|-----|-------|-------|------------|
| idle adj time                                | PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS | 50946 | ADJ | YES   |       | 08-07-2019 |
| (idle adj time ) with timeout                | PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS | 421   | ADJ | YES   |       | 08-07-2019 |
| (idle adj time with timeout ) with metadat   | PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS | 0     | ADJ | YES   |       | 08-07-2019 |
| (idle adj time with timeout ) with metadata  | PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS | 14    | ADJ | YES   |       | 08-07-2019 |
| idle adj1 time                               | PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS | 52568 | ADJ | YES   |       | 01-21-2020 |
| (idle adj1 time ) with metadata              | PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS | 65    | ADJ | YES   |       | 01-21-2020 |
| (idle adj1 time with metadata ) with timeout | PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS | 16    | ADJ | YES   |       | 01-21-2020 |

| Electronic Patent Application Fee Transmittal         |                 |                                                                                                              |               |                             |
|-------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------|---------------|-----------------------------|
| <b>Application Number:</b>                            |                 | 16368811                                                                                                     |               |                             |
| <b>Filing Date:</b>                                   |                 | 28-Mar-2019                                                                                                  |               |                             |
| <b>Title of Invention:</b>                            |                 | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION |               |                             |
| <b>First Named Inventor/Applicant Name:</b>           |                 | Robert Paul Morris                                                                                           |               |                             |
| <b>Filer:</b>                                         |                 | Patrick Edgar Caldwell                                                                                       |               |                             |
| <b>Attorney Docket Number:</b>                        |                 | PMOR0120I                                                                                                    |               |                             |
| Filed as Small Entity                                 |                 |                                                                                                              |               |                             |
| <b>Filing Fees for    Utility under 35 USC 111(a)</b> |                 |                                                                                                              |               |                             |
| <b>Description</b>                                    | <b>Fee Code</b> | <b>Quantity</b>                                                                                              | <b>Amount</b> | <b>Sub-Total in USD(\$)</b> |
| <b>Basic Filing:</b>                                  |                 |                                                                                                              |               |                             |
| <b>Pages:</b>                                         |                 |                                                                                                              |               |                             |
| <b>Claims:</b>                                        |                 |                                                                                                              |               |                             |
| <b>Miscellaneous-Filing:</b>                          |                 |                                                                                                              |               |                             |
| <b>Petition:</b>                                      |                 |                                                                                                              |               |                             |
| <b>Patent-Appeals-and-Interference:</b>               |                 |                                                                                                              |               |                             |
| <b>Post-Allowance-and-Post-Issuance:</b>              |                 |                                                                                                              |               |                             |
| <b>Extension-of-Time:</b>                             |                 |                                                                                                              |               |                             |

| Description                      | Fee Code | Quantity | Amount | Sub-Total in USD(\$) |
|----------------------------------|----------|----------|--------|----------------------|
| <b>Miscellaneous:</b>            |          |          |        |                      |
| STATUTORY OR TERMINAL DISCLAIMER | 2814     | 1        | 160    | 160                  |
| <b>Total in USD (\$)</b>         |          |          |        | <b>160</b>           |

## Electronic Acknowledgement Receipt

|                                             |                                                                                                              |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| <b>EFS ID:</b>                              | 38231700                                                                                                     |
| <b>Application Number:</b>                  | 16368811                                                                                                     |
| <b>International Application Number:</b>    |                                                                                                              |
| <b>Confirmation Number:</b>                 | 8099                                                                                                         |
| <b>Title of Invention:</b>                  | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION |
| <b>First Named Inventor/Applicant Name:</b> | Robert Paul Morris                                                                                           |
| <b>Customer Number:</b>                     | 92045                                                                                                        |
| <b>Filer:</b>                               | Patrick Edgar Caldwell                                                                                       |
| <b>Filer Authorized By:</b>                 |                                                                                                              |
| <b>Attorney Docket Number:</b>              | PMOR0120I                                                                                                    |
| <b>Receipt Date:</b>                        | 07-JAN-2020                                                                                                  |
| <b>Filing Date:</b>                         | 28-MAR-2019                                                                                                  |
| <b>Time Stamp:</b>                          | 22:27:21                                                                                                     |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                                                                                  |

### Payment information:

|                                                                                                                |                  |
|----------------------------------------------------------------------------------------------------------------|------------------|
| Submitted with Payment                                                                                         | yes              |
| Payment Type                                                                                                   | CARD             |
| Payment was successfully received in RAM                                                                       | \$ 160           |
| RAM confirmation Number                                                                                        | E202017M27419711 |
| Deposit Account                                                                                                |                  |
| Authorized User                                                                                                |                  |
| The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: |                  |

| <b>File Listing:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                       |                                  |                                          |                  |                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|----------------------------------|------------------------------------------|------------------|------------------|
| Document Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Document Description                                  | File Name                        | File Size(Bytes)/<br>Message Digest      | Multi Part /.zip | Pages (if appl.) |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Amendment/Req. Reconsideration-After Non-Final Reject | PMOR0120I_ROA_vF_07-Jan-2020.pdf | 52959                                    | no               | 2                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                       |                                  | b080bf3a81793236e41dd4b3d307d75fb7f1a26a |                  |                  |
| <b>Warnings:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                       |                                  |                                          |                  |                  |
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                       |                                  |                                          |                  |                  |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Fee Worksheet (SB06)                                  | fee-info.pdf                     | 30504                                    | no               | 2                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                       |                                  | 40f8d9f193576f384e97ab4ba0de6cfe234452c5 |                  |                  |
| <b>Warnings:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                       |                                  |                                          |                  |                  |
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                       |                                  |                                          |                  |                  |
| <b>Total Files Size (in bytes):</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                       |                                  | 83463                                    |                  |                  |
| <p><b>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.</b></p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b><br/> 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.</p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b><br/> 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.</p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b><br/> 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.</p> |                                                       |                                  |                                          |                  |                  |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                              |                                                                         |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--|
| <b>Doc Code: DIST.E.FILE</b><br><b>Document Description: Electronic Terminal Disclaimer - Filed</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                              | PTO/SB/26<br>U.S. Patent and Trademark Office<br>Department of Commerce |  |
| Electronic Petition Request                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>TERMINAL DISCLAIMER TO OBIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT</b>                      |                                                                         |  |
| Application Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 16368811                                                                                                     |                                                                         |  |
| Filing Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 28-Mar-2019                                                                                                  |                                                                         |  |
| First Named Inventor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Robert Morris                                                                                                |                                                                         |  |
| Attorney Docket Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | PMOR0120I                                                                                                    |                                                                         |  |
| Title of Invention                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION |                                                                         |  |
| <input checked="" type="checkbox"/> Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action<br><br><input checked="" type="checkbox"/> This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                              |                                                                         |  |
| Owner                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                              | Percent Interest                                                        |  |
| Jenam Tech, LLC of Longview, TX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                              | 100%                                                                    |  |
| <p>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)</p> <p>9923995<br/>8219606</p> <p>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.</p> <p>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:</p> <ul style="list-style-type: none"> <li>- expires for failure to pay a maintenance fee;</li> <li>- is held unenforceable;</li> <li>- is found invalid by a court of competent jurisdiction;</li> <li>- is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;</li> <li>- has all claims canceled by a reexamination certificate;</li> <li>- is reissued; or</li> <li>- is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.</li> </ul> |                                                                                                              |                                                                         |  |

- ☐ 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.: 16368811

Filing Date: 28-Mar-2019

Applicant/Patent under Reexamination: Morris

Electronic Terminal Disclaimer filed on January 7, 2020

☒ APPROVED

**This patent is subject to a terminal disclaimer**

☐ DISAPPROVED

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

U.S. Patent and Trademark Office

## Electronic Acknowledgement Receipt

|                                             |                                                                                                              |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| <b>EFS ID:</b>                              | 38231711                                                                                                     |
| <b>Application Number:</b>                  | 16368811                                                                                                     |
| <b>International Application Number:</b>    |                                                                                                              |
| <b>Confirmation Number:</b>                 | 8099                                                                                                         |
| <b>Title of Invention:</b>                  | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION |
| <b>First Named Inventor/Applicant Name:</b> | Robert Paul Morris                                                                                           |
| <b>Customer Number:</b>                     | 92045                                                                                                        |
| <b>Filer:</b>                               | Patrick Edgar Caldwell                                                                                       |
| <b>Filer Authorized By:</b>                 |                                                                                                              |
| <b>Attorney Docket Number:</b>              | PMOR0120I                                                                                                    |
| <b>Receipt Date:</b>                        | 07-JAN-2020                                                                                                  |
| <b>Filing Date:</b>                         | 28-MAR-2019                                                                                                  |
| <b>Time Stamp:</b>                          | 22:30:46                                                                                                     |
| <b>Application Type:</b>                    | 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                      | Terminal Disclaimer-Filed (Electronic) | eTerminal-Disclaimer.pdf | 32164                                    | no               | 2                |
|                        |                                        |                          | 4479d7e0cb8de774218a77bb37ebde2129fc99e4 |                  |                  |
| Warnings:              |                                        |                          |                                          |                  |                  |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       |
| <b>Total Files Size (in bytes):</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 32164 |
| <p>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.</p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b><br/> 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.</p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b><br/> 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.</p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b><br/> 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.</p> |       |

| Electronic Patent Application Fee Transmittal         |                 |                                                                                                              |               |                             |
|-------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------|---------------|-----------------------------|
| <b>Application Number:</b>                            |                 | 16368811                                                                                                     |               |                             |
| <b>Filing Date:</b>                                   |                 | 28-Mar-2019                                                                                                  |               |                             |
| <b>Title of Invention:</b>                            |                 | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION |               |                             |
| <b>First Named Inventor/Applicant Name:</b>           |                 | Robert Paul Morris                                                                                           |               |                             |
| <b>Filer:</b>                                         |                 | Patrick Edgar Caldwell                                                                                       |               |                             |
| <b>Attorney Docket Number:</b>                        |                 | PMOR0120I                                                                                                    |               |                             |
| Filed as Small Entity                                 |                 |                                                                                                              |               |                             |
| <b>Filing Fees for    Utility under 35 USC 111(a)</b> |                 |                                                                                                              |               |                             |
| <b>Description</b>                                    | <b>Fee Code</b> | <b>Quantity</b>                                                                                              | <b>Amount</b> | <b>Sub-Total in USD(\$)</b> |
| <b>Basic Filing:</b>                                  |                 |                                                                                                              |               |                             |
| <b>Pages:</b>                                         |                 |                                                                                                              |               |                             |
| <b>Claims:</b>                                        |                 |                                                                                                              |               |                             |
| <b>Miscellaneous-Filing:</b>                          |                 |                                                                                                              |               |                             |
| <b>Petition:</b>                                      |                 |                                                                                                              |               |                             |
| <b>Patent-Appeals-and-Interference:</b>               |                 |                                                                                                              |               |                             |
| <b>Post-Allowance-and-Post-Issuance:</b>              |                 |                                                                                                              |               |                             |
| <b>Extension-of-Time:</b>                             |                 |                                                                                                              |               |                             |

| Description                        | Fee Code | Quantity | Amount | Sub-Total in USD(\$) |
|------------------------------------|----------|----------|--------|----------------------|
| Extension - 2 months with \$0 paid | 2252     | 1        | 300    | 300                  |
| <b>Miscellaneous:</b>              |          |          |        |                      |
| <b>Total in USD (\$)</b>           |          |          |        | <b>300</b>           |

## Electronic Acknowledgement Receipt

|                                             |                                                                                                              |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| <b>EFS ID:</b>                              | 38231716                                                                                                     |
| <b>Application Number:</b>                  | 16368811                                                                                                     |
| <b>International Application Number:</b>    |                                                                                                              |
| <b>Confirmation Number:</b>                 | 8099                                                                                                         |
| <b>Title of Invention:</b>                  | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION |
| <b>First Named Inventor/Applicant Name:</b> | Robert Paul Morris                                                                                           |
| <b>Customer Number:</b>                     | 92045                                                                                                        |
| <b>Filer:</b>                               | Patrick Edgar Caldwell                                                                                       |
| <b>Filer Authorized By:</b>                 |                                                                                                              |
| <b>Attorney Docket Number:</b>              | PMOR0120I                                                                                                    |
| <b>Receipt Date:</b>                        | 07-JAN-2020                                                                                                  |
| <b>Filing Date:</b>                         | 28-MAR-2019                                                                                                  |
| <b>Time Stamp:</b>                          | 22:31:53                                                                                                     |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                                                                                  |

### Payment information:

|                                          |                  |
|------------------------------------------|------------------|
| Submitted with Payment                   | yes              |
| Payment Type                             | CARD             |
| Payment was successfully received in RAM | \$ 300           |
| RAM confirmation Number                  | E202017M32119729 |
| Deposit Account                          |                  |
| Authorized User                          |                  |

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

| <b>File Listing:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                      |              |                                          |                  |                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------|------------------------------------------|------------------|------------------|
| Document Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Document Description | File Name    | File Size(Bytes)/<br>Message Digest      | Multi Part /.zip | Pages (if appl.) |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Fee Worksheet (SB06) | fee-info.pdf | 30813                                    | no               | 2                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                      |              | 38d933b4955cf435b36492a07f950dd12454afe4 |                  |                  |
| <b>Warnings:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                      |              |                                          |                  |                  |
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                      |              |                                          |                  |                  |
| Total Files Size (in bytes):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |              | 30813                                    |                  |                  |
| <p>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.</p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b><br/>         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.</p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b><br/>         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.</p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b><br/>         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.</p> |                      |              |                                          |                  |                  |

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

ROBERT PAUL MORRIS

Application No.: 16/368,811

File Date: 03-28-2019

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

Confirmation No.: 8099

Examiner: MEKY, MOUSTAFA M

Art Unit: 2457

Docket No.: PMOR0120I

Date: 1/7/2020

**AMENDMENT**

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

Examiner:

In response to the communication mailed 2019-08-12, please consider the following  
believed to place the claims in condition for allowance.

**Remarks:**

Claims 1-2 are rejected on the ground of non- statutory double patenting as being unpatentable over claims 1-2 of U.S. Patent No. 8,219,606. Claims 1-20 are rejected on the ground of non- statutory double patenting as being unpatentable over claims 1-14 & 25-30 of U.S. Patent No. 9,923,995. These rejections are deemed avoided by virtue of the terminal disclaimer submitted herewith.

It is believed that all of the pending issues have been addressed. The claims are thus in condition for allowance. 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.

Respectfully submitted,



Dated: 07 Jan 2020  
The Caldwell Firm, LLC  
PO Box 59655  
Dallas, Texas 75229-0655  
Telephone: (214) 734-2313  
[pcaldwell@thecaldwellfirm.com](mailto:pcaldwell@thecaldwellfirm.com)

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

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



**Courtesy Reminder for  
Application Serial No: 16/368,811**

Attorney Docket No: PMOR01201

Customer Number: 92045

Date of Electronic Notification: 08/12/2019

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:

pcaldwell@thecaldwellfirm.com

eoofficeaction@appcoll.com

To view your correspondence online or update your email addresses, please visit us anytime at **<https://ppair-my.uspto.gov/pair/PrivatePair>**.

If you have any questions, please email the Electronic Business Center (EBC) at [EBC@uspto.gov](mailto:EBC@uspto.gov) or call 1-866-217-9197.



# UNITED STATES PATENT AND TRADEMARK OFFICE

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www.uspto.gov

| APPLICATION NO.        | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|------------------------|-------------|----------------------|---------------------|------------------|
| 16/368,811             | 03/28/2019  | Robert Paul Morris   | PMOR0120I           | 8099             |
| 92045                  | 7590        | 08/12/2019           | EXAMINER            |                  |
| The Caldwell Firm, LLC |             |                      | MEKY, MOUSTAFA M    |                  |
| PO Box 59655           |             |                      |                     |                  |
| Dept. SVIPGP           |             |                      | ART UNIT            |                  |
| Dallas, TX 75229       |             |                      | PAPER NUMBER        |                  |
|                        |             |                      | 2457                |                  |
|                        |             |                      | NOTIFICATION DATE   |                  |
|                        |             |                      | DELIVERY MODE       |                  |
|                        |             |                      | 08/12/2019          |                  |
|                        |             |                      | 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@appcoll.com  
pcaldwell@thecaldwellfirm.com

|                                     |                                      |                                            |                                |
|-------------------------------------|--------------------------------------|--------------------------------------------|--------------------------------|
| <b><i>Office Action Summary</i></b> | <b>Application No.</b><br>16/368,811 | <b>Applicant(s)</b><br>Morris, Robert Paul |                                |
|                                     | <b>Examiner</b><br>Moustafa M Meky   | <b>Art Unit</b><br>2457                    | <b>AIA (FITF) Status</b><br>No |

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

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

1) ☒ Responsive to communication(s) filed on 03/28/2019.  
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on \_\_\_\_.

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

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

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

### Disposition of Claims\*

5) ☒ Claim(s) 1-20 is/are pending in the application.  
       5a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.

6) ☐ Claim(s) \_\_\_\_ is/are allowed.

7) ☒ Claim(s) 1-20 is/are rejected.

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

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

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

### Application Papers

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

11) ☒ The drawing(s) filed on 03/28/2019 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

### Priority under 35 U.S.C. § 119

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

**Certified copies:**

a) ☐ All     b) ☐ Some\*\*     c) ☐ None of the:

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

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

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

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

### Attachment(s)

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

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)  
 Paper No(s)/Mail Date 03/28/2019.

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

4) ☐ Other: \_\_\_\_\_.

**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.

**Obvious Double Patent Rejection**

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

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(I)(1) - 706.02(I)(3) for applications not subject to examination under the

first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit [www.uspto.gov/patent/patents-forms](http://www.uspto.gov/patent/patents-forms). The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to [www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp](http://www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp).

3. Claims 1-2 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-2 of U.S. Patent No.8,219,606. Although the claims at issue are not identical, they are not patentably distinct from each other because claims 1-2 of the patent 606 teach substantially teach claims 1-2 of the pending application.

4. Claims 1-20 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-14 & 25-30 of U.S. Patent No.9,923,995. Although the claims at issue are not identical, they are not patentably distinct from each other because the patent 995 teach substantially teach the claims of the pending application.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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  
08/07/2019

|                                          |                                       |  |                                                                   |             |
|------------------------------------------|---------------------------------------|--|-------------------------------------------------------------------|-------------|
| <b><i>Notice of References Cited</i></b> | Application/Control No.<br>16/368,811 |  | Applicant(s)/Patent Under<br>Reexamination<br>Morris, Robert Paul |             |
|                                          | Examiner<br>Moustafa M Meky           |  | Art Unit<br>2457                                                  | Page 1 of 1 |

**U.S. PATENT DOCUMENTS**

| * |   | Document Number<br>Country Code-Number-Kind Code | Date<br>MM-YYYY | Name                | CPC Classification | US Classification |
|---|---|--------------------------------------------------|-----------------|---------------------|--------------------|-------------------|
| * | A | US-9923995-B1                                    | 03-2018         | Morris; Robert Paul | G06F9/50           | 1/1               |
| * | B | US-8219606-B2                                    | 07-2012         | Morris; Robert Paul | H04L69/16          | 709/201           |
|   | C |                                                  |                 |                     |                    |                   |
|   | D |                                                  |                 |                     |                    |                   |
|   | E |                                                  |                 |                     |                    |                   |
|   | F |                                                  |                 |                     |                    |                   |
|   | G |                                                  |                 |                     |                    |                   |
|   | H |                                                  |                 |                     |                    |                   |
|   | I |                                                  |                 |                     |                    |                   |
|   | J |                                                  |                 |                     |                    |                   |
|   | K |                                                  |                 |                     |                    |                   |
|   | L |                                                  |                 |                     |                    |                   |
|   | M |                                                  |                 |                     |                    |                   |

**FOREIGN PATENT DOCUMENTS**

| * |   | Document Number<br>Country Code-Number-Kind Code | Date<br>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.

U.S. Patent and Trademark Office  
PTO-892 (Rev. 01-2001)

**Notice of References Cited**

Part of Paper No. 20190807

|                                                                                                                 |                                              |                                                                       |
|-----------------------------------------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------|
| <b><i>Search Notes</i></b><br> | <b>Application/Control No.</b><br>16/368,811 | <b>Applicant(s)/Patent Under Reexamination</b><br>Morris, Robert Paul |
|                                                                                                                 | <b>Examiner</b><br>Moustafa M Meky           | <b>Art Unit</b><br>2457                                               |

|                        |             |                 |
|------------------------|-------------|-----------------|
| <b>CPC - Searched*</b> |             |                 |
| <b>Symbol</b>          | <b>Date</b> | <b>Examiner</b> |
| H04L 69/16             | 08/07/2019  | MMM             |

|                                         |             |                 |
|-----------------------------------------|-------------|-----------------|
| <b>CPC Combination Sets - Searched*</b> |             |                 |
| <b>Symbol</b>                           | <b>Date</b> | <b>Examiner</b> |
|                                         |             |                 |

|                                      |                 |             |                 |
|--------------------------------------|-----------------|-------------|-----------------|
| <b>US Classification - Searched*</b> |                 |             |                 |
| <b>Class</b>                         | <b>Subclass</b> | <b>Date</b> | <b>Examiner</b> |
|                                      |                 |             |                 |

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

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| <b>Search Notes</b> |             |                 |
| <b>Search Notes</b> | <b>Date</b> | <b>Examiner</b> |
| WEST (ALL FILES)    | 08/07/2019  | MMM             |

|                            |                              |             |                 |
|----------------------------|------------------------------|-------------|-----------------|
| <b>Interference Search</b> |                              |             |                 |
| <b>US Class/CPC Symbol</b> | <b>US Subclass/CPC Group</b> | <b>Date</b> | <b>Examiner</b> |
|                            |                              |             |                 |

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|-----------------------------------------------------------------------------------------------------|------------------------|--------------------|------------|
| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>( Not for submission under 37 CFR 1.99) | Application Number     |                    | 16/368,811 |
|                                                                                                     | Filing Date            |                    | 03/28/2019 |
|                                                                                                     | First Named Inventor   | Robert Paul Morris |            |
|                                                                                                     | Art Unit               | 2457<br>Meky       |            |
|                                                                                                     | Examiner Name          |                    |            |
|                                                                                                     | Attorney Docket Number | PMOR0120I          |            |

| U.S.PATENTS                                                                                 |         |               |                        |            |                                                 | Remove                                                                   |
|---------------------------------------------------------------------------------------------|---------|---------------|------------------------|------------|-------------------------------------------------|--------------------------------------------------------------------------|
| Examiner Initial*                                                                           | Cite No | Patent Number | Kind Code <sup>1</sup> | 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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|                        |                    |
|------------------------|--------------------|
| Application Number     | 16/368,811         |
| Filing Date            | 03/28/2019         |
| First Named Inventor   | Robert Paul Morris |
| Art Unit               | 2457               |
| Examiner Name          | Meky               |
| Attorney Docket Number | PMOR0120I          |

| U.S.PATENT APPLICATION PUBLICATIONS |         |                    |                        |                  |                                                 | Remove                                                                 |
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| Examiner Initial*                   | Cite No | Publication Number | Kind Code <sup>1</sup> | 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.                                 |                                                                        |
|                                     | 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                                         |                                                                        |
|                                     | 6       | 20110213820        | A1                     | 2011-09-01       | Morris                                          |                                                                        |

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| Art Unit               | 2457               |
| Examiner Name          | Meky               |
| Attorney Docket Number | PMOR0120I          |

| 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 <sup>5</sup> |
|--------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                    | 1       | Allman, M., Paxson, V., Stevens, W., "TCP Congestion Control", RFC 2581, Internet Engineering Task Force, <a href="http://tools.ietf.org/rfc/rfc2581.txt">http://tools.ietf.org/rfc/rfc2581.txt</a> , April 1999                                                                                                                                                                          |                |
|                    | 2       | Busatto, Fabio, "TCP Keepalive Overview", TCP Keepalive HOWTO, Section 2, <a href="http://ltdp.org/HOWTO/html_single/TCP-Keepalive-HOWTO/#overview">http://ltdp.org/HOWTO/html_single/TCP-Keepalive-HOWTO/#overview</a> , accessed January 2010, May 2007                                                                                                                                 |                |
|                    | 3       | Eggert, L., Gont, F., "TCP User Timeout Option", RFC 5482, Internet Engineering Task Force (IETF), <a href="http://tools.ietf.org/html/rfc5482.txt">http://tools.ietf.org/html/rfc5482.txt</a> , 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, <a href="http://www.tcpipguide.com/free/_TCPConnectionManagementandProblemHandlingtheConnec-3.htm">http://www.tcpipguide.com/free/_TCPConnectionManagementandProblemHandlingtheConnec-3.htm</a> , 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, <a href="http://tools.ietf.org/rfc/rfc2018.txt">http://tools.ietf.org/rfc/rfc2018.txt</a> , October 1996                                                                                                                                             |                |
|                    | 6       | Nagle, John, "Congestion Control in IP/TCP Internetworks", RFC 896, Ford Aerospace and Communications Corporation, <a href="http://tools.ietf.org/rfc/rfc896.txt">http://tools.ietf.org/rfc/rfc896.txt</a> , January 1984                                                                                                                                                                 |                |
|                    | 7       | Network Working Group, "QUIC: A UDP-Based Secure and Reliable Transport for HTTP/2 draft-tsvwg-quic-protocol-00", June 17, 2015                                                                                                                                                                                                                                                           |                |
|                    | 8       | Office Action Summary in U.S. Pat. App. No. 12/714,063 dated 2012-06-21                                                                                                                                                                                                                                                                                                                   |                |
|                    | 9       | Office Action Summary in U.S. Pat. App. No. 12/714,063 dated 2013-03-04                                                                                                                                                                                                                                                                                                                   |                |
|                    | 10      | Office Action Summary in U.S. Pat. App. No. 12/714,063 dated 2013-09-27                                                                                                                                                                                                                                                                                                                   |                |

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| Application Number     | 16/368,811         |
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| Art Unit               | 2457<br>Meky       |
| Examiner Name          |                    |
| Attorney Docket Number | PMOR0120I          |

|    |                                                                                                                                                                                                                                                            |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11 | Office Action Summary in U.S. Pat. App. No. 12/714454 dated 2012-02-23                                                                                                                                                                                     |
| 12 | Office Action Summary in U.S. Pat. App. No. 13/477,402 dated 2014-09-24                                                                                                                                                                                    |
| 13 | Office Action Summary in U.S. Pat. App. No. 15/694,802 dated 2017-11-29                                                                                                                                                                                    |
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| 15 | Roskind, Jim "Multiplexed Stream Transport Over UDP," QUIC, 12/2/2013, 51 pages                                                                                                                                                                            |

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**EXAMINER SIGNATURE**

|                    |                   |                 |            |
|--------------------|-------------------|-----------------|------------|
| Examiner Signature | /MOUSTAFA M MEKY/ | Date Considered | 08/05/2019 |
|--------------------|-------------------|-----------------|------------|

\*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.

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

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( 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 | PMOR0120I          |

**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)   | 2019-03-28 |
| 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.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.M.M/

## Bibliographic Data

Application No: 16/368,811

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

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| FILING or 371(c) DATE | CLASS | GROUP ART UNIT | ATTORNEY DOCKET NO. |
|-----------------------|-------|----------------|---------------------|
| 03/28/2019            | 709   | 2457           | PMOR0120I           |
| RULE                  |       |                |                     |

### APPLICANTS

Jenam Tech, LLC, Longview, TX, UNITED STATES

### INVENTORS

Robert Paul Morris Raleigh, NC, UNITED STATES

### CONTINUING DATA

This application is a CON of 16040522 07/19/2018 PAT 10375215

16040522 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 03/24/2015ABN

14667642 is a CIP of 13477402 05/22/2012ABN

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

### FOREIGN APPLICATIONS

#### IF REQUIRED, FOREIGN LICENSE GRANTED\*\*

04/12/2019

\*\* 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**

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## WEST Search History for Application 16368811

Creation Date: 2019080712:53

### Prior Art Searches

| Query                                       | DB                                             | Hits  | Op. | Plur. | Thes. | Date       |
|---------------------------------------------|------------------------------------------------|-------|-----|-------|-------|------------|
| idle adj time                               | PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS | 50946 | ADJ | YES   |       | 08-07-2019 |
| (idle adj time ) with timeout               | PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS | 421   | ADJ | YES   |       | 08-07-2019 |
| (idle adj time with timeout ) with metadat  | PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS | 0     | ADJ | YES   |       | 08-07-2019 |
| (idle adj time with timeout ) with metadata | PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD, FPRS | 14    | ADJ | YES   |       | 08-07-2019 |

| <b>PATENT APPLICATION FEE DETERMINATION RECORD</b><br>Substitute for Form PTO-875                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                               |                                    |                    |              |                    | Application or Docket Number<br>16/368,811 |          |                         |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|--------------------|--------------|--------------------|--------------------------------------------|----------|-------------------------|--|
| <b>APPLICATION AS FILED - PART I</b>                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                               |                                    |                    |              |                    |                                            |          |                         |  |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                               | (Column 2)                         |                    | SMALL ENTITY |                    | OTHER THAN SMALL ENTITY                    |          |                         |  |
| FOR                                                                                                                                                                                                                                                                                                                                                                                                        | NUMBER FILED                                                                                                                                                                                                                  | NUMBER EXTRA                       | RATE(\$)           | FEE(\$)      |                    | RATE(\$)                                   | FEE(\$)  |                         |  |
| BASIC FEE<br>(37 CFR 1.16(a), (b), or (c))                                                                                                                                                                                                                                                                                                                                                                 | N/A                                                                                                                                                                                                                           | N/A                                | N/A                | 75           |                    | N/A                                        |          |                         |  |
| SEARCH FEE<br>(37 CFR 1.16(k), (l), or (m))                                                                                                                                                                                                                                                                                                                                                                | N/A                                                                                                                                                                                                                           | N/A                                | N/A                | 330          |                    | N/A                                        |          |                         |  |
| EXAMINATION FEE<br>(37 CFR 1.16(o), (p), or (q))                                                                                                                                                                                                                                                                                                                                                           | N/A                                                                                                                                                                                                                           | N/A                                | N/A                | 380          |                    | N/A                                        |          |                         |  |
| TOTAL CLAIMS<br>(37 CFR 1.16(j))                                                                                                                                                                                                                                                                                                                                                                           | 20                                                                                                                                                                                                                            | minus 20 = *                       | x 50 =             | 0.00         |                    |                                            |          |                         |  |
| INDEPENDENT CLAIMS<br>(37 CFR 1.16(h))                                                                                                                                                                                                                                                                                                                                                                     | 3                                                                                                                                                                                                                             | minus 3 = *                        | x 230 =            | 0.00         |                    |                                            |          |                         |  |
| APPLICATION SIZE FEE<br>(37 CFR 1.16(s))                                                                                                                                                                                                                                                                                                                                                                   | If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s). |                                    |                    | 0.00         |                    |                                            |          |                         |  |
| MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                               |                                    |                    | 0.00         |                    |                                            |          |                         |  |
|                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                               |                                    | TOTAL              | 785          |                    | TOTAL                                      |          |                         |  |
| * If the difference in column 1 is less than zero, enter "0" in column 2.                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                               |                                    |                    |              |                    |                                            |          |                         |  |
| <b>APPLICATION AS AMENDED - PART II</b>                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                               |                                    |                    |              |                    |                                            |          |                         |  |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                               | (Column 2)                         |                    | (Column 3)   |                    | SMALL ENTITY                               |          | OTHER THAN SMALL ENTITY |  |
| AMENDMENT A                                                                                                                                                                                                                                                                                                                                                                                                | CLAIMS REMAINING AFTER AMENDMENT                                                                                                                                                                                              | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA      | RATE(\$)     | ADDITIONAL FEE(\$) |                                            | RATE(\$) | ADDITIONAL FEE(\$)      |  |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Total<br>(37 CFR 1.16(i))                                                                                                                                                                                                     | *                                  | Minus **           | x            | =                  |                                            | x        | =                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Independent<br>(37 CFR 1.16(h))                                                                                                                                                                                               | *                                  | Minus ***          | x            | =                  |                                            | x        | =                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Application Size Fee (37 CFR 1.16(s))                                                                                                                                                                                         |                                    |                    |              |                    |                                            |          |                         |  |
|                                                                                                                                                                                                                                                                                                                                                                                                            | FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))                                                                                                                                                               |                                    |                    |              |                    |                                            |          |                         |  |
|                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                               |                                    | TOTAL<br>ADD'L FEE |              |                    | TOTAL<br>ADD'L FEE                         |          |                         |  |
| AMENDMENT B                                                                                                                                                                                                                                                                                                                                                                                                | CLAIMS REMAINING AFTER AMENDMENT                                                                                                                                                                                              | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA      | RATE(\$)     | ADDITIONAL FEE(\$) |                                            | RATE(\$) | ADDITIONAL FEE(\$)      |  |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Total<br>(37 CFR 1.16(i))                                                                                                                                                                                                     | *                                  | Minus **           | x            | =                  |                                            | x        | =                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Independent<br>(37 CFR 1.16(h))                                                                                                                                                                                               | *                                  | Minus ***          | x            | =                  |                                            | x        | =                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Application Size Fee (37 CFR 1.16(s))                                                                                                                                                                                         |                                    |                    |              |                    |                                            |          |                         |  |
|                                                                                                                                                                                                                                                                                                                                                                                                            | FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))                                                                                                                                                               |                                    |                    |              |                    |                                            |          |                         |  |
|                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                               |                                    | TOTAL<br>ADD'L FEE |              |                    | TOTAL<br>ADD'L FEE                         |          |                         |  |
| * If the entry in column 1 is less than the entry in column 2, write "0" in column 3.<br>** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".<br>*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".<br>The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1. |                                                                                                                                                                                                                               |                                    |                    |              |                    |                                            |          |                         |  |



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| APPLICATION<br>NUMBER | FILING or<br>371(c) DATE | GRP ART<br>UNIT | FIL FEE REC'D | ATTY. DOCKET NO | TOT CLAIMS | IND CLAIMS |
|-----------------------|--------------------------|-----------------|---------------|-----------------|------------|------------|
| 16/368,811            | 03/28/2019               |                 | 785           | PMOR0120I       | 20         | 3          |

CONFIRMATION NO. 8099

## FILING RECEIPT

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



CC00000107378522

Date Mailed: 04/16/2019

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)

Jenam Tech, LLC, Longview, TX;

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

### Domestic Priority data as claimed by applicant

This application is a CON of 16/040,522 07/19/2018  
which 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:** 04/12/2019

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/368,811**

**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**

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

## **PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES**

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

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

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

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

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

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**Title 37, Code of Federal Regulations, 5.11 & 5.15**

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---

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## 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.*

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.**

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

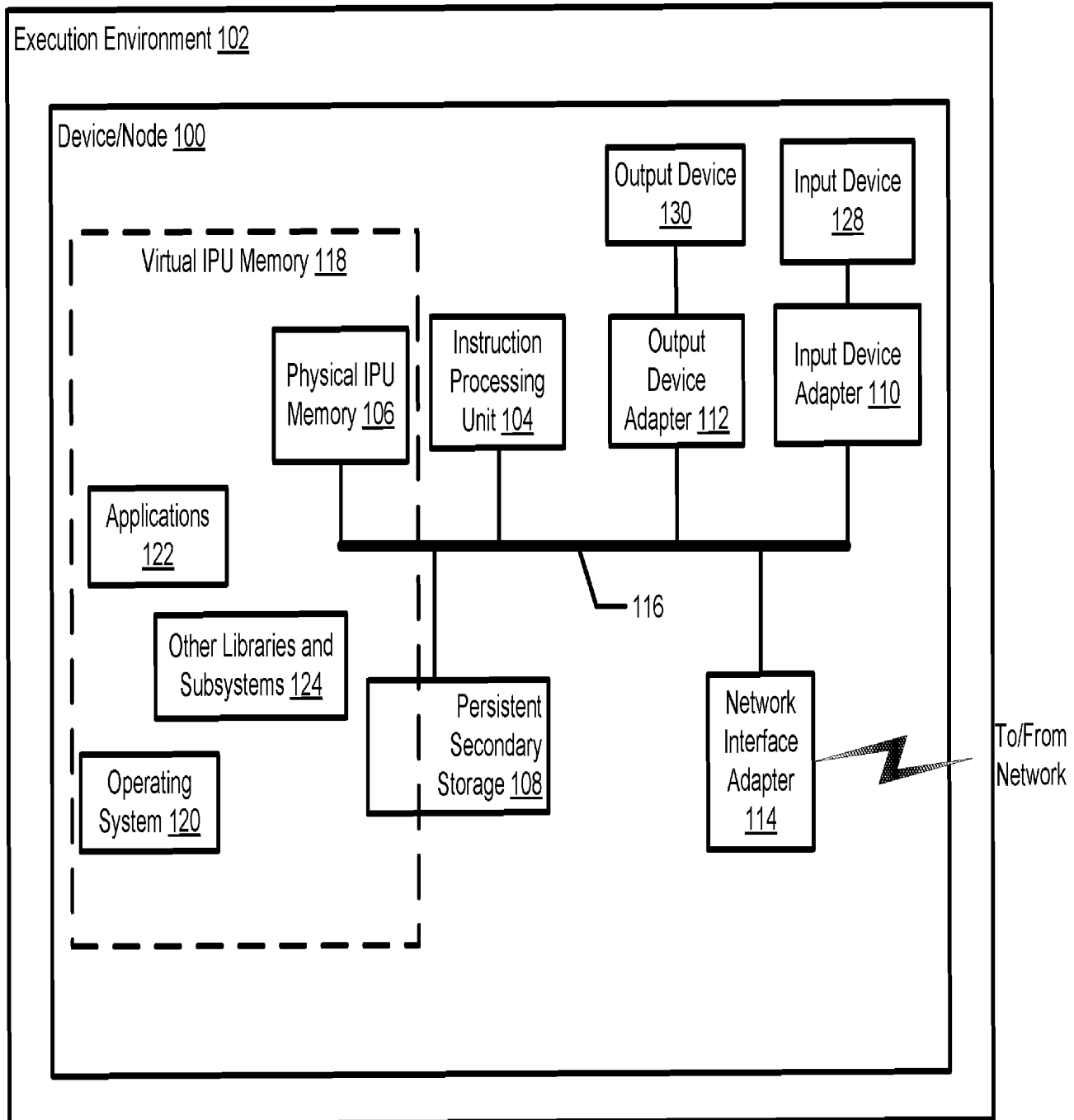
## Privacy Act Statement

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 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.

+



1/8

Fig. 1

+

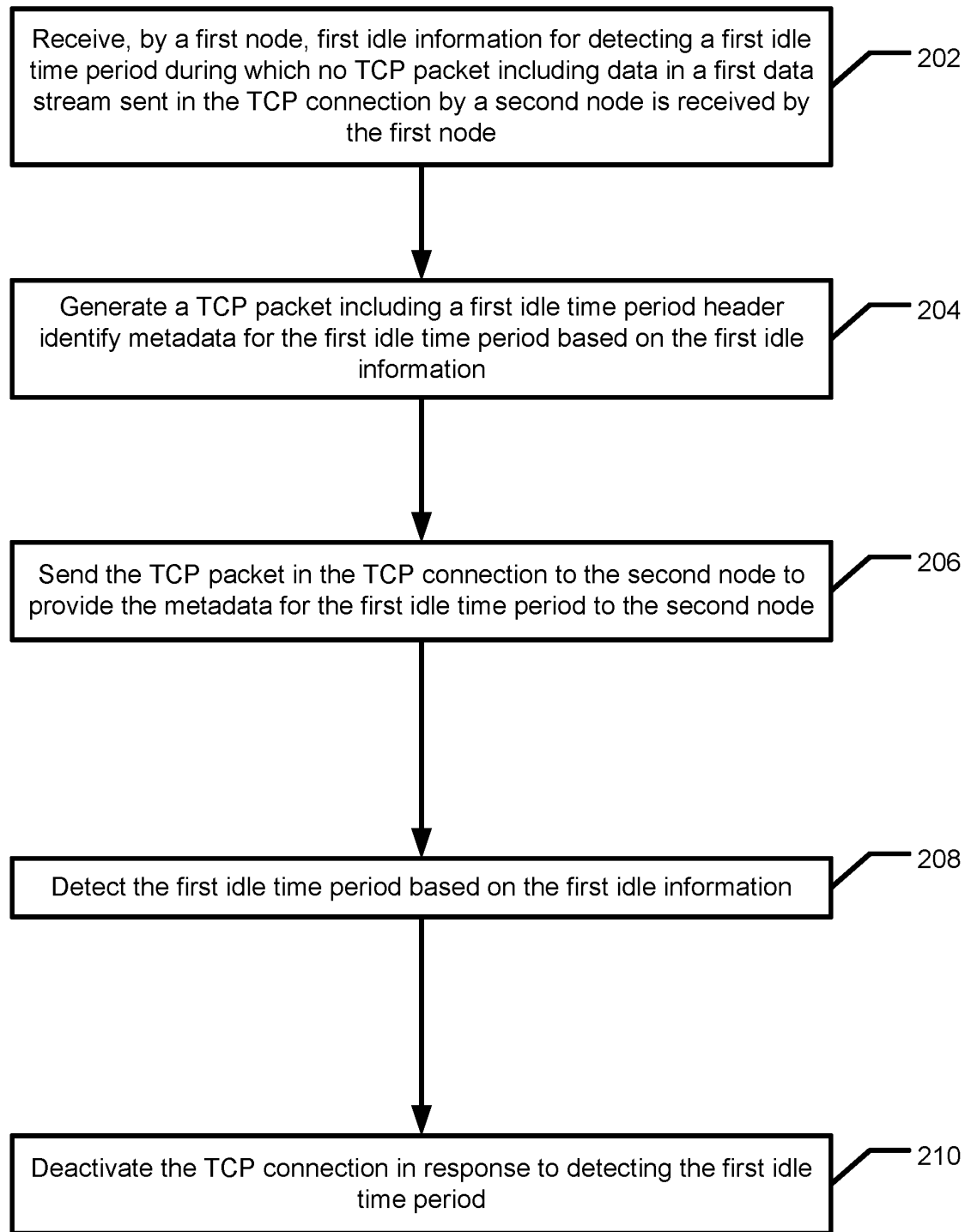


Fig. 2

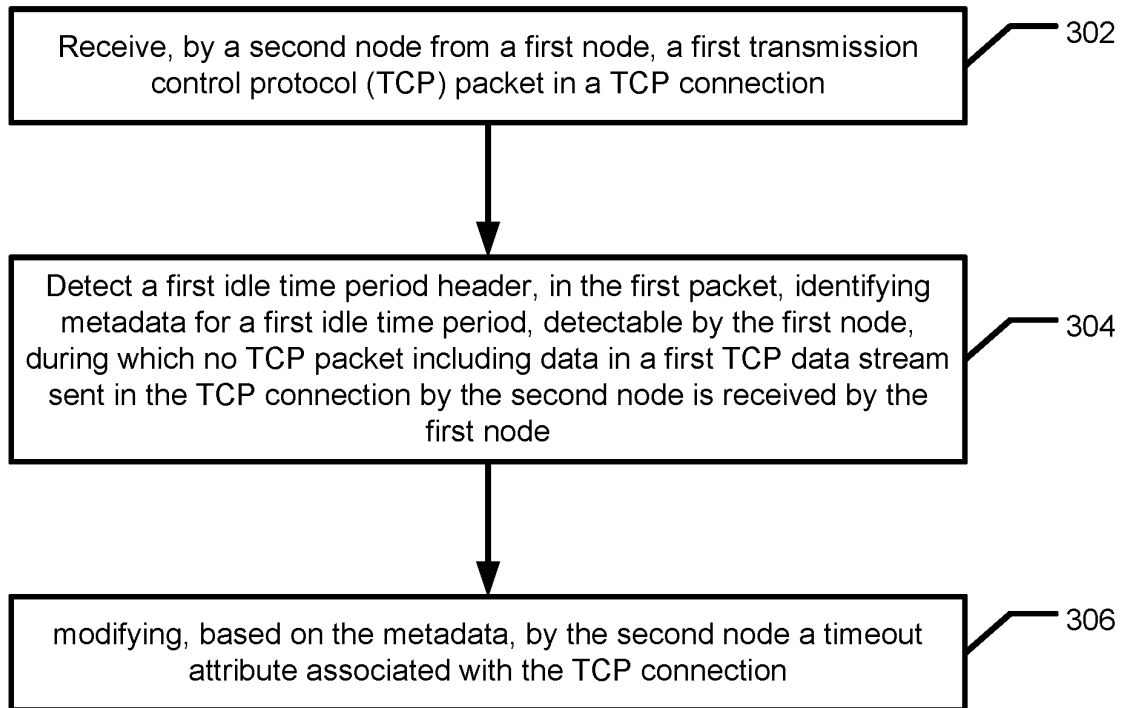


Fig. 3

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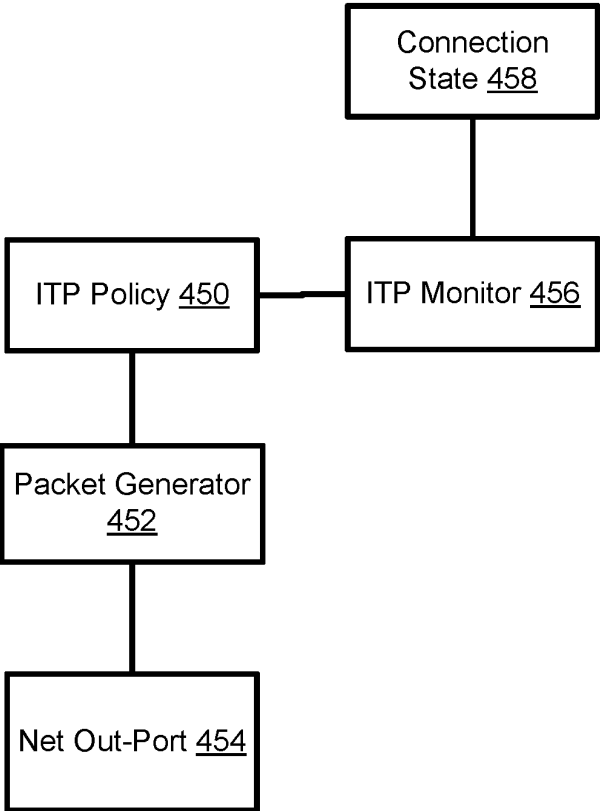


Fig. 4a

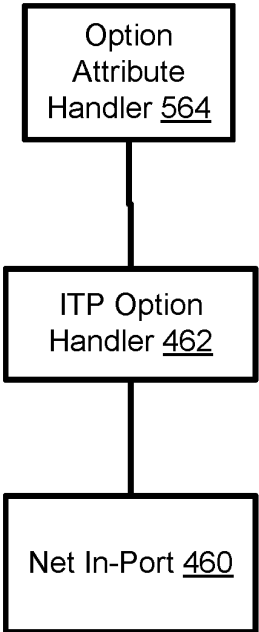


Fig. 4b

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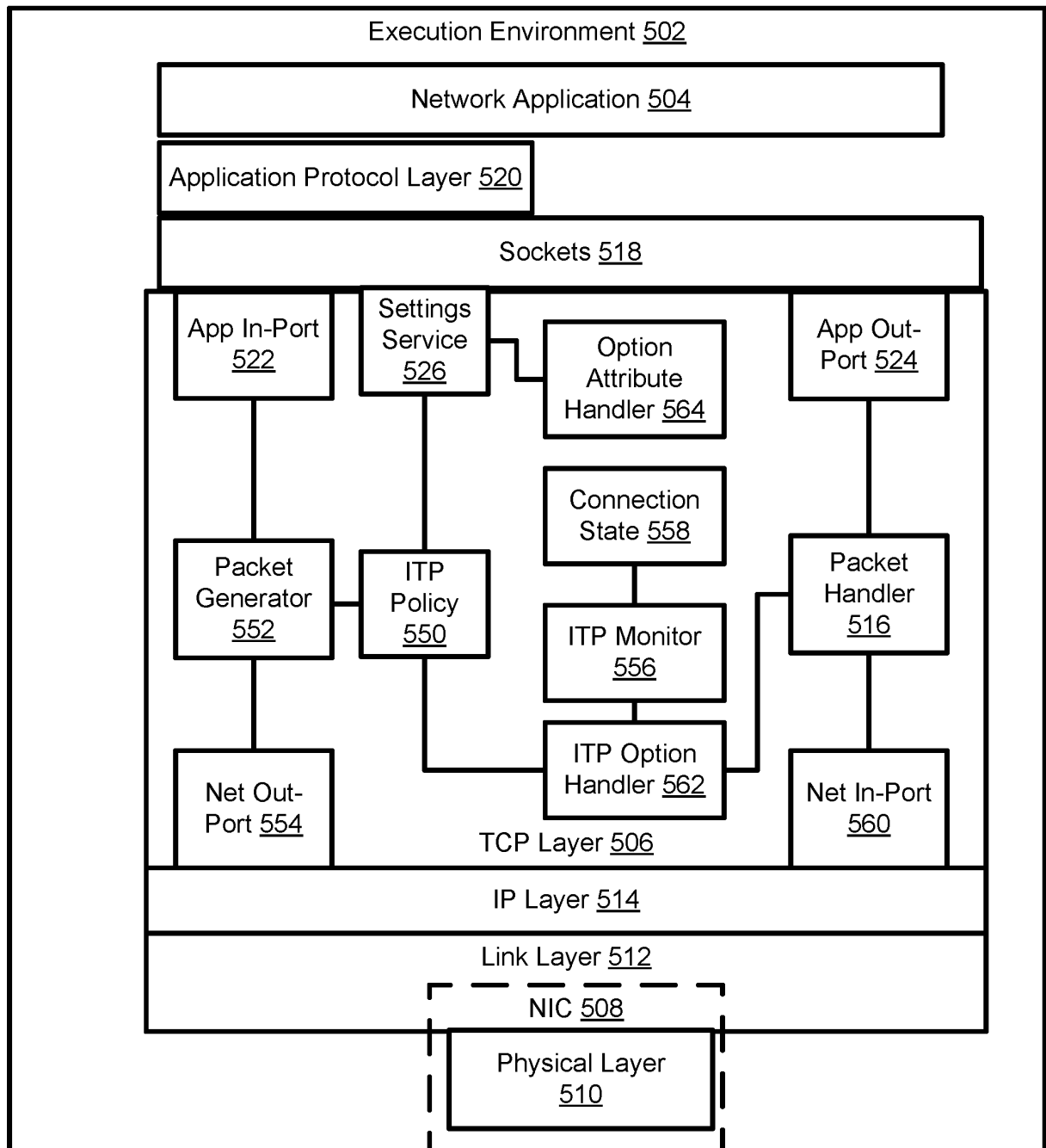


Fig. 5

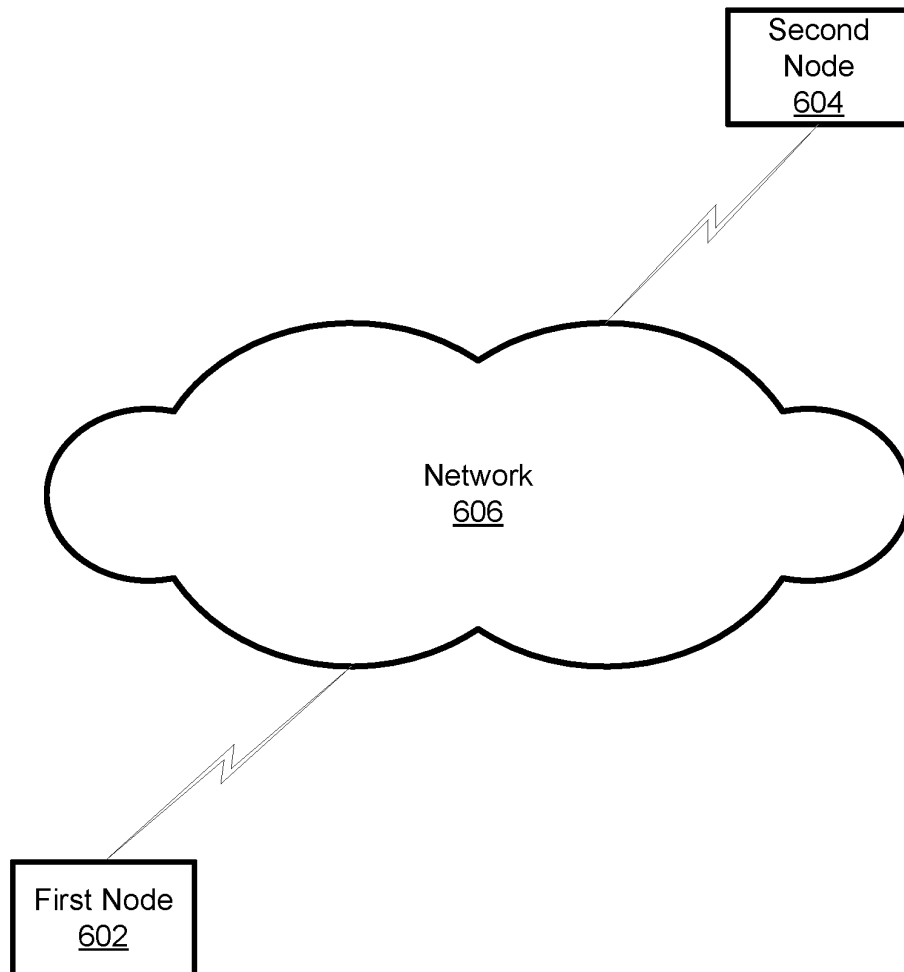


Fig. 6

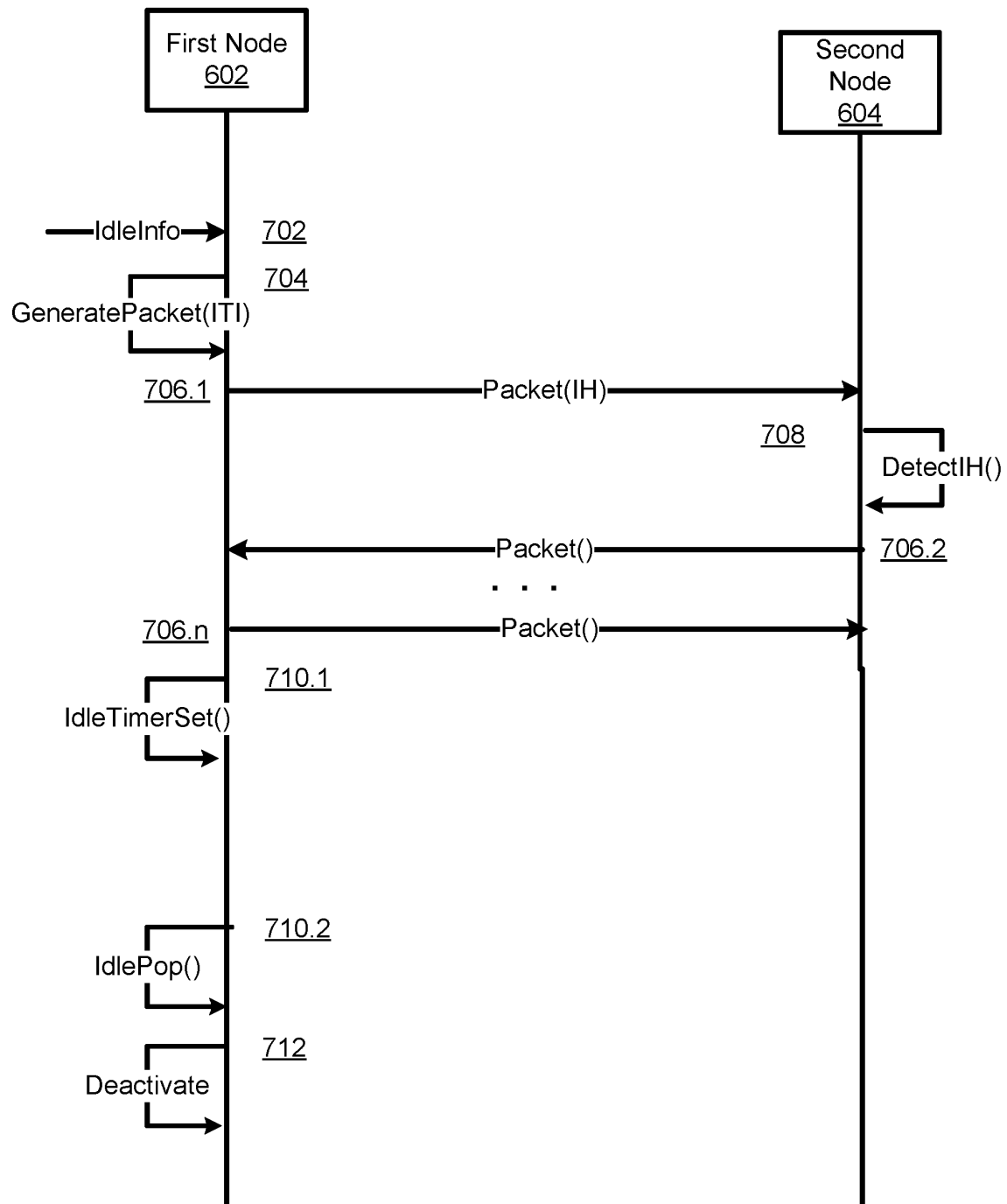
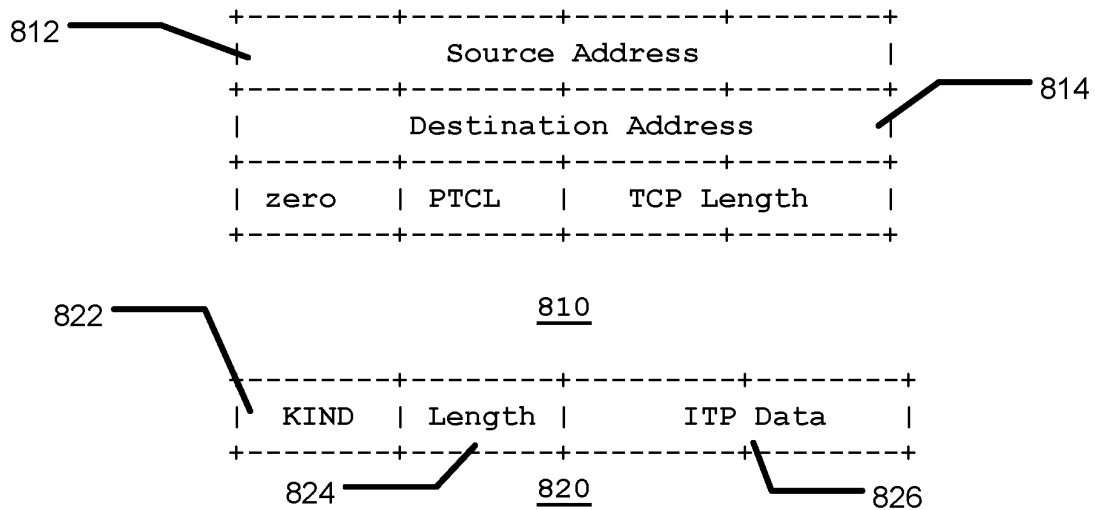
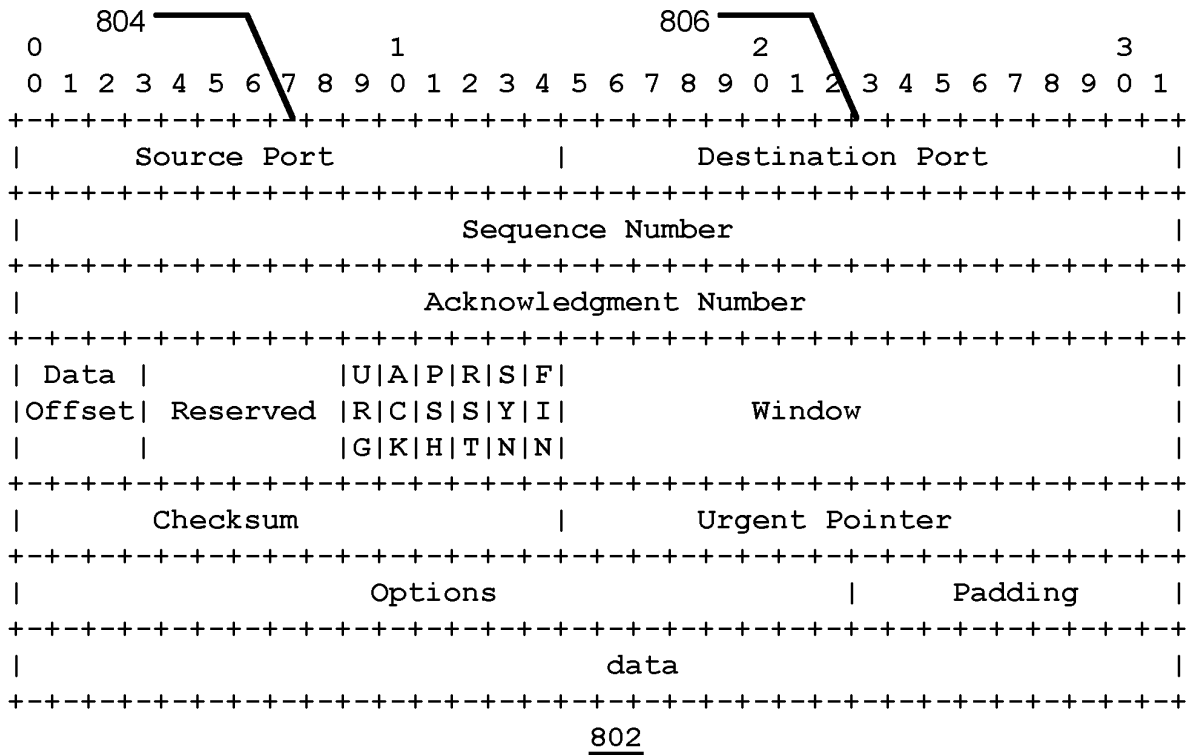


Fig. 7



Figures are adapted from RFC 793

Fig. 8

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.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                              |                        |           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|------------------------|-----------|
| <b>Application Data Sheet 37 CFR 1.76</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                              | Attorney Docket Number | PMOR0120I |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                              | Application Number     |           |
| Title of Invention                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION |                        |           |
| <p>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.</p> <p>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.</p> |                                                                                                              |                        |           |

**Secrecy Order 37 CFR 5.2:**

|                          |                                                                                                                                                                                                                                       |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> | Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.) |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Inventor Information:**

|                                                                                                                                      |                  |                |             |                      |                                       |  |
|--------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------|-------------|----------------------|---------------------------------------|--|
| Inventor                                                                                                                             | 1                |                |             |                      | <input type="button" value="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 i      | US          |                      |                                       |  |
| All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button. |                  |                |             |                      |                                       |  |
| <input type="button" value="Add"/>                                                                                                   |                  |                |             |                      |                                       |  |

**Correspondence Information:**

|                                                                                                                                       |                               |                                          |                                             |
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| Enter either Customer Number or complete the Correspondence Information section below.<br>For further information see 37 CFR 1.33(a). |                               |                                          |                                             |
| <input type="checkbox"/> An Address is being provided for the correspondence information of this application.                         |                               |                                          |                                             |
| Customer Number                                                                                                                       | 92045                         |                                          |                                             |
| Email Address                                                                                                                         | pcaldwell@thecaldwellfirm.com | <input type="button" value="Add Email"/> | <input type="button" value="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                  | PMOR0120I                                                                                                    | Small Entity Status Claimed               | <input checked="" type="checkbox"/> |
| Application Type                        | Nonprovisional                                                                                               |                                           |                                     |
| Subject Matter                          | Utility                                                                                                      |                                           |                                     |
| Total Number of Drawing Sheets (if any) |                                                                                                              | Suggested Figure for Publication (if any) |                                     |

|                                           |                                                                                                              |                        |           |
|-------------------------------------------|--------------------------------------------------------------------------------------------------------------|------------------------|-----------|
| <b>Application Data Sheet 37 CFR 1.76</b> |                                                                                                              | Attorney Docket Number | PMOR0120I |
|                                           |                                                                                                              | 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: | <input checked="" type="radio"/> Customer Number | <input type="radio"/> US Patent Practitioner | <input type="radio"/> 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         | <a href="#">Remove</a>   |                                    |
| Application Number       | Continuity Type | Prior Application Number | Filing or 371(c) Date (YYYY-MM-DD) |
|                          | Continuation of | 16040522                 |                                    |

|                                           |                                                                                                              |                        |  |           |  |
|-------------------------------------------|--------------------------------------------------------------------------------------------------------------|------------------------|--|-----------|--|
| <b>Application Data Sheet 37 CFR 1.76</b> |                                                                                                              | Attorney Docket Number |  | PMOR0120I |  |
|                                           |                                                                                                              | 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) |
| 16040522                                                                                                              | Continuation of         | 15915047                 | 2018-03-07                         | 10075564      | 2018-09-11              |
| 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 <b>Add</b> 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)<sup>i</sup> 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 <sup>i</sup> | Filing Date (YYYY-MM-DD) | Access Code <sup>j</sup> (if applicable) |
|                                                                                                        |                      |                          |                                          |
| Additional Foreign Priority Data may be generated within this form by selecting the <b>Add</b> button. |                      |                          |                                          |

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|-------------------------------------------|--------------------------------------------------------------------------------------------------------------|------------------------|-----------|
| <b>Application Data Sheet 37 CFR 1.76</b> |                                                                                                              | Attorney Docket Number | PMOR0120I |
|                                           |                                                                                                              | Application Number     |           |
| Title of Invention                        | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION |                        |           |

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

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> 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.<br>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. |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                           |                                                                                                              |                        |           |
|-------------------------------------------|--------------------------------------------------------------------------------------------------------------|------------------------|-----------|
| <b>Application Data Sheet 37 CFR 1.76</b> |                                                                                                              | Attorney Docket Number | PMOR0120I |
|                                           |                                                                                                              | 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.

|                                           |                                                                                                              |                        |           |
|-------------------------------------------|--------------------------------------------------------------------------------------------------------------|------------------------|-----------|
| <b>Application Data Sheet 37 CFR 1.76</b> |                                                                                                              | Attorney Docket Number | PMOR0120I |
|                                           |                                                                                                              | 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.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                          |                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|--------------------------------------------------|
| <b>Applicant</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>1</b>                                 | <input type="button" value="Remove"/>            |
| <p>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.</p> <p style="text-align: right;"><input type="button" value="Clear"/></p> |                                          |                                                  |
| <input checked="" type="radio"/> Assignee                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Legal Representative under 35 U.S.C. 117 | Joint Inventor                                   |
| Person to whom the inventor is obligated to assign.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                          | Person who shows sufficient proprietary interest |
| If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                          |                                                  |
| <div style="border: 1px solid black; height: 20px; width: 100%;"></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                          |                                                  |
| Name of the Deceased or Legally Incapacitated Inventor: <div style="border: 1px solid black; height: 20px; width: 100%;"></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                          |                                                  |
| If the Applicant is an Organization check here. <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                          |                                                  |
| Organization Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Jenam Tech, LLC                          |                                                  |
| <b>Mailing Address Information For Applicant:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                          |                                                  |
| Address 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 211 W Tyler Street, Suite C              |                                                  |
| Address 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                          |                                                  |
| City                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Longview                                 | State/Province TX                                |
| Country                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | US                                       | Postal Code 75601                                |
| Phone Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                          | Fax Number                                       |
| Email Address                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                          |                                                  |
| Additional Applicant Data may be generated within this form by selecting the Add button. <input type="button" value="Add"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                          |                                                  |

## Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

|                                           |                                                                                                              |                        |           |
|-------------------------------------------|--------------------------------------------------------------------------------------------------------------|------------------------|-----------|
| <b>Application Data Sheet 37 CFR 1.76</b> |                                                                                                              | Attorney Docket Number | PMOR0120I |
|                                           |                                                                                                              | Application Number     |           |
| Title of Invention                        | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION |                        |           |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                |             |                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------------|-------------|---------------------------------------|
| <b>Assignee</b>                                                                                                                                                                                                                                                                                                                                                                                                                                        | 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. |            |                |             |                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                |             | <input type="button" value="Remove"/> |
| If the Assignee or Non-Applicant Assignee is an Organization check here.                                                                                                                                                                                                                                                                                                                                                                               |            |                |             | <input type="checkbox"/>              |
| Prefix                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Given Name | Middle Name    | Family Name | Suffix                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                |             |                                       |
| <b>Mailing Address Information For Assignee including Non-Applicant Assignee:</b>                                                                                                                                                                                                                                                                                                                                                                      |            |                |             |                                       |
| 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.                                                                                                                                                                                                                                                                                                                                      |            |                |             | <input type="button" value="Add"/>    |

**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.

|                                                                                     |                    |           |                   |                                    |
|-------------------------------------------------------------------------------------|--------------------|-----------|-------------------|------------------------------------|
| <b>Signature</b>                                                                    | /Patrick Caldwell/ |           | Date (YYYY-MM-DD) | 2019-03-28                         |
| First Name                                                                          | Patrick            | Last Name | Caldwell          | Registration Number                |
|                                                                                     |                    |           |                   | 44580                              |
| Additional Signature may be generated within this form by selecting the Add button. |                    |           |                   | <input type="button" value="Add"/> |

|                                           |                                                                                                              |                        |           |
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| <b>Application Data Sheet 37 CFR 1.76</b> |                                                                                                              | Attorney Docket Number | PMOR0120I |
|                                           |                                                                                                              | 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:

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

|                                                                                                     |                        |                    |  |
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| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>( 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 | PMOR0120I          |  |

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| Examiner Initial* | Cite No | Patent Number | Kind Code <sup>1</sup> | 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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| Application Number     |                    |  |
| Filing Date            |                    |  |
| First Named Inventor   | Robert Paul Morris |  |
| Art Unit               |                    |  |
| Examiner Name          |                    |  |
| Attorney Docket Number | PMOR0120I          |  |

| U.S.PATENT APPLICATION PUBLICATIONS                                                                        |         |                                      |                            |                        |                                                 |                                                                        | Remove                                                                 |                |
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| Examiner Initial*                                                                                          | Cite No | Publication Number                   | Kind Code <sup>1</sup>     | 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.                                 |                                                                        |                                                                        |                |
|                                                                                                            | 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                                         |                                                                        |                                                                        |                |
|                                                                                                            | 6       | 20110213820                          | A1                         | 2011-09-01             | Morris                                          |                                                                        |                                                                        |                |
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| Examiner Initial*                                                                                          | Cite No | Foreign Document Number <sup>3</sup> | Country Code <sup>2i</sup> | Kind Code <sup>4</sup> | Publication Date                                | Name of Patentee or Applicant of cited Document                        | Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear | T <sup>5</sup> |
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( Not for submission under 37 CFR 1.99)

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|------------------------|--------------------|
| Application Number     |                    |
| Filing Date            |                    |
| First Named Inventor   | Robert Paul Morris |
| Art Unit               |                    |
| Examiner Name          |                    |
| Attorney Docket Number | PMOR0120I          |

| Examiner<br>Initials* | Cite<br>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 <sup>5</sup> |
|-----------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                       | 1          | Allman, M., Paxson, V., Stevens, W., "TCP Congestion Control", RFC 2581, Internet Engineering Task Force, <a href="http://tools.ietf.org/rfc/rfc2581.txt">http://tools.ietf.org/rfc/rfc2581.txt</a> , April 1999                                                                                                                                                                          |                |
|                       | 2          | Busatto, Fabio, "TCP Keepalive Overview", TCP Keepalive HOWTO, Section 2, <a href="http://ltdp.org/HOWTO/html_single/TCP-Keepalive-HOWTO/#overview">http://ltdp.org/HOWTO/html_single/TCP-Keepalive-HOWTO/#overview</a> , accessed January 2010, May 2007                                                                                                                                 |                |
|                       | 3          | Eggert, L., Gont, F., "TCP User Timeout Option", RFC 5482, Internet Engineering Task Force (IETF), <a href="http://tools.ietf.org/html/rfc5482.txt">http://tools.ietf.org/html/rfc5482.txt</a> , March 2009,                                                                                                                                                                              |                |
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|                       | 10         | Office Action Summary in U.S. Pat. App. No. 12/714,063 dated 2013-09-27                                                                                                                                                                                                                                                                                                                   |                |

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| Application Number     |                    |  |
| Filing Date            |                    |  |
| First Named Inventor   | Robert Paul Morris |  |
| Art Unit               |                    |  |
| Examiner Name          |                    |  |
| Attorney Docket Number | PMOR0120I          |  |

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|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11 | Office Action Summary in U.S. Pat. App. No. 12/714454 dated 2012-02-23                                                                                                                                                                                     |
| 12 | Office Action Summary in U.S. Pat. App. No. 13/477,402 dated 2014-09-24                                                                                                                                                                                    |
| 13 | Office Action Summary in U.S. Pat. App. No. 15/694,802 dated 2017-11-29                                                                                                                                                                                    |
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| Signature  | /Patrick Caldwell/ | Date (YYYY-MM-DD)   | 2019-03-28 |
| Name/Print | Patrick Caldwell   | Registration Number | 44580      |

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## 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.

**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.

# 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. 16/040,522 entitled “METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION,” filed on 07-19-2018, which in turn, 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.

| 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:                       |          | PMOR0120I                                                                                                    |        |                      |
| Filed as Small Entity                         |          |                                                                                                              |        |                      |
| Filing Fees for Utility under 35 USC 111(a)   |          |                                                                                                              |        |                      |
| Description                                   | Fee Code | Quantity                                                                                                     | Amount | Sub-Total in USD(\$) |
| <b>Basic Filing:</b>                          |          |                                                                                                              |        |                      |
| 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(\$) |
|------------------------------------------|----------|----------|--------|----------------------|
| <b>Post-Allowance-and-Post-Issuance:</b> |          |          |        |                      |
| <b>Extension-of-Time:</b>                |          |          |        |                      |
| <b>Miscellaneous:</b>                    |          |          |        |                      |
| <b>Total in USD (\$)</b>                 |          |          |        | <b>785</b>           |

## Electronic Acknowledgement Receipt

|                                             |                                                                                                              |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| <b>EFS ID:</b>                              | 35566410                                                                                                     |
| <b>Application Number:</b>                  | 16368811                                                                                                     |
| <b>International Application Number:</b>    |                                                                                                              |
| <b>Confirmation Number:</b>                 | 8099                                                                                                         |
| <b>Title of Invention:</b>                  | METHODS, SYSTEMS, AND COMPUTER PROGRAM PRODUCTS FOR SHARING INFORMATION FOR DETECTING AN IDLE TCP CONNECTION |
| <b>First Named Inventor/Applicant Name:</b> | Robert Paul Morris                                                                                           |
| <b>Customer Number:</b>                     | 92045                                                                                                        |
| <b>Filer:</b>                               | Patrick Edgar Caldwell                                                                                       |
| <b>Filer Authorized By:</b>                 |                                                                                                              |
| <b>Attorney Docket Number:</b>              | PMOR0120I                                                                                                    |
| <b>Receipt Date:</b>                        | 28-MAR-2019                                                                                                  |
| <b>Filing Date:</b>                         |                                                                                                              |
| <b>Time Stamp:</b>                          | 22:16:36                                                                                                     |
| <b>Application Type:</b>                    | 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                                                                                        | 032919INTEFSW22174400 |
| 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               | Power of Attorney                                   | PMOR_POA_JenamTech_vF_28-Mar-2019.pdf    | 163219                                   | no               | 1                |
|                 |                                                     |                                          | cfcf7c375c3077909b6bd840eb26820aa375c9e5 |                  |                  |
| Warnings:       |                                                     |                                          |                                          |                  |                  |
| Information:    |                                                     |                                          |                                          |                  |                  |
| 2               | Oath or Declaration filed                           | PMOR0120_Declaration_vF_28-Mar-2019.PDF  | 150646                                   | no               | 2                |
|                 |                                                     |                                          | b478bda089f473365224cf9162bf589800b21a1  |                  |                  |
| Warnings:       |                                                     |                                          |                                          |                  |                  |
| Information:    |                                                     |                                          |                                          |                  |                  |
| 3               | Drawings-only black and white line drawings         | PMOR0120_Drawings_vF_28-Mar-2019.pdf     | 97990                                    | no               | 8                |
|                 |                                                     |                                          | 02433b955f97655d0d6a61a5069f40fb812be22f |                  |                  |
| Warnings:       |                                                     |                                          |                                          |                  |                  |
| Information:    |                                                     |                                          |                                          |                  |                  |
| 4               | Application Data Sheet                              | PMOR0120I_ADS_vF_28-Mar-2019.pdf         | 1256151                                  | no               | 9                |
|                 |                                                     |                                          | 0b1d498f9331531e5d8e7a57469b1993f708933  |                  |                  |
| Warnings:       |                                                     |                                          |                                          |                  |                  |
| Information:    |                                                     |                                          |                                          |                  |                  |
| 5               | Information Disclosure Statement (IDS) Form (SB08)  | PMOR0120I_IDS_vF_28-Mar-2019.pdf         | 1054357                                  | no               | 6                |
|                 |                                                     |                                          | 6c3010bc9cdf67ae7987e163142d3ab7968e6914 |                  |                  |
| Warnings:       |                                                     |                                          |                                          |                  |                  |
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| 6               |                                                     | PMOR0120I_Application_vF_28-Mar-2019.pdf | 221607                                   | yes              | 63               |
|                 |                                                     |                                          | 0bf5cd2ce21762e328099e68d4c84d59287f8584 |                  |                  |
|                 | Multipart Description/PDF files in .zip description |                                          |                                          |                  |                  |
|                 | Document Description                                |                                          | Start                                    | End              |                  |

|              |                       |                                  |                                          |    |    |
|--------------|-----------------------|----------------------------------|------------------------------------------|----|----|
|              | Abstract              |                                  | 63                                       | 63 |    |
|              | Claims                |                                  | 54                                       | 62 |    |
|              | Specification         |                                  | 1                                        | 53 |    |
| Warnings:    |                       |                                  |                                          |    |    |
| Information: |                       |                                  |                                          |    |    |
| 7            | Non Patent Literature | 12714063_PMOR110_2012-06-21.pdf  | 166146                                   | no | 6  |
|              |                       |                                  | fda5519a62597bfc84a097d2520b339b52d67c58 |    |    |
| Warnings:    |                       |                                  |                                          |    |    |
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| 8            | Non Patent Literature | 12714063_PMOR110_2013-03-04.pdf  | 254056                                   | no | 8  |
|              |                       |                                  | 6b405611b589e7279137d6c4cfaed6f6baf1acd3 |    |    |
| Warnings:    |                       |                                  |                                          |    |    |
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| 9            | Non Patent Literature | 12714063_PMOR110_2013-09-27.pdf  | 302505                                   | no | 9  |
|              |                       |                                  | 1316af7957cdacd2fcc417a1c00e9bc53e9982fa |    |    |
| Warnings:    |                       |                                  |                                          |    |    |
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| 10           | Non Patent Literature | 12714454_PMOR120_2012-02-23.pdf  | 378122                                   | no | 7  |
|              |                       |                                  | 5fa5d67ed45f567ffa03129b225da7407423580d |    |    |
| Warnings:    |                       |                                  |                                          |    |    |
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| 11           | Non Patent Literature | 13477402_PMOR120A_2014-09-24.pdf | 646849                                   | no | 19 |
|              |                       |                                  | d3beb93e67487fc70aca66f847d25ae169ab15ce |    |    |
| Warnings:    |                       |                                  |                                          |    |    |
| Information: |                       |                                  |                                          |    |    |
| 12           | Non Patent Literature | 15694802_PMOR120B_2017-11-29.pdf | 177699                                   | no | 5  |
|              |                       |                                  | da8891cdc82bb986a51cc2dc8fe4af41925e6f0e |    |    |
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| 13           | Non Patent Literature | congestion-control-ip-tcp_vR.pdf            | 1148781                                  | no | 7  |
|              |                       |                                             | 598ca152094d38541f9b64470b06a9bd585d5cbf |    |    |
| Warnings:    |                       |                                             |                                          |    |    |
| Information: |                       |                                             |                                          |    |    |
| 14           | Non Patent Literature | darpa-internet-program_vR.pdf               | 8230570                                  | no | 81 |
|              |                       |                                             | f05053332fbce9506abaad26fb88f06aca5747ab |    |    |
| Warnings:    |                       |                                             |                                          |    |    |
| Information: |                       |                                             |                                          |    |    |
| 15           | Non Patent Literature | QUIC_Design_vR.pdf                          | 20599589                                 | no | 51 |
|              |                       |                                             | 29ca46d75b7e8da030642336b7ed1c10f7ff1331 |    |    |
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| 16           | Non Patent Literature | QUIC_protocol_vR.pdf                        | 11509629                                 | no | 60 |
|              |                       |                                             | 049e6c6e110c8820f7c49deb5ee7a36bb7ca7548 |    |    |
| Warnings:    |                       |                                             |                                          |    |    |
| Information: |                       |                                             |                                          |    |    |
| 17           | Non Patent Literature | tcp-congestion-control_vR.pdf               | 1700239                                  | no | 13 |
|              |                       |                                             | d584eb24666056761193227f88bcb7772736bcb7 |    |    |
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| 18           | Non Patent Literature | tcp-connection-mgmt-problem-handling_vR.pdf | 334051                                   | no | 2  |
|              |                       |                                             | b46a2e27f8b5d25bbeb6c656d91fd0e99d76b108 |    |    |
| Warnings:    |                       |                                             |                                          |    |    |
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| 19           | Non Patent Literature | tcp-keepalive-overview_vR.pdf               | 293295                                   | no | 2  |
|              |                       |                                             | 814bc235ccb76f365df945dea75d31fee0edb28  |    |    |
| Warnings:    |                       |                                             |                                          |    |    |
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| 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Non Patent Literature | tcp-selective-ack-options_vR.pdf | 1351788                                  | no | 11 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                       |                                  | d161f68c35951022e1285ebfd5177a04835b308f |    |    |
| Warnings:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       |                                  |                                          |    |    |
| Information:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                                  |                                          |    |    |
| 21                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Non Patent Literature | tcp-user-timeout-option_vR.pdf   | 1725586                                  | no | 15 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                       |                                  | c43e7a1540777c02bb96a34e3f34eb2903512a0  |    |    |
| Warnings:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       |                                  |                                          |    |    |
| Information:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                                  |                                          |    |    |
| 22                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Fee Worksheet (SB06)  | fee-info.pdf                     | 35101                                    | no | 2  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                       |                                  | 3d079aea23026aac3058b864fb8a5f0f81f7f5d5 |    |    |
| Warnings:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       |                                  |                                          |    |    |
| Information:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                                  |                                          |    |    |
| Total Files Size (in bytes):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                                  | 51797976                                 |    |    |
| <p><b>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.</b></p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b><br/>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.</p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b><br/>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.</p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b><br/>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.</p> |                       |                                  |                                          |    |    |