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UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/838,014	12/11/2017	Ping Pan	5015-0003

CONFIRMATION NO. 4691

POWER OF ATTORNEY NOTICE



OC000000115461337

60533
TOLER LAW GROUP
TOLER LAW GROUP
8500 BLUFFSTONE COVE
SUITE A201
AUSTIN, TX 78759

Date Mailed: 03/17/2020

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 03/09/2020.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

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

/cnguyen/



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Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/838,014	12/11/2017	Ping Pan	K379-012003

164
KINNEY & LANGE, P.A.
312 SOUTH THIRD STREET
MINNEAPOLIS, MN 55415-1002

CONFIRMATION NO. 4691
POA ACCEPTANCE LETTER



Date Mailed: 03/17/2020

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 03/09/2020.

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

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

/cnguyen/

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	15/838,014
Filing Date	December 11, 2017
First Named Inventor	Ping Pan
Title	APPLICATION WIRE
Art Unit	2478
Examiner Name	Brandon M. Renner
Attorney Docket Number	K379-012003

SIGNATURE of Applicant or Patent Practitioner

Signature	/Ian MacKinnon/	Date (Optional)	2020-03-09
Name	Ian MacKinnon	Registration Number	26,04734,660
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

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



*Total of 1 forms are submitted.

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

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

POWER OF ATTORNEY BY APPLICANT

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

Application Number

Filing Date

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



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

00164

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):

K.Mizra 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

Date (Optional)

Name

Charles Hausman

Title

Chief Legal Officer

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



Total of 1 forms are submitted.

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

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

Electronic Acknowledgement Receipt

EFS ID:	38809309
Application Number:	15838014
International Application Number:	
Confirmation Number:	4691
Title of Invention:	APPLICATION WIRE
First Named Inventor/Applicant Name:	Ping Pan
Customer Number:	60533
Filer:	Ian David MacKinnon
Filer Authorized By:	
Attorney Docket Number:	5015-0003
Receipt Date:	09-MAR-2020
Filing Date:	11-DEC-2017
Time Stamp:	16:48:02
Application Type:	Utility under 35 USC 111(a)

Payment information:

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

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Assignee showing of ownership per 37 CFR 3.73	2020-03-09_373_K379-012003.pdf	121619 51683de1c183c899116ef78dcdfcd0707044a9b4	no	3

Warnings:

Information:					
2	Power of Attorney	2020-03-09_POA_K379-012003.pdf	1937279	no	2
			82000f68c99f4de22f921f84d0399f43af70f9be		
Warnings:					
Information:					
Total Files Size (in bytes):				2058898	
<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><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

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.

STATEMENT UNDER 37 CFR 3.73(c)Applicant/Patent Owner: K. Mizra LLCApplication No./Patent No.: 10,411,999Filed/Issue Date: September 10, 2019Titled: APPLICATION WIREK. Mizra LLC, a Limited Liability Company

(Name of Assignee)

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

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

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

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

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

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

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

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

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

1. From: BRIXHAM SOLUTIONS LTD. To: GLOBAL INNOVATION AGGREGATORS LLC.The document was recorded in the United States Patent and Trademark Office at
Reel 044802, Frame 0733, or for which a copy thereof is attached.2. From: GLOBAL INNOVATION AGGREGATORS, LLC To: K.MIZRA LLCThe document was recorded in the United States Patent and Trademark Office at
Reel 051579, Frame 0773, or for which a copy thereof is attached.

[Page 1 of 2]

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

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

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

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

4. From: _____ To: _____

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

5. From: _____ To: _____

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

6. From: _____ To: _____

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

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



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

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

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

/Ian MacKinnon/

Signature

Ian MacKinnon

Printed or Typed Name

2020-03-09

Date

34,660

Title or Registration Number

Privacy Act Statement

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

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

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

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT5908383

SUBMISSION TYPE:	NEW ASSIGNMENT	
NATURE OF CONVEYANCE:	ASSIGNMENT	
CONVEYING PARTY DATA		
Name		Execution Date
GLOBAL INNOVATION AGGREGATORS, LLC		12/24/2019
RECEIVING PARTY DATA		
Name:	K.MIZRA LLC	
Street Address:	2160 CENTURY PARK EAST	
Internal Address:	#707	
City:	LOS ANGELES	
State/Country:	CALIFORNIA	
Postal Code:	90067	
PROPERTY NUMBERS Total: 61		
Property Type	Number	
Patent Number:	7535895	
Patent Number:	7970009	
Patent Number:	7899916	
Patent Number:	8782282	
Patent Number:	8949381	
Patent Number:	7609621	
Patent Number:	7940652	
Patent Number:	8811392	
Patent Number:	9160658	
Patent Number:	8588061	
Patent Number:	8213311	
Patent Number:	8848711	
Patent Number:	8619784	
Patent Number:	8018880	
Patent Number:	8385355	
Patent Number:	8582427	
Patent Number:	8861545	
Patent Number:	9264354	
Patent Number:	9749249	

Property Type	Number
Patent Number:	9197675
Patent Number:	9282010
Patent Number:	9413650
Patent Number:	9143463
Patent Number:	9172638
Patent Number:	9413694
Patent Number:	9444733
Patent Number:	9485176
Patent Number:	9843509
Patent Number:	9832042
Patent Number:	9680713
Patent Number:	10411999
Application Number:	15687633
Application Number:	16536103
Patent Number:	6965612
Patent Number:	7020158
Patent Number:	7613213
Patent Number:	7558287
Patent Number:	7630397
Patent Number:	8929312
Patent Number:	9219533
Patent Number:	9161304
Patent Number:	8958819
Patent Number:	9161299
Patent Number:	7395245
Patent Number:	7715564
Patent Number:	7359883
Patent Number:	7290047
Patent Number:	8521651
Patent Number:	7680808
Patent Number:	7451202
Patent Number:	7571488
Patent Number:	8073939
Patent Number:	8745751
Patent Number:	8639751
Patent Number:	8068452
Patent Number:	8483131
Patent Number:	8438448

Property Type	Number
Patent Number:	8548324
Patent Number:	8825797
Patent Number:	8731563
Patent Number:	8670331

CORRESPONDENCE DATA

Fax Number: (212)586-5095

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: 2125865800

Email: DFRIEDMAN@CTSWLAW.COM

Correspondent Name: DANIEL J. FRIEDMAN

Address Line 1: 420 LEXINGTON AVENUE

Address Line 2: SUITE 2400

Address Line 4: NEW YORK, NEW YORK 10170

NAME OF SUBMITTER:	DANIEL J. FRIEDMAN
SIGNATURE:	/Daniel J. Friedman/
DATE SIGNED:	01/13/2020
	This document serves as an Oath/Declaration (37 CFR 1.63).

Total Attachments: 4

source=Patent Assignment - Global Innovation to K.Mizra (00407808)#page1.tif

source=Patent Assignment - Global Innovation to K.Mizra (00407808)#page2.tif

source=Patent Assignment - Global Innovation to K.Mizra (00407808)#page3.tif

source=Patent Assignment - Global Innovation to K.Mizra (00407808)#page4.tif

EXHIBIT 1
Patents

Owner	Country	Application No.	Patent No.
Global Innovation Aggregators, LLC	United States	10/447,825	7535895
Global Innovation Aggregators, LLC	United States	10/646,340	7970009
Global Innovation Aggregators, LLC	United States	10/677,090	7899916
Global Innovation Aggregators, LLC	United States	10/742,573	8782282
Global Innovation Aggregators, LLC	United States	10/749,922	8949381
Global Innovation Aggregators, LLC	United States	10/776,460	7609621
Global Innovation Aggregators, LLC	United States	11/354,569	7940652
Global Innovation Aggregators, LLC	United States	11/486,389	8811392
Global Innovation Aggregators, LLC	United States	11/486,432	9160658
Global Innovation Aggregators, LLC	United States	11/543,727	8588061
Global Innovation Aggregators, LLC	United States	11/580,530	8213311
Global Innovation Aggregators, LLC	United States	11/890,308	8848711
Global Innovation Aggregators, LLC	United States	12/009,833	8619784
Global Innovation Aggregators, LLC	United States	12/079,413	8018880
Global Innovation Aggregators, LLC	United States	12/290,463	8385355
Global Innovation Aggregators, LLC	United States	13/038,282	8582427
Global Innovation Aggregators, LLC	United States	13/117,768	8861545
Global Innovation Aggregators, LLC	United States	14/050,067	9264354
Global Innovation Aggregators, LLC	United States	14/050,078	9749249
Global Innovation Aggregators, LLC	United States	14/055,721	9197675

Global Innovation Aggregators, LLC	United States	14/269,039	9282010
Global Innovation Aggregators, LLC	United States	14/307,454	9413650
Global Innovation Aggregators, LLC	United States	14/308,436	9143463
Global Innovation Aggregators, LLC	United States	14/469,427	9172638
Global Innovation Aggregators, LLC	United States	14/835,517	9413694
Global Innovation Aggregators, LLC	United States	14/864,689	9444733
Global Innovation Aggregators, LLC	United States	14/864,843	9485176
Global Innovation Aggregators, LLC	United States	14/919,687	9843509
Global Innovation Aggregators, LLC	United States	14/991,862	9832042
Global Innovation Aggregators, LLC	United States	15/054,070	9680713
Global Innovation Aggregators, LLC	United States	15/838,014	10411999
Global Innovation Aggregators, LLC	United States	15/687,633	
Global Innovation Aggregators, LLC	United States	16/536,103	
Global Innovation Aggregators, LLC	United States	10/323,442	6965612
Global Innovation Aggregators, LLC	United States	10/900,737	7020158
Global Innovation Aggregators, LLC	United States	11/209,230	7613213
Global Innovation Aggregators, LLC	United States	11/210,135	7558287
Global Innovation Aggregators, LLC	United States	11/553,151	7630397
Global Innovation Aggregators, LLC	United States	13/396,453	8929312
Global Innovation Aggregators, LLC	United States	13/415,463	9219533
Global Innovation Aggregators, LLC	United States	13/447,864	9161304
Global Innovation Aggregators, LLC	United States	13/924,458	8958819

Global Innovation Aggregators, LLC	United States	13/926,602	9161299
Global Innovation Aggregators, LLC	United States	10/161,673	7395245
Global Innovation Aggregators, LLC	United States	10/212,068	7715564
Global Innovation Aggregators, LLC	United States	10/257,353	7359883
Global Innovation Aggregators, LLC	United States	10/354,080	7290047
Global Innovation Aggregators, LLC	United States	10/542,362	8521651
Global Innovation Aggregators, LLC	United States	10/568,284	7680808
Global Innovation Aggregators, LLC	United States	10/738,302	7451202
Global Innovation Aggregators, LLC	United States	11/093,116	7571488
Global Innovation Aggregators, LLC	United States	11/892,105	8073939
Global Innovation Aggregators, LLC	United States	13/283,921	8745751
Global Innovation Aggregators, LLC	United States	13/283,939	8639751
Global Innovation Aggregators, LLC	United States	12/302,052	8068452
Global Innovation Aggregators, LLC	United States	12/666,237	8483131
Global Innovation Aggregators, LLC	United States	12/991,628	8438448
Global Innovation Aggregators, LLC	United States	13/140,085	8548324
Global Innovation Aggregators, LLC	United States	13/257,942	8825797
Global Innovation Aggregators, LLC	United States	13/375,887	8731563
Global Innovation Aggregators, LLC	United States	13/375,888	8670331



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/838,014	09/10/2019	10411999	5015-0003	4691

60533 7590 08/21/2019
TOLER LAW GROUP
TOLER LAW GROUP
8500 BLUFFSTONE COVE
SUITE A201
AUSTIN, TX 78759

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):

Ping Pan, San Jose, CA;
Global Innovation Aggregators LLC., Pasadena, CA;
Richard D. Gitlin, Littler Silver, NJ;

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.

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

Application Number	15838014
Filing Date	2017-12-11
First Named Inventor	Pan, Ping
Art Unit	2478
Examiner Name	Renner, Brandon M
Attorney Docket Number	PL133-0047

Change(s) applied
to document,

/C.M./

6/12/2019

10	20040105459	06-2004 2003-06-00	Mannam
11	20040114595	06-2004 2003-06-17	Doukai
12	20040133692	2004-07-00	Blanchet
13	20040156313	2004-08-00	Hofmeister
14	20040174865	2004-09-00	O'Neil
15	20040252717	2004-12-00	Solomon
16	20050018605	2005-01-00	Foote
17	20050044262	2005-02-00	Luo
18	20050080911	2005-04-00	Stiers
19	20050220148	2005-10-00	DelRegno
20	20050237927	2005-10-27	Kano

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)

60533 7590 05/01/2019
TOLER LAW GROUP
TOLER LAW GROUP
8500 BLUFFSTONE COVE
SUITE A201
AUSTIN, TX 78759

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.
15/838,014	12/11/2017	Ping Pan	5015-0003	4691

TITLE OF INVENTION: APPLICATION WIRE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSU FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1000	\$0.00	\$0.00	\$1000	08/01/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
RENNER, BRANDON M	2478	370-235000

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 Toler Law Group, PC

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)

GLOBAL INNOVATION AGGREGATORS, LLC. PASADENA, CA

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. 502469

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 8-1-2019

Typed or printed name Jeffrey G. Toler

Registration No. 38,342

Electronic Patent Application Fee Transmittal

Application Number:	15838014			
Filing Date:	11-Dec-2017			
Title of Invention:	APPLICATION WIRE			
First Named Inventor/Applicant Name:	Ping Pan			
Filer:	Jeffrey G. Toler/Angie Blazek			
Attorney Docket Number:	5015-0003			
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
PUBL. FEE- EARLY, VOLUNTARY, OR NORMAL	1504	1	0	0
UTILITY APPL ISSUE FEE	1501	1	1000	1000
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1000

Electronic Acknowledgement Receipt

EFS ID:	36754620
Application Number:	15838014
International Application Number:	
Confirmation Number:	4691
Title of Invention:	APPLICATION WIRE
First Named Inventor/Applicant Name:	Ping Pan
Customer Number:	60533
Filer:	Jeffrey G. Toler/Angie Blazek
Filer Authorized By:	Jeffrey G. Toler
Attorney Docket Number:	5015-0003
Receipt Date:	01-AUG-2019
Filing Date:	11-DEC-2017
Time Stamp:	13:18:59
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$ 1000
RAM confirmation Number	E201981D19225584
Deposit Account	502469
Authorized User	Angie Blazek

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

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

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)
37 CFR 1.20 (Post Issuance fees)
37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	5015-0003_FeeTransmittal_1A UG19.pdf	90523	no	1
			6869d125a0cfd135f8f9d9fa55f343a478eb934		

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	31811	no	2
			ffecf53af63e71010135ce69d9a4c2a5dca9122e		

Warnings:

Information:

Total Files Size (in bytes):	122334
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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



UNITED STATES PATENT AND TRADEMARK OFFICE

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

60533 7590 05/01/2019
TOLER LAW GROUP
TOLER LAW GROUP
8500 BLUFFSTONE COVE
SUITE A201
AUSTIN, TX 78759

EXAMINER

RENNER, BRANDON M

ART UNIT

PAPER NUMBER

2478

DATE MAILED: 05/01/2019

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/838,014	12/11/2017	Ping Pan	5015-0003	4691

TITLE OF INVENTION: APPLICATION WIRE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1000	\$0.00	\$0.00	\$1000	08/01/2019

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

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

HOW TO REPLY TO THIS NOTICE:

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

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

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

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

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

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

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

PART B - FEE(S) TRANSMITTAL

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

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

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

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

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

60533 7590 05/01/2019
TOLER LAW GROUP
TOLER LAW GROUP
8500 BLUFFSTONE COVE
SUITE A201
AUSTIN, TX 78759

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.
15/838,014	12/11/2017	Ping Pan	5015-0003	4691

TITLE OF INVENTION: APPLICATION WIRE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1000	\$0.00	\$0.00	\$1000	08/01/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
RENNER, BRANDON M	2478	370-235000

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

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

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

2. For printing on the patent front page, list

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

1 _____

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

2 _____

3 _____

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

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

(A) NAME OF ASSIGNEE

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

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

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

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

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

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

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

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

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

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

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

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

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/838,014	12/11/2017	Ping Pan	5015-0003	4691
60533	7590	05/01/2019	EXAMINER	
TOLER LAW GROUP TOLER LAW GROUP 8500 BLUFFSTONE COVE SUITE A201 AUSTIN, TX 78759			RENNER, BRANDON M	
			ART UNIT	PAPER NUMBER
			2478	
DATE MAILED: 05/01/2019				

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

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

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

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

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

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

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

Privacy Act Statement

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

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

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

Notice of Allowability	Application No. 15/838,014	Applicant(s) Pan et al.	
	Examiner BRANDON M RENNER	Art Unit 2478	AIA (FITF) Status No

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

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 2/5/2019.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

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

3. ☒ The allowed claim(s) is/are 21-28 and 30-37. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

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

Certified copies:

a) ☐ All b) ☐ Some *c) ☐ None of the:

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

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

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

* Certified copies not received: _____.

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

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

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

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

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)	5. ☒ Examiner's Amendment/Comment
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.	6. ☒ Examiner's Statement of Reasons for Allowance
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.	7. ☐ Other _____.
4. ☒ Interview Summary (PTO-413), Paper No./Mail Date. _____.	

/BRANDON M RENNER/ Primary Examiner, Art Unit 2478	
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DETAILED ACTION

Notice of Pre-AIA or AIA Status

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

Response to Amendment

This communication is in response to the amendment filed 2/5/2019. The amendment has been entered and considered.

EXAMINER'S AMENDMENT

Authorization for this examiner's amendment was given in an interview with Kenton Mullins on 4/25/2019.

Please amend the claims as follows:

21. (Currently amended) A method comprising:

at an ingress node associated with a multiprotocol label switching system

(MPLS) network , performing:

identifying information associated with an application flow based on one or

more unencapsulated packet headers of the application flow or

based on an ingress data stream that includes the application flow;

and

in response to identifying the information, and based on stored data
mapping application flows with psuedowires, determining a plurality
of pseudowires as paths through the MPLS network for the
application flow, wherein the stored data indicates, for a sending
device application, a distributed mapping of the application flow via
at least one of the plurality of psuedowires; and
communicating data associated with the application via at least one of the
pseudowires.

25. (Currently amended) An ingress device comprising:

a memory that stores instructions; and

a processor communicatively coupled to the memory and configured to execute
or facilitate execution of the instructions to:

identify information associated with an application flow based on one or
more unencapsulated packet headers of the application flow or
based on an ingress data stream that includes the application flow;
~~and~~

in response to identifying the information, and based on stored data
mapping application flows to psuedowires, determine a plurality of
pseudowires as paths through a multiprotocol label switching
(MPLS) network for the application flow, wherein the stored data
indicates, for a sending device application, a distributed mapping of
the application flow via at least one of the plurality of psuedowires;
and

communicate data associated with the application via at least one of the pseudowires.

29. (Canceled).

30. (Currently amended) The method of claim 21, wherein the stored data defines an application wire for use by ~~an~~ the application, the application wire configured to communicate particular data:

from a particular application flow of the application to an edge node; and

from the edge node through the MPLS network via the plurality of pseudowires;

~~the plurality of pseudowires associated, via the stored data, with the application.~~

31. (Currently amended) The method of claim 21, wherein each of the plurality of pseudowires:

extends from the application flow in an ingress direction into the MPLS network;

and

is virtually coupled between a particular device and a[[n]] particular application

being executed at a particular client device.

32. (Currently amended) The method of claim 21, wherein the application flow includes data packets transmitted and received by ~~an~~ the application, wherein the data is communicated via the at least one of the plurality of pseudowires, and further comprising assigning, at an edge node, sequence numbers to ingress data packets in an order in which they are received by the edge node.

33. (Currently amended) The method of claim 21, wherein the stored data maps the application flow to the plurality of pseudowires to create an application wire for use by ~~an~~ the application.

Allowable Subject Matter

Claims 21-28 and 30-33 are allowed.

The following is an examiner's statement of reasons for allowance: the prior art of record, either alone or in combination, fails to teach or suggest identifying information from a flow based on an unencapsulated packet header or ingress stream, wherein the flows are mapped to pseudowires in a MPLS network based on stored information wherein the stored information indicates, for the sending device application, a mapping of the flow via a pseudowire and the data associated with the application is communicated via the pseudowire. These limitations in combination with the other limitations of the independent claims are not taught or suggested in the art of record and thus deemed allowable.

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

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRANDON M RENNER whose telephone number is

(571)270-3621. The examiner can normally be reached on Monday-Friday 7am-5pm EST.

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, Derrick Ferris can be reached on (571)-272-3123. 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.

/BRANDON M RENNER/
Primary Examiner, Art Unit 2478

<i>Examiner-Initiated Interview Summary</i>	Application No. 15/838,014	Applicant(s) Pan et al.	
	Examiner BRANDON M RENNER	Art Unit 2478	AIA (FITF) Status No

All participants (applicant, applicant's representative, PTO personnel):

(1) BRANDON M. RENNER. (3) ____.

(2) Kenton Mullins. (4) ____.

Date of Interview: 25 April 2019.

Type: ☒ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☒ No.

If Yes, brief description: ____.

Issues Discussed ☐ 101 ☐ 112 ☐ 102 ☐ 103 ☒ Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: N/A.

Identification of prior art discussed: N/A.

Substance of Interview

(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Discussion of proposed amendments to be entered to place the case in condition for allowance. Applicant agreed to let the Examiner do an Examiner's amendment to enter the proposed claim amendments..

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

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

☐ Attachment

/BRANDON M RENNER/
Primary Examiner, Art Unit 2478

<i>Search Notes</i> 	Application/Control No. 15/838,014	Applicant(s)/Patent Under Reexamination Pan et al.
	Examiner BRANDON M RENNER	Art Unit 2478

CPC - Searched*		
Symbol	Date	Examiner
h04I29/06 - text limited	08/29/2018	BR
updated search	04/25/2019	BR

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

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

Search Notes		
Search Notes	Date	Examiner
EAST Class limited with text search; Inventor & assignee search and text search (as per attached history)	08/29/2018	BR
updated search	04/25/2019	BR

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
h04I	29/06 - text limited	04/25/2019	BR

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Issue Classification 	Application/Control No. 15/838,014	Applicant(s)/Patent Under Reexamination Pan et al.	
	Examiner BRANDON M RENNER	Art Unit 2478	

CPC						
Symbol					Type	Version
H04L	/	45	/	68	F	2013-01-01
H04L	/	45	/	00	I	2013-01-01
H04L	/	45	/	38	I	2013-01-01
H04L	/	45	/	50	I	2013-01-01
H04L	/	69	/	22	I	2013-01-01
H04L	/	65	/	1013	I	2013-01-01
H04L	/	45	/	74	I	2013-01-01
H04L	/	47	/	24	I	2013-01-01

CPC Combination Sets				
Symbol	Type	Set	Ranking	Version
/				

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 16	
/BRANDON M RENNER/ Primary Examiner, Art Unit 2478 (Primary Examiner) _____ (Date) _____		25 April 2019 O.G. Print Claim(s) 21	O.G. Print Figure 4

Issue Classification 	Application/Control No. 15/838,014	Applicant(s)/Patent Under Reexamination Pan et al.
	Examiner BRANDON M RENNER	Art Unit 2478

INTERNATIONAL CLASSIFICATION			
CLAIMED			
H04L	/	29	/ 06

NON-CLAIMED			
/		/	

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS

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

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	16	
/BRANDON M RENNER/ Primary Examiner, Art Unit 2478	25 April 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	21	4

Issue Classification 	Application/Control No. 15/838,014	Applicant(s)/Patent Under Reexamination Pan et al.
	Examiner BRANDON M RENNER	Art Unit 2478

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☒ T.D. ☐ R.1.47															
CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		10		19	16	28	12	37						
	2		11		20		29								
	3		12	1	21	5	30								
	4		13	2	22	6	31								
	5		14	3	23	7	32								
	6		15	4	24	8	33								
	7		16	13	25	9	34								
	8		17	14	26	10	35								
	9		18	15	27	11	36								

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 16	
/BRANDON M RENNER/ Primary Examiner, Art Unit 2478 (Primary Examiner) _____ (Date) _____		O.G. Print Claim(s) 21	O.G. Print Figure 4

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	5902	encapsulat\$4 with (first portion subset) near4 data	US-PGPUB; USPAT	OR	ON	2019/04/25 09:28
L2	179	encapsulat\$4 with (second another different) near4 (portion subset) near4 data	US-PGPUB; USPAT	OR	ON	2019/04/25 09:28
L3	174	L1 and L2	US-PGPUB; USPAT	OR	ON	2019/04/25 09:28
L4	81	L1 and L2 and (ethernet pseudowire psuedo\$wire)	US-PGPUB; USPAT	OR	ON	2019/04/25 09:28
L5	1269	(map\$4) with (application) same (ethernet pseudowire psuedo\$wire)	US-PGPUB; USPAT	OR	ON	2019/04/25 09:30
L6	1750	((virtual adj circuit) pseudowire) same map\$5	US-PGPUB; USPAT	OR	ON	2019/04/25 09:32
L7	1750	((virtual adj circuit) pseudowire) same map\$5	US-PGPUB; USPAT	OR	ON	2019/04/25 09:32
L8	17564	(map\$4) with (application) same (ethernet pseudowire psuedo\$wire virtual)	US-PGPUB; USPAT	OR	ON	2019/04/25 09:32
L9	394	(pseudo\$wire pw) same ((exceed\$4 greater) near4 (rate threshold))	US-PGPUB; USPAT	OR	ON	2019/04/25 09:34
L10	18468	(ethernet pseudowire psuedo\$wire virtual) with (Traffic flow data application) near4 map\$4	US-PGPUB; USPAT	OR	ON	2019/04/25 09:38
L11	130692	(ethernet pseudowire psuedo\$wire virtual) with (Traffic flow data application) near4 (map\$4 relat\$4 stor\$4)	US-PGPUB; USPAT	OR	ON	2019/04/25 09:38
L12	1599	(ethernet pseudowire psuedo\$wire virtual) with (Traffic flow data application) near4 (map\$4 relat\$4 stor\$4) same encapsulat\$4	US-PGPUB; USPAT	OR	ON	2019/04/25 09:41
L13	486	(ethernet pseudowire psuedo\$wire virtual) with (Traffic flow data application) near4 (map\$4 relat\$4 stor\$4) same encapsulat\$4 and (mpls label)	US-PGPUB; USPAT	OR	ON	2019/04/25 09:45
L14	394	(pseudo\$wire pw) same ((exceed\$4 greater) near4 (rate threshold))	US-PGPUB; USPAT	OR	ON	2019/04/25 09:47
L15	3411	(rout\$4 forward\$4 send\$4 split\$4 divid\$4) with (Traffic flows streams data) with (multiple plurality second\$4) with (tunnel pseudo\$wire)	US-PGPUB; USPAT	OR	ON	2019/04/25 09:47

L16	570	(rout\$4 forward\$4 send\$4 split\$4 divid\$4) with (Traffic flows streams data) with (multiple plurality second\$4) with (tunnel pseudo\$wire) and (exceed\$4 greater) with (threshold limit rate speed)	US-PGPUB; USPAT	OR	ON	2019/04/25 09:47
L17	388	(balanc\$4 distribut\$4) with (pseudowire ethernet virtual atm (frame near2 relay) layer\$3) with exceed\$4 near4 (limit threshold)	US-PGPUB; USPAT	OR	OFF	2019/04/25 09:48

4/ 25/ 2019 10:06:28 AM
C:\ Users\ brenner\ Documents\ EAST\ Workspaces\ 15838014.wsp

EAST Search History

EAST Search History (I nterference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L18	13	(pseudowire and rate).clm.	USPAT	OR	ON	2019/04/25 10:04
L19	144	(pseudowire and data).clm.	USPAT	OR	ON	2019/04/25 10:04
L20	1077	(h04l29/06 h04l12/66 h04l65/\$.cpc. and (pseudowire encapsulat\$4).clm.	USPAT	OR	ON	2019/04/25 10:04
L21	5	(h04l29/06 h04l12/66 h04l65/\$.cpc. and (pseudowire and encapsulat\$4).clm.	USPAT	OR	ON	2019/04/25 10:04

4/ 25/ 2019 10:07:02 AM

C:\ Users\ brenner\ Documents\ EAST\ Workspaces\ 15838014.wsp

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TOLER LAW GROUP
TOLER LAW GROUP
8500 BLUFFSTONE COVE
SUITE A201
AUSTIN, TX 78759



**Courtesy Reminder for
Application Serial No: 15/838,014**

Attorney Docket No: 5015-0003

Customer Number: 60533

Date of Electronic Notification: 04/18/2019

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:

info@brainsparkassociates.com

joe@brainsparkassociates.com

sandra@brainsparkassociates.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 or call 1-866-217-9197.



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www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/838,014	12/11/2017	Ping Pan	GLIA-012US

CONFIRMATION NO. 4691

POA ACCEPTANCE LETTER



OC000000107648345

60533
TOLER LAW GROUP
TOLER LAW GROUP
8500 BLUFFSTONE COVE
SUITE A201
AUSTIN, TX 78759

Date Mailed: 04/25/2019

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 04/22/2019.

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

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

/qtran/



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/838,014	12/11/2017	Ping Pan	GLIA-012US

CONFIRMATION NO. 4691

POWER OF ATTORNEY NOTICE



OC000000107648310

98618
BrainSpark Associates, LLC
528 South Meadows Drive
Chandler, AZ 85224

Date Mailed: 04/25/2019

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 04/22/2019.

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

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

/qtran/

Application Number * 15/838,014 *	Application/Control No. 15/838,014	Applicant(s)/Patent under Reexamination Pan et al.	
	Examiner RENNER, BRANDON M	Art Unit 2478	
Document Code - DISQ		Internal Document - DO NOT MAIL	

TERMINAL DISCLAIMER	☒ APPROVED	☐ DISAPPROVED
Date Filed: <u>19 April 2019</u>	This patent is subject to a Terminal Disclaimer	

Approved/Disapproved by:
/FELICIA D ROBERTS/ Technology Center: OPLC Telephone: (571)272-0550 8,588,061

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	15/838,014
Filing Date	December 11, 2017
First Named Inventor	Ping Pan
Title	APPLICATION WIRE
Art Unit	2478
Examiner Name	RENNER, BRANDON M
Attorney Docket Number	GLIA-012US

SIGNATURE of Applicant or Patent Practitioner

Signature	/Jeffrey G. Toler/	Date (Optional)	04-19-19
Name	Jeffrey G. Toler	Registration Number	38,342
Title (if Applicant is a juristic entity)	Attorney of Record		
Applicant Name (if Applicant is a juristic entity)	GLOBAL INNOVATION AGGREGATORS LLC.		

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

☐

*Total of _____ 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.

POWER OF ATTORNEY BY APPLICANT

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

Application Number	Filing Date

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

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

60533

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):

GLOBAL INNOVATION AGGREGATORS 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

Date (Optional)

Name

Rasheed McWilliams

Title

President

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.

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 Acknowledgement Receipt

EFS ID:	35794540
Application Number:	15838014
International Application Number:	
Confirmation Number:	4691
Title of Invention:	APPLICATION WIRE
First Named Inventor/Applicant Name:	Ping Pan
Customer Number:	98618
Filer:	Jeffrey G. Toler/Angie Blazek
Filer Authorized By:	Jeffrey G. Toler
Attorney Docket Number:	GLIA-012US
Receipt Date:	22-APR-2019
Filing Date:	11-DEC-2017
Time Stamp:	17:20:35
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	5015-0003_POA_19APR19.pdf	275021	no	3
			8aa5f71d6fdb05238bf4c1c5f466d1806a2a53a5		

Warnings:

Information:	
Total Files Size (in bytes):	275021
<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><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>	

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.

**TERMINAL DISCLAIMER TO OBIATE A DOUBLE PATENTING
REJECTION OVER A "PRIOR" PATENT**Docket Number (Optional)
GLIA-012US

In re Application of: Ping Pan et al.

Application No.: 15/838,014

Filed: December 11, 2017

For: APPLICATION WIRE

The applicant, Global Innovation Aggregators LLC, owner of 100 percent interest 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** No. 8,588,061 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The applicant hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the applicant does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

- expires for failure to pay a maintenance fee;
- is held unenforceable;
- is found invalid by a court of competent jurisdiction;
- is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
- has all claims canceled by a reexamination certificate;
- is reissued; or
- is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☒ The undersigned is the applicant. If the applicant is an assignee, the undersigned is authorized to act on behalf of the assignee.

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

2. ☐ The undersigned is an attorney or agent of record. Reg. No. _____



Signature

April 18, 2019

Date

Rasheed McWilliams

Typed or printed name

President

Title

310-844-1950

Telephone Number

- ☒ Terminal disclaimer fee under 37 CFR 1.20(d) included.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

This collection of information is required by 37 CFR 1.321. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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

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.

Electronic Patent Application Fee Transmittal

Application Number:	15838014			
Filing Date:	11-Dec-2017			
Title of Invention:	APPLICATION WIRE			
First Named Inventor/Applicant Name:	Ping Pan			
Filer:	Jeffrey G. Toler/Angie Blazek			
Attorney Docket Number:	GLIA-012US			
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
STATUTORY OR TERMINAL DISCLAIMER	1814	1	160	160
Total in USD (\$)				160

Electronic Acknowledgement Receipt

EFS ID:	35774562
Application Number:	15838014
International Application Number:	
Confirmation Number:	4691
Title of Invention:	APPLICATION WIRE
First Named Inventor/Applicant Name:	Ping Pan
Customer Number:	98618
Filer:	Jeffrey G. Toler/Angie Blazek
Filer Authorized By:	Jeffrey G. Toler
Attorney Docket Number:	GLIA-012US
Receipt Date:	19-APR-2019
Filing Date:	11-DEC-2017
Time Stamp:	10:43:19
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$ 160
RAM confirmation Number	041919INTEFSW00008493502469
Deposit Account	502469
Authorized User	Angie Blazek

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

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

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)
37 CFR 1.20 (Post Issuance fees)
37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Terminal Disclaimer Filed	5015-0003_Terminal_Disclaimer_McWilliams.pdf	193508	no	2
			8b11002c269730ba05e7f1f45f725ff564164da3		

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	30417	no	2
			7635cc6ce85ae5ea8d59ed6a6b26476f3dd1ab5b		

Warnings:

Information:

Total Files Size (in bytes):	223925
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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.



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 www.uspto.gov

APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/838,014	12/11/2017	Ping Pan	GLIA-012US

CONFIRMATION NO. 4691

98618
 BrainSpark Associates, LLC
 528 South Meadows Drive
 Chandler, AZ 85224



OC000000107481541

Cc: TOLER LAW GROUP
 TOLER LAW GROUP
 8500 BLUFFSTONE COVE
 SUITE A201
 AUSTIN, TX 78759

Date Mailed: 04/18/2019**DENIAL OF REQUEST FOR POWER OF ATTORNEY**

The request for Power of Attorney filed 04/11/2019 is acknowledged. However, the request cannot be granted at this time for the reason stated below.

- ☐ The Power of Attorney you provided did not comply with the new Power of Attorney rules that became effective on June 25, 2004. See 37 CFR 1.32.
- ☒ The revocation is not signed by the applicant, the assignee of the entire interest, or one particular principal attorney having the authority to revoke.
- ☐ The Power of Attorney is from an assignee and the Certificate required by 37 CFR 3.73(c) has not been received.
- ☐ The person signing for the assignee has omitted their empowerment to sign on behalf of the assignee.
- ☐ The inventor(s) is without authority to appoint attorneys since the assignee has intervened as provided by 37 CFR 3.71.
- ☐ The signature(s) of _____, a co-inventor in this application, has been omitted. The Power of Attorney will be entered upon receipt of confirmation signed by said co-inventor(s).
- ☐ The person(s) appointed in the Power of Attorney is not registered to practice before the U.S. Patent and Trademark Office.
- ☐ Only one Customer Number can be designated for the Power of Attorney in an application. The Customer Number that was captured is the first Customer Number provided on the Power of Attorney document.



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www.uspto.gov

- ☐ A request under 37 CFR 1.48 to add an inventor was granted in this application, however, no power of attorney consistent with the power of attorney granted by the originally named inventive entity has been received. Thus, the addition of the inventor has resulted in the loss of power of attorney in the application. See 37 CFR 1.32(e).
- ☐ The power of attorney has not been accepted because the party who is giving power of attorney has not been identified. Power of attorney may only be signed by the applicant for patent (37 CFR 1.42) or the patent owner. A patent owner who was not the applicant must appoint any power of attorney in compliance with 37 CFR 3.71 and 3.73. See 37 CFR 1.32(b)(4).
- ☐ The power of attorney from the inventors has not been accepted because it is a copy from a prior national application for which benefit is claimed and the continuing application names an inventor who was not named as an inventor in the prior application.
- ☐ The power of attorney from the inventors has not been accepted because the power of attorney must be signed by the applicant for patent. See 37 CFR 1.32(b)(4).
- ☐ Any request to correct or update the name of the applicant must include an application data sheet (ADS) in compliance with 37 CFR 1.76 specifying the correct or updated name of the applicant in the applicant information section. Any request to change the applicant after an original applicant has been specified under 37 CFR 1.46(b) must include a new ADS in compliance with 37 CFR 1.76 specifying the applicant in the applicant information section and comply with 37 CFR 3.71 and 3.73. See 37 CFR 1.46(c).

Any inquiries regarding this notice should be directed to the Application Assistance Unit at 571-272-4200.



Application Assistance Unit
571-272-4200



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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/838,014	12/11/2017	Ping Pan	GLIA-012US

98618
BrainSpark Associates, LLC
528 South Meadows Drive
Chandler, AZ 85224

CONFIRMATION NO. 4691
MISCELLANEOUS NOTICE



Date Mailed: 04/18/2019

A communication which cannot be delivered in electronic form has been mailed to the applicant.

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	15/838,014
Filing Date	December 11, 2017
First Named Inventor	Ping Pan
Title	APPLICATION WIRE
Art Unit	2478
Examiner Name	RENNER, BRANDON M
Attorney Docket Number	GLIA-012US

SIGNATURE of Applicant or Patent Practitioner

Signature	/Jeffrey G. Toler/	Date (Optional)	04-11-19
Name	Jeffrey G. Toler	Registration Number	38,342
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

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

☐

*Total of _____ 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.

POWER OF ATTORNEY BY APPLICANT

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

Application Number	Filing Date

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

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

60533

OR

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

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

☒ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name

Address

City

State

Zip

Country

Telephone

Email

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

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

SIGNATURE of Applicant for Patent

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

Signature

Date (Optional)

Name

Rasheed McWilliams

Title

President

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.**

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

Electronic Acknowledgement Receipt

EFS ID:	35703281
Application Number:	15838014
International Application Number:	
Confirmation Number:	4691
Title of Invention:	APPLICATION WIRE
First Named Inventor/Applicant Name:	Ping Pan
Customer Number:	98618
Filer:	Jeffrey G. Toler/Angie Blazek
Filer Authorized By:	Jeffrey G. Toler
Attorney Docket Number:	GLIA-012US
Receipt Date:	11-APR-2019
Filing Date:	11-DEC-2017
Time Stamp:	17:37:16
Application Type:	Utility under 35 USC 111(a)

Payment information:

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

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	5015-0003_POA.pdf	273010	no	3
			ccdf309e826c4940f396d98c85d92b339f8214f6		

Warnings:

Information:	
Total Files Size (in bytes):	273010
<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><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>	



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/838,014	12/11/2017	Ping Pan	GLIA-012US	4691
98618	7590	02/08/2019		
BrainSpark Associates, LLC 528 South Meadows Drive Chandler, AZ 85224			EXAMINER RENNER, BRANDON M	
			ART UNIT	PAPER NUMBER
			2478	
			NOTIFICATION DATE	DELIVERY MODE
			02/08/2019	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):

info@brainsparkassociates.com
joe@brainsparkassociates.com
sandra@brainsparkassociates.com

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) 1.133 Interviews

Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiners responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicants correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,-
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicants record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiners version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, Interview Record OK on the paper recording the substance of the interview along with the date and the examiners initials.

Informal Discussion Outline
 (Not for Distribution or Entry into the Record)

21. (Currently amended) A method ~~comprising: of load balancing at the~~ at an ingress node of associated with a multiprotocol label switching system (MPLS) network ~~comprising, a processor, a plurality of ingress data stream flows, and a plurality of pseudowires to the network, the method comprising the steps of: determining flow control, performing:~~
identifying information associated with an application flow from based on one or more unencapsulated packet headers of the application flow or based on an ingress data stream flows; appending a label stack entry parameter to the ingress data stream flows as that includes the application flow identifiers; and
in response to identifying the information, and based on stored data that associates the application flow with an application executing on a sending device and that indicates, for the application, a distributed mapping of the application flow via multiple psuedowires, determining a plurality of pseudowires to the
~~multiprotocol label switching system network that constitute equal cost multiple as paths through the multiprotocol label switching system MPLS network for a plurality of the application flow identifiers; and distributing aggregated loads of the plurality of data ingress data stream flows across multiple pseudowires and within predetermined aggregated data rate thresholds of the pseudowires.~~
28. (New) The method of claim 21, wherein the stored data defines an application wire for use by an individual application, the application wire configured to communicate data:
 from an application flow of the individual application to an edge node, and
 from the edge node through the MPLS network via the plurality of pseudowires, the plurality of pseudowires associated, via the stored data, with the individual application.
29. (New) The method of claim 21, wherein each of the plurality of pseudowires:
 extends from the application flow in an ingress direction into the MPLS network; and
 is virtually coupled between the sending device and another device.
30. (New) The method of claim 21, the application flow includes data packets transmitted and received by the application, and further comprising assigning, at an edge node, sequence numbers to ingress packets in an order in which they are received by the edge node.
31. (New) The method of claim 21, wherein the stored data maps the application flow with the plurality of pseudowires to create an application wire for use by the application.
32. (New) The method of claim 21, wherein the plurality of pseudowires are configured based on the stored data to distribute a load of the application flow.

Double Patenting and 35 U.S.C. §§ 102 and 103

The cited portions of the cited references, individually or in combination, do not disclose or suggest each of the elements and specific combinations of the claims including at least the above underlined and new language.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventors: Ping Pan et al.

Title: APPLICATION WIRE

App. No.: 15/838,014 Filed: December 11, 2017

Examiner: RENNER, Brandon M. Group Art Unit: 2478

Customer No.: 98618 Confirmation No.: 4691

Atty. Dkt. No.: GLIA-012US

M/S: Amendment
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

RESPONSE TO NON-FINAL OFFICE ACTION

Dear Commissioner:

In response to the Non-Final Office Action mailed September 5, 2018, please reconsider the above-identified application in light of the following amendments and remarks:

CLAIM AMENDMENTS

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

1-20. (Canceled).

21. (Currently amended) A method comprising: ~~of load balancing at the~~
~~at an ingress node of~~ associated with a multiprotocol label switching system (MPLS)
~~network comprising, a processor, a plurality of ingress data stream flows, and a~~
~~plurality of pseudowires to the network, the method comprising the steps of:~~
~~determining flow control, performing:~~
identifying information associated with an application flow ~~from~~ based on one or
more unencapsulated packet headers of the application flow or based on
an ingress data stream flows; ~~appending a label stack entry parameter to~~
~~the ingress data stream flows as~~ that includes the application flow
~~identifiers; and~~
in response to identifying the information, and based on stored data mapping
application flows with psuedowires, determining a plurality of
pseudowires to the multiprotocol label switching system network that
constitute equal-cost multiple as paths through the ~~multiprotocol label~~
~~switching system~~ MPLS network for a plurality of the application flow
~~identifiers; and distributing aggregated loads of the plurality of data~~
~~ingress data stream flows across multiple pseudowires and within~~
~~predetermined aggregated data rate thresholds of the pseudowires.~~

22. (Currently amended) The method of claim 21, ~~wherein the~~ further comprising
determining a distribution of the aggregated loads of associated with the plurality of ~~data ingress~~
~~data stream flows to the~~ pseudowires is in response to a determination that a data flow would
exceed a defined data rate of a single pseudowire.

23. (Currently amended) The method of claim 21, ~~wherein the~~ further comprising
determining of the aggregated one or more loads of associated with the ~~plurality of~~ data ingress

data stream flows ~~includes reading based on~~ an application flow table that contains at least one of a packet label, a sequence number, a service differentiation, a service guarantee, or a flow control information associated with a data stream application flow; flow.

24. (Currently amended) The method of claim 21, ~~wherein the~~ further comprising determining aggregated one or more loads ~~of associated with the plurality of data ingress data stream flows includes reading based on~~ a pseudowire table that contains at least one of a packet label, a sequence number, a service differentiation, a service guarantee, status information, and or grouping information.

25. (Currently amended) An ingress device ~~within a multiprotocol label-switching network,~~ comprising:

a ~~non-transitory~~ memory that stores ~~executable~~ instructions; and

a processor, communicatively coupled to the ~~non-transitory~~ memory, ~~that~~ and configured

to execute[[s]] or facilitate[[s]] execution of the stores-executable instructions to:
at least: determine flow control

identify information associated with an application flow ~~from~~ based on one or
more unencapsulated packet headers of the application flow or based on
an ingress data stream flows; append a label stack entry parameter to the
ingress data stream flows as that includes the application flow identifiers;
and

in response to identifying the information, and based on stored data mapping
application flows to psuedowires, determine a plurality of pseudowires as
paths through ~~the a~~ multiprotocol label switching (MPLS) network ~~that~~
~~constitute equal cost multiple paths to the multiprotocol label-switching~~
MPLS network for a plurality of the application flow identifiers; and
~~distribute the aggregated loads of the plurality of ingress data stream flows~~
~~across pseudowires and within predetermined aggregated data rate~~
~~thresholds of the pseudowires.~~

26. (Currently amended) The ingress device of claim 25, wherein the processor is further ~~executes or facilitates the execution of the computer-executable instructions wherein the~~

configured to determine a distribution of the aggregated loads of associated with the plurality of data ingress data stream flows to the pseudowires is in response to a determination that a data flow would exceed a defined data rate of a single pseudowire.

27. (Currently amended) The ingress device of claim 25, wherein the processor is further executes or facilitates the execution of the computer-executable instructions wherein the ~~determining of the aggregated~~ configured to determine loads of associated with the plurality of data ingress data stream flows includes reading pseudowires based on an application flow table that contains at least one of a packet label, a sequence number, a service differentiation, a service guarantee, or a flow control information associated with a data stream application flow.

28. (Currently amended) The ingress device of claim 25, wherein the processor is further executes or facilitates the execution of the computer-executable instructions wherein the ~~determining of the aggregated~~ configured to determine loads of associated with the plurality of data ingress data stream flows includes reading pseudowires based on a pseudowire table that contains at least one of a packet label, a sequence number, a service differentiation, a service guarantee, status information, and or grouping information.

29. (New) The method of claim 21, wherein the stored data associates the application flow with an application executing on a sending device and indicates, for the application, a distributed mapping of the application flow via multiple pseudowires.

30. (New) The method of claim 21, wherein the stored data defines an application wire for use by an application, the application wire configured to communicate data:
from a particular application flow of the application to an edge node; and
from the edge node through the MPLS network via the plurality of pseudowires, the plurality of pseudowires associated, via the stored data, with the application.

31. (New) The method of claim 21, wherein each of the plurality of pseudowires:
extends from the application flow in an ingress direction into the MPLS network; and
is virtually coupled between a particular device and an application being executed at a client device.

32. (New) The method of claim 21, wherein the application flow includes data packets transmitted and received by an application, and further comprising assigning, at an edge node, sequence numbers to ingress data packets in an order in which they are received by the edge node.

33. (New) The method of claim 21, wherein the stored data maps the application flow to the plurality of pseudowires to create an application wire for use by an application.

34. (New) The method of claim 21, wherein the plurality of pseudowires are configured based on the stored data to distribute a load of the application flow.

35. (New) The method of claim 21, further comprising associating label stack entry parameter information with the paths as application flow identifiers.

36. (New) The method of claim 21, wherein the plurality of pseudowires constitute equal cost multiple paths through the MPLS network.

37. (New) The method of claim 21, further comprising distributing a load of the application flow across the plurality of pseudowires and within predetermined data rate thresholds of the plurality of pseudowires.

REMARKS

Claims 21-28 are amended. New claims 29-37 are added. No new subject matter has been introduced. Claims 21-37 are pending in the application.

The Office rejected claims 21-28 on grounds of nonstatutory obviousness-type double patenting and 35 U.S.C. §§ 102 and 103. *See* Office Action, pages 3-9. Applicant respectfully traverses the rejections and thanks the Examiner for the interview conducted on February 4, 2019 during which agreement was reached that Applicant's proposed amendments appear to overcome the rejections of record subject to further review and an updated search. The Examiner agreed to contact the undersigned by phone if a search uncovers new art or an issue that may be efficiently addressed by phone or hinder prompt allowance of the application. Claims based on the proposed amendments are submitted herein. Accordingly, claims 21-37 are allowable.

Applicant has amended claims 21-37 to facilitate prosecution of the application and is not conceding that the subject matter encompassed by the claims prior to the amendments is unpatentable over the references cited by the Examiner. Any changes to the claims in this response, which have not been specifically noted to overcome a rejection based upon cited portions of the cited references, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

The Commissioner is hereby authorized to charge any fees, which may be required, or credit any overpayment, to Deposit Account Number 50-2469.

Respectfully submitted,

2 - 5 - 2019
Date


Jeffrey G. Toler, Reg. No. 38,342
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Austin, TX 78759
Telephone: (512) 327-5515
Facsimile: (512) 327-5575

Electronic Patent Application Fee Transmittal

Application Number:	15838014			
Filing Date:	11-Dec-2017			
Title of Invention:	APPLICATION WIRE			
First Named Inventor/Applicant Name:	Ping Pan			
Filer:	Jeffrey G. Toler/David Wade			
Attorney Docket Number:	GLIA-012US			
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension - 2 months with \$0 paid	1252	1	600	600
Miscellaneous:				
Total in USD (\$)				600

Electronic Acknowledgement Receipt

EFS ID:	35068164
Application Number:	15838014
International Application Number:	
Confirmation Number:	4691
Title of Invention:	APPLICATION WIRE
First Named Inventor/Applicant Name:	Ping Pan
Customer Number:	98618
Filer:	Jeffrey G. Toler/David Wade
Filer Authorized By:	Jeffrey G. Toler
Attorney Docket Number:	GLIA-012US
Receipt Date:	05-FEB-2019
Filing Date:	11-DEC-2017
Time Stamp:	18:33:35
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$ 600
RAM confirmation Number	020619INTEFSW00005158502469
Deposit Account	502469
Authorized User	David Wade

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

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

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)
37 CFR 1.20 (Post Issuance fees)
37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Extension of Time	5015-0003_EOT_signed.pdf	167794	no	2
			eea6c44f3e7194d2237cd8e7bd51a5f6315 bbdbe		
Warnings:					
Information:					
2		5015-0003_OAR_2-5-19_signed.pdf	346878	yes	6
			a0a8e5efb4a20c4a7d0272716343e94facd6 5ba0		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Amendment/Req. Reconsideration-After Non-Final Reject		1	1	
	Claims		2	5	
	Applicant Arguments/Remarks Made in an Amendment		6	6	
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30707	no	2
			5491fcd6b3e9f751e2a360dea6e69e471b 77b28		
Warnings:					
Information:					
Total Files Size (in bytes):			545379		

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

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.

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

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 15/838,014		Filing Date 12/11/2017		☐ To be Mailed	
ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO									
APPLICATION AS FILED - PART I									
		(Column 1)	(Column 2)						
FOR		NUMBER FILED	NUMBER EXTRA		RATE (\$)		FEE (\$)		
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A	N/A		N/A				
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))		N/A	N/A		N/A				
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A	N/A		N/A				
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 = *		x \$80 =					
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 = *		x \$420 =					
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).							
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))									
* If the difference in column 1 is less than zero, enter "0" in column 2.					TOTAL				
APPLICATION AS AMENDED - PART II									
		(Column 1)		(Column 2)	(Column 3)				
AMENDMENT	02/05/2019	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	* 17	Minus	** 20	= 0	x \$100 =		0	
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0	x \$460 =		0	
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						TOTAL ADD'L FEE		0	
		(Column 1)		(Column 2)	(Column 3)				
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	*	Minus	**	=	x \$0 =			
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x \$0 =			
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						TOTAL ADD'L FEE			
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.						LIE			
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".						/LAMONT N MCLAUCHLIN/			
*** 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.



UNITED STATES PATENT AND TRADEMARK OFFICE

USPTO Automated Interview Request (AIR)

Jan 31 2019

This paper requesting to schedule and/or conduct an interview is appropriate because:

This submission is requested to be accepted as an authorization for this interview to communicate via the internet. Recognizing that Internet communications are not secure, I hereby authorize the USPTO to communicate with the undersigned concerning scheduling of the interview via video conference, instant messaging, or electronic mail, and to conduct the interview in accordance with office practice including video conferencing.

Name(s) :
Kenton Mullins

S-signature:
/km/

Registration Number:
36331

U.S. Application Number:
15838014

Confirmation Number:
4691

E-mail Address:
kmullins@tlgiplaw.com

Phone Number:

Proposed Time of Interview:
2-6-2019 11:30 AM ET

Preferred Interview Type:
Telephonic

I am the applicant or applicant's representative for this application.

Topic for Discussion:
Please contact me for an earlier interview date, and for an agenda.



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PATENT AND TRADEMARK OFFICE

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BrainSpark Associates, LLC
528 South Meadows Drive
Chandler, AZ 85224



**Courtesy Reminder for
Application Serial No: 15/838,014**

Attorney Docket No: GLIA-012US

Customer Number: 98618

Date of Electronic Notification: 09/05/2018

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

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

info@brainsparkassociates.com

joe@brainsparkassociates.com

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/838,014	12/11/2017	Ping Pan	GLIA-012US	4691
98618	7590	09/05/2018		
BrainSpark Associates, LLC 528 South Meadows Drive Chandler, AZ 85224			EXAMINER RENNER, BRANDON M	
			ART UNIT	PAPER NUMBER
			2478	
			NOTIFICATION DATE	DELIVERY MODE
			09/05/2018	ELECTRONIC

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

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

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

info@brainsparkassociates.com
joe@brainsparkassociates.com
sandra@brainsparkassociates.com

Office Action Summary**Application No.**

15/838,014

Applicant(s)

Pan et al.

Examiner

BRANDON M RENNER

Art Unit

2478

AIA Status

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 12/11/2017.

☐ 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) 21-28 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) 21-28 is/are rejected.

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

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

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

Application Papers

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

11) ☒ The drawing(s) filed on 12/11/2017 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)

3) ☐ Interview Summary (PTO-413)

Paper No(s)/Mail Date ____.

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)

4) ☐ Other: ____.

Paper No(s)/Mail Date ____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

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

Double Patenting

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(l)(1) - 706.02(l)(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. 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.

Claims 21-28 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-21 of U.S. Patent No. 8,588,061 in view of Sanzi et al. "Sanzi" US 6,477,166. The claims also stand rejected over double patenting for Patents 9197675 and 9843509, both in view of Sanzi. Claims of patent 8,588,061 teach all the limitations of the instant application except appending a label to an incoming flow and distributing the aggregated loads. However, Sanzi teaches that packets are sent through a network and labels are attached to the front of each packet within MPLS in order to load-balance traffic through the network; Column 4 Lines 26-47.

Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of 8,588,061 to include appending a label and performing load balancing as taught by Sanzi.

One would be motivated to make the modification such that all nodes in the network don't need to use the same metrics when making forwarding decisions as taught by Sanzi; Column 4 Lines 26-47.

Claim 21 of instant application	Claim 1 of Patent 8588061
A method of load balancing at the ingress node of a multiprotocol label switching system network comprising, a processor, a plurality of ingress data stream flows, and a plurality of pseudowires to the network, the method comprising the steps of: determining flow control information associated with an application flow from unencapsulated packet headers of the ingress data stream flows; appending a label stack entry parameter to the ingress data stream flows as application flow identifiers; determining a plurality of pseudowires to the multiprotocol label switching system network that constitute equal cost multiple paths through the multiprotocol label switching system network for a plurality of the application	A method of transferring data over a network, comprising: identifying an application flow; selecting one of a plurality of mapping schemes for the identified application flow, wherein the plurality of mapping schemes include: a one-to-one mapping scheme configured to map a single application flow to a single Pseudowire, a distributed mapping scheme configured to map a single application flow to a plurality of Pseudowires, wherein: a first Pseudowire of the plurality of Pseudowires is mapped to transfer a first portion of the single application flow, the first Pseudowire of the plurality of Pseudowires has an associated data rate threshold, responsive to the first portion of the single

<p>flow identifiers; and distributing aggregated loads of the plurality of data ingress data stream flows across multiple pseudowires and within predetermined aggregated data rate thresholds of the pseudowires.</p>	<p>application flow exceeding the associated data rate threshold of the first Pseudowire of the plurality of Pseudowires, the distributed mapping scheme is configured to split the first portion of the single application flow into a first split part of the first portion of the single application flow and a second split part of the first portion of the single application flow so that the first split part of the first portion of the single application flow does not exceed the associated data rate threshold of the first Pseudowire, the first split part of the first portion of the single application flow is mapped to the first Pseudowire, and the second first split part of the first portion of the single application flow is mapped to the plurality of Pseudowires other than the first Pseudowire, and an aggregated mapping scheme configured to map multiple application flows to a single Pseudowire; and mapping the application flow to a network-bound</p>
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	connection on one or more Pseudowires according to one of the plurality of mapping schemes.
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Appropriate correction required.

Claim Rejections - 35 USC § 102

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

The following is a quotation of the appropriate paragraphs of pre-AIA 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim(s) 21, 23, 24, 25, 27, 28 is/are rejected under pre-AIA 35 U.S.C. 102b as being anticipated by Sanzi et al. "Sanzi" US 6,477,166.

Regarding claims 21 and 25, Sanzi teaches a method and an ingress device within a multiprotocol label switching network, comprising a non-transitory memory that stores executable instructions; and a processor, communicatively coupled to the non-

transitory memory, that executes or facilitates execution of the stores executable instructions to at least:

determine flow control information associated with an application flow from unencapsulated packet headers of ingress data stream flows (Figures 2 and 3 show a switch (16) which switches data between ATM and MPLS networks. This is viewed as determining flow information. Further, Column 4 Lines 54-57 disclose that a packet is received and then encapsulated for transmission into an ATM network. Thus the incoming packets are unencapsulated as claimed);

append a label stack entry parameter to the ingress data stream flows as application flow identifiers (Labels are added to the front of every packet; Column 4 Lines 26-29 and 54-64 which teaches encapsulating the packets with appropriate MPLS labels);

determine a plurality of pseudowires through the multiprotocol label switching network that constitute equal cost multiple paths to the multiprotocol label switching network for a plurality of the application flow identifiers (The data is switched by determining the appropriate ATM VC on which to forward the packet; Column 4 Lines 58-64); and

distribute the aggregated loads of the plurality of ingress data stream flows across multiple pseudowires and within predetermined aggregated data rate thresholds of the pseudowires (the traffic is switched by determining appropriate VS to forward the packets. Further, the ingress edge chooses the route in order to perform load-balance of traffic; Column 4 Lines 27-64. Since the packets are being distributed, this means they are within some predetermined data rate threshold).

Regarding claims 23 and 27, Sanzi teaches determining the aggregated loads of the data streams include reading a table that includes a packet label or flow control information associated with a data stream (for the incoming packets, a lookup is performed to determining the VC to forward the packet on; Column 4 Lines 58-67).

Regarding claims 24 and 28, Sanzi teaches determining the aggregated loads of the data streams include reading a pseudowire table that includes a packet label or status/grouping information associated with a data stream (for the incoming packets, a lookup is performed to determining the VC to forward the packet on; Column 4 Lines 58-67).

Claim Rejections - 35 USC § 103

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

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 22 and 26 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Sanzi in view of Butenweg et al. "Butenweg" US 2007/0070893.

Regarding claims 22 and 26, while Sanzi teaches load balancing for ingress flows on pseudowires, Sanzi does not expressly disclose this is done in response to

data flow exceeding a data rate. However, Butenweg teaches a MPLS system which includes virtual paths (Paragraph 6) wherein when a link is overloaded, the traffic is redistributed; Paragraph 11).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRANDON M RENNER whose telephone number is (571)270-3621. The examiner can normally be reached on Monday-Friday 7am-5pm EST.

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, Derrick Ferris can be reached on (571)-272-3123. 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.

/BRANDON M RENNER/
Primary Examiner, Art Unit 2478

<i>Notice of References Cited</i>	Application/Control No. 15/838,014		Applicant(s)/Patent Under Reexamination Pan et al.	
	Examiner BRANDON M RENNER		Art Unit 2478	Page 1 of 1

U.S. PATENT DOCUMENTS

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*	B	US-6477166-B1	11-2002	Sanzi; Rich	H04L49/3081	370/392
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	D					
	E					
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*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

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	X	

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

<i>Search Notes</i> 	Application/Control No. 15/838,014	Applicant(s)/Patent Under Reexamination Pan et al.
	Examiner BRANDON M RENNER	Art Unit 2478

CPC - Searched*		
Symbol	Date	Examiner
h04I29/06 - text limited	08/29/2018	BR

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

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

Search Notes		
Search Notes	Date	Examiner
EAST Class limited with text search; Inventor & assignee search and text search (as per attached history)	08/29/2018	BR

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

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<i>Index of Claims</i> 	Application/Control No. 15/838,014	Applicant(s)/Patent Under Reexamination Pan et al.
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✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS										
☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47										
CLAIM		DATE								
Final	Original	08/29/2018								
	1	-								
	2	-								
	3	-								
	4	-								
	5	-								
	6	-								
	7	-								
	8	-								
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	13	-								
	14	-								
	15	-								
	16	-								
	17	-								
	18	-								
	19	-								
	20	-								
	21	✓								
	22	✓								
	23	✓								
	24	✓								
	25	✓								
	26	✓								
	27	✓								
	28	✓								

Doc code: IDS

PTO/SB/08a (01-10)

Doc description: Information Disclosure Statement (IDS) Filed

Approved for use through 07/31/2012. OMB 0651-0031

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

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

Application Number 15838014

Filing Date 2017-12-11

First Named Inventor Pan, Ping

Art Unit 2478

Examiner Name Renner, Brandon M

Attorney Docket Number PL133-0047

U.S.PATENTS

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Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	5920705		1999-07-06	LYON	
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	3	6813271		2004-11-02	Cable	
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**INFORMATION DISCLOSURE
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Filing Date	2017-12-11
First Named Inventor	Pan, Ping
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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	Braden et al. "Integrated Services in the Internet Architecture: an overview," Network Working Group, Jun. 1994.	

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

Application Number	15838014
Filing Date	2017-12-11
First Named Inventor	Pan, Ping
Art Unit	2478
Examiner Name	Renner, Brandon M
Attorney Docket Number	PL133-0047

13	Martini, Luca et al., Dynamic Placement of Multi Segment Pseudo Wires, PWE3 Working Group, Jun. 2006.
14	Martini, Luca et al., Pseudowire Setup and Maintenance using LDP, Network Working Group, Mar. 2005.
15	Shah, Himanshu et al., Internet Draft, ARP Mediation for IP Interworking of Layer 2 VPN, L2VPN Working Group, Jul. 2007.
16	Martini, Luca et al., Internet Draft, Segmented Pseudo Wire, Network Working Group, Jul. 2007.
17	Pan, P. et al., Internet Draft, Pseudo Wire Protection, Jul. 2006.
18	Rosen, Eric C. et al., Internet Draft, PWE3 Congestion Control Framework, Network Working Group, Mar. 2004.
19	Rosen, E et al., BGP-MPLS IP Virtual Private Networks (VPN), Network Working Group, Feb. 2006.
20	Martini, L. et al. Pseudowire Setup and Maintenance using the Label Distribution Protocol (LDP), Network Working Group, Apr. 2006.
21	Pan, Ping, Internet Draft, Dry-Martini: Supporting Pseudo-wires in Sub-IP Access Networks, Network Working Group, Jul. 2005.
22	McPherson et al., Pseudowire Emulation Edge to Edge (PWE3) Jun. 13, 2007, http://www.ieff.org/html.charters/pwe3-charter.html
23	Vasseur, et al., Path Computation Element (pce), May 9, 2007, http://www.ieff.org/html.charters/pce-charter.html

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

Application Number	15838014
Filing Date	2017-12-11
First Named Inventor	Pan, Ping
Art Unit	2478
Examiner Name	Renner, Brandon M
Attorney Docket Number	PL133-0047

24	Theimer, T, et al., "Requirements for OAM Functionality in MPLS", Oct. 1999, Watersprings.
25	Harry Newton, "Newton's Telecom Dictionary", 23rd Updated and Expanded Edition, p. 825, p. 239, Flatiron Publishing, New York, Mar. 2007.
26	International Search Report for PCT Application Serial No. PCT/US2006/039257, dated Apr. 18, 2007, 2 pgs. Final Office Action dated Mar. 9, 2010 for U.S. Appl. No. 11/543,727, 17 pages.
27	Office Action dated Sep. 15, 2010 for U.S. Appl. No. 11/543,727, 18 pages.
28	Office Action dated Mar. 2, 2011 for U.S. Appl. No. 11/543,727, 24 pages.
29	Final Office Action dated Jul. 18, 2011 for U.S. Appl. No. 11/543,727, 20 pages.
30	Non-Final Office Action dated Apr. 14, 2015 for U.S. Appl. No. 14/055,721, 30 pages.

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

Add

EXAMINER SIGNATURE

Examiner Signature	/BRANDON M RENNER/	Date Considered	08/29/2018
--------------------	--------------------	-----------------	------------

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

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

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

Application Number	15838014
Filing Date	2017-12-11
First Named Inventor	Pan, Ping
Art Unit	2478
Examiner Name	Renner, Brandon M
Attorney Docket Number	PL133-0047

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.

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

☒ None

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	/Daniel Juffernbruch/	Date (YYYY-MM-DD)	2017-12-12
Name/Print	Daniel Juffernbruch	Registration Number	33122

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.
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.

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L5	364	(balanc\$4 distribut\$4) with (pseudowire ethernet virtual atm (frame near2 relay) layer\$3) with exceed\$4 near4 (limit threshold)	US-PGPUB; USPAT	OR	OFF	2018/08/29 19:09
L13	10	(balanc\$4 distribut\$4) with (pseudowire link) with (exceed\$4 greater) near4 (limit threshold) and mpls	US-PGPUB; USPAT	OR	OFF	2018/08/29 19:21
S142	1	"15838014"	US-PGPUB; USPAT	OR	ON	2018/08/29 10:39
S143	3	"9843509".pn. "9197675".pn. "8588061".pn.	US-PGPUB; USPAT	OR	OFF	2018/08/29 10:47
S146	5576	encapsulat\$4 with (first portion subset) near4 data	US-PGPUB; USPAT	OR	ON	2018/08/29 15:50
S147	170	encapsulat\$4 with (second another different) near4 (portion subset) near4 data	US-PGPUB; USPAT	OR	ON	2018/08/29 15:50
S148	166	S146 and S147	US-PGPUB; USPAT	OR	ON	2018/08/29 15:50
S149	26660	h04l29/06.cpc.	US-PGPUB; USPAT	OR	ON	2018/08/29 15:50
S150	699	(label mpls lsp (multiprotocol near2 label)) with (pseudowire ethernet virtual) same (distribut\$4 balanc\$4) near4 (traffic data load)	US-PGPUB; USPAT	OR	ON	2018/08/29 15:56
S155	10	(append\$4 attach\$4) near4 label with (pseudowire ethernet virtual) same (distribut\$4 balanc\$4) near4 (traffic data load)	US-PGPUB; USPAT	OR	ON	2018/08/29 16:18
S156	19	(append\$4 attach\$4) near4 label same (pseudowire ethernet virtual atm (frame near2 relay) layer\$3) same (distribut\$4 balanc\$4) near4 (traffic data load)	US-PGPUB; USPAT	OR	ON	2018/08/29 16:20
S157	4	(append\$4 attach\$4) near4 label same (pseudowire ethernet virtual atm (frame near2 relay) layer\$3) same (distribut\$4 balanc\$4) near4 (traffic data load) and @aD< = "20051007"	US-PGPUB; USPAT	OR	ON	2018/08/29 16:24

8/ 29/ 2018 7:23:10 PM
C:\ Users\ brenner\ Documents\ EAST\ Workspaces\ 15838014.wsp

Bibliographic Data

Application No: 15/838,014

Foreign Priority claimed: ☐ Yes ☒ No

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

Verified and Acknowledged: /BRANDON M RENNER/

Examiner's Signature

Initials

Title: APPLICATION WIRE

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
12/11/2017	370	2478	GLIA-012US
RULE			

APPLICANTS

Global Innovation Aggregators LLC., Pasadena, CA, UNITED STATES

INVENTORS

Ping Pan San Jose, CA, UNITED STATES

Richard D. Gitlin Littler Silver, NJ, UNITED STATES

CONTINUING DATA

This application is a CON of 14919687 10/21/2015 PAT 9843509

14919687 is a CON of 14055721 10/16/2013 PAT 9197675

14055721 is a CON of 11543727 10/05/2006 PAT 8588061

11543727 has PRO of 60725038 10/07/2005

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

01/02/2018

STATE OR COUNTRY

UNITED STATES

ADDRESS

BrainSpark Associates, LLC

528 South Meadows Drive

Chandler, AZ 85224

UNITED STATES

FILING FEE RECEIVED

\$1,600



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United States Patent and Trademark Office
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/838,014	12/11/2017	Ping Pan	GLIA-012US

CONFIRMATION NO. 4691

PUBLICATION NOTICE



OC000000098746179

98618
BrainSpark Associates, LLC
528 South Meadows Drive
Chandler, AZ 85224

Title:APPLICATION WIRE

Publication No.US-2018-0102970-A1

Publication Date:04/12/2018

NOTICE OF PUBLICATION OF APPLICATION

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

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

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

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

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/838,014	12/11/2017	Ping Pan	GLIA-012US

98618
BrainSpark Associates, LLC
528 South Meadows Drive
Chandler, AZ 85224

CONFIRMATION NO. 4691
POA ACCEPTANCE LETTER



Date Mailed: 03/19/2018

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 03/14/2018.

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

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

/tgebre/



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/838,014	12/11/2017	Ping Pan	PL133-0047

CONFIRMATION NO. 4691

POWER OF ATTORNEY NOTICE

141440
iPEL, Inc.-Patents and Licensing LLC
1055 E. Colorado Boulevard, Fifth Floor
Pasadena, CA 91106



Date Mailed: 03/19/2018

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 03/14/2018.

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

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

/tgebre/

GENERAL POWER OF ATTORNEY

I/WE hereby appoint the practitioners associated with the Customer Number: **98618**

with the firm: BRAINSPARK ASSOCIATES, LLC
528 S. Meadows Drive
Chandler, AZ 85224
United States

As attorneys to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications where the assignee is named as an applicant or where the applications are assigned to the undersigned according to the USPTO assignment records or assignment documents, in which case the details will be listed on an attached form in accordance with 37 C.F.R. 3.73(c).

Address all correspondence to: **Customer Number 98618**

Direct all Telephone Calls to: 650-924-9270

Direct all Facsimiles to: 480-535-9269

Direct all emails to: info@brainsparkassociates.com

Full Name and
Registered Address
of Assignee

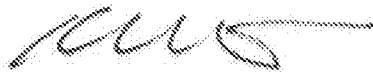
Global Innovation Aggregators, LLC
1055 E. Colorado Boulevard, Fifth Floor, Pasadena, CA 91106, USA

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).

Date

Dated this 13th day of February 2018

Signature of
Assignee



Printed Name of
Signatory

Katherine Huen

Title of Signatory

Chief Financial Officer

Electronic Acknowledgement Receipt

EFS ID:	32055164
Application Number:	15838014
International Application Number:	
Confirmation Number:	4691
Title of Invention:	APPLICATION WIRE
First Named Inventor/Applicant Name:	Ping Pan
Customer Number:	141440
Filer:	Joseph John Basista
Filer Authorized By:	
Attorney Docket Number:	PL133-0047
Receipt Date:	14-MAR-2018
Filing Date:	11-DEC-2017
Time Stamp:	17:33:13
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	GLIA-012US-Form82A-aia0082.pdf	172046 9ea42a4f53f220c8b1d225975503f3ba739cac0b	no	1

Warnings:

Information:					
2	Power of Attorney	US-executedGPOA-GlobalInnovationAggregators-embedded.pdf	147253	no	1
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Information:					
Total Files Size (in bytes):			319299		
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TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	15838014
Filing Date	12/11/2017
First Named Inventor	PAN, Ping
Title	APPLICATION WIRE
Art Unit	2414
Examiner Name	N/A
Attorney Docket Number	GLIA-012US

SIGNATURE of Applicant or Patent Practitioner

Signature	/Joseph J. Basista/	Date (Optional)	
Name	Joseph J. Basista	Registration Number	42301
Title (if Applicant is a juristic entity)	Attorney of Record		
Applicant Name (if Applicant is a juristic entity)	Global Innovation Aggregators, LLC.		

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

☐

*Total of _____ 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.**

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
15/838,014	12/11/2017	2414	1600	PL133-0047	8	2

CONFIRMATION NO. 4691

FILING RECEIPT



0000000096397673

141440
Transpacific IP-Patents and Licensing LLC-Mgt
8 Floor, No. 178
Sec. 3 Minquan East Road
Taipei, 105
TAIWAN

Date Mailed: 01/03/2018

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

Inventor(s)

Ping Pan, San Jose, CA;
Richard D. Gitlin, Little Silver, NJ;

Applicant(s)

Global Innovation Aggregators LLC., Pasadena, CA;

Assignment For Published Patent Application

Global Innovation Aggregators LLC., Pasadena, CA

Power of Attorney: The patent practitioners associated with Customer Number 141440

Domestic Priority data as claimed by applicant

This application is a CON of 14/919,687 10/21/2015 PAT 9843509
which is a CON of 14/055,721 10/16/2013 PAT 9197675
which is a CON of 11/543,727 10/05/2006 PAT 8588061
which claims benefit of 60/725,038 10/07/2005

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: 01/02/2018

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/838,014**

Projected Publication Date: 04/12/2018

Non-Publication Request: No

Early Publication Request: No
Title

APPLICATION WIRE

Preliminary Class

370

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

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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

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

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

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

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

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 15/838,014				
APPLICATION AS FILED - PART I										
(Column 1)		(Column 2)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY				
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)			
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	280			
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	600			
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	720			
TOTAL CLAIMS (37 CFR 1.16(j))	8	minus 20 = *			OR	x 80 =	0.00			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2	minus 3 = *				x 420 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00			
			TOTAL			TOTAL	1600			
* If the difference in column 1 is less than zero, enter "0" in column 2.										
APPLICATION AS AMENDED - PART II										
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY		
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.										

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Global Innovation Aggregators LLC. Examiner: RENNER, BRANDON M
Serial No.: 15838014 Group Art Unit: 2478
Confirmation No: 4691
Filed: 12/11/2017 Docket: PL133-0047
Title: APPLICATION WIRE

PRELIMINARY AMENDMENT

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

Dear Sir:

Please enter this preliminary amendment prior to examination on the merits.

Amendments to the Specification begins on page 2 of this amendment.

Amendments to the Abstract begin on page 3 of this amendment.

Amendments to the Claims are included in the listing of claims, which begins on page 4 of this amendment.

Remarks begin on page 9 of this amendment.

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

IN THE SPECIFICATION:

Please amend the specification as follows:

At page 1, please delete "CROSS REFERENCE TO OTHER APPLICATIONS".

~~CROSS REFERENCE TO OTHER APPLICATIONS~~

At page 1, please delete paragraph [0001] in its entirety.

~~[0001] This application is a continuation of U.S. Patent Application Serial No. 14/055,721, filed on October 16, 2013, and entitled "Application Wire," which is a continuation of U.S. Patent Application Serial No. 11/543,727, filed October 5, 2006, which claims priority to U.S. Provisional Application No. 60/725,038, filed October 7, 2005 and entitled "Application wire: mapping application streams to pseudo-wires." The entireties of these related applications are incorporated herein by reference.~~

IN THE ABSTRACT:

Please amend the abstract as follows:

~~{0047} Transferring data over a network includes identifying an application flow and mapping the application flow to a network bound connection.~~ Data is transferred from a plurality of ingress application flows over an MPLS network. Application flow control information is identified from the unencapsulated headers of the ingress data streams and a flow parameter is appended to the header stack. Application outbound load balancing identifies multiple equal cost network bound paths and utilizes application flow parameters to distribute data streams over a plurality of pseudowires without exceeding predetermined thresholds.

Listing of Claims:

1. (cancelled)
2. (cancelled)
3. (cancelled)
4. (cancelled)
5. (cancelled)
6. (cancelled)
7. (cancelled)
8. (cancelled)
9. (cancelled)
10. (cancelled)
11. (cancelled)
12. (cancelled)
13. (cancelled)
14. (cancelled)
15. (cancelled)
16. (cancelled)
17. (cancelled)
18. (cancelled)
19. (cancelled)
20. (cancelled)

21. (new) A method of load balancing at the ingress node of a multiprotocol label switching system network comprising, a processor, a plurality of ingress data stream flows, and a plurality of pseudowires to the network, the method comprising the steps of:

determining flow control information associated with an application flow from unencapsulated packet headers of the ingress data stream flows;

appending a label stack entry parameter to the ingress data stream flows as application flow identifiers;

determining a plurality of pseudowires to the multiprotocol label switching system network that constitute equal cost multiple paths through the multiprotocol label switching system network for a plurality of the application flow identifiers; and

distributing aggregated loads of the plurality of data ingress data stream flows across multiple pseudowires and within predetermined aggregated data rate thresholds of the pseudowires.

22. (new) The method of claim 21, wherein the distribution of the aggregated loads of the plurality of data ingress data stream flows to the pseudowires is in response to a determination that a data flow would exceed a defined data rate of a single pseudowire.

23. (new) The method of claim 21, wherein the determining of the aggregated loads of the plurality of data ingress data stream flows includes reading an application flow table that contains at least one of a packet label, a sequence number, a service differentiation, a service guarantee, or a flow control information associated with a data stream application flow;

24. (new) The method of claim 21, wherein the determining aggregated loads of the plurality of data ingress data stream flows includes reading a pseudowire table that contains at least one of a packet label, a sequence number, a service differentiation, a service guarantee, status information, and grouping information.

25. (new) An ingress device within a multiprotocol label switching network, comprising:
a non-transitory memory that stores executable instructions; and a processor, communicatively coupled to the non-transitory memory, that executes or facilitates execution of the stores executable instructions to at least:

determine flow control information associated with an application flow from unencapsulated packet headers of ingress data stream flows;

append a label stack entry parameter to the ingress data stream flows as application flow identifiers;

determine a plurality of pseudowires through the multiprotocol label switching network that constitute equal cost multiple paths to the multiprotocol label switching network for a plurality of the application flow identifiers; and

distribute the aggregated loads of the plurality of ingress data stream flows across multiple pseudowires and within predetermined aggregated data rate thresholds of the pseudowires.

26. (new) The device of claim 25, wherein the processor further executes or facilitates the execution of the computer-executable instructions wherein the distribution of the aggregated loads of the plurality of data ingress data stream flows to the pseudowires is in response to a determination that a data flow would exceed a defined data rate of a single pseudowire.

27. (new) The device of claim 25, wherein the processor further executes or facilitates the execution of the computer-executable instructions wherein the determining of the aggregated loads of the plurality of data ingress data stream flows includes reading an application flow table that contains at least one of a packet label, a sequence number, a service differentiation, a service guarantee, or a flow control information associated with a data stream application flow.

28. (new) The device of claim 25, wherein the processor further executes or facilitates the execution of the computer-executable instructions wherein the determining of aggregated loads of the plurality of data ingress data stream flows includes reading a pseudowire table that contains at least one of a packet label, a sequence number, a service differentiation, a service guarantee, status information, and grouping information. .

REMARKS

Please enter this preliminary amendment prior to examination on the merits.

The Examiner may contact the undersigned by telephone or email. The Applicant authorizes informal communications via email.

Respectfully submitted,

Global Innovation Aggregators LLC.

By their Representatives,

By 
Daniel W Juffernbruch
Reg. No. 33122
847-458-6313

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28 Barrington Bourne
Barrington, IL 60010-9605
tel: 847-458-6313
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Electronic Acknowledgement Receipt

EFS ID:	31314317
Application Number:	15838014
International Application Number:	
Confirmation Number:	4691
Title of Invention:	APPLICATION WIRE
First Named Inventor/Applicant Name:	Ping Pan
Customer Number:	141440
Filer:	Daniel W. Juffernbruch
Filer Authorized By:	
Attorney Docket Number:	PL133-0047 616.P0004-1a
Receipt Date:	21-DEC-2017
Filing Date:	
Time Stamp:	21:56:20
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		PL133-0047_Preliminary_Amen dment.pdf	41693	yes	9
			2224431a4ea6d5c89a0bf955229b8bfa48bf4061		

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Preliminary Amendment	1	1
	Specification	2	2
	Abstract	3	3
	Claims	4	8
	Applicant Arguments/Remarks Made in an Amendment	9	9

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		15838014
	Filing Date		2017-12-11
	First Named Inventor	Pan, Ping	
	Art Unit	2478	
	Examiner Name	Renner, Brandon M	
	Attorney Docket Number	PL133-0047	

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	2	6430184		2002-08-06	ROBINS	
	3	6813271		2004-11-02	Cable	
	4	6621793		2003-09-16	Widegren	
	5	6845389		2005-01-18	Sen	
	6	7050396		2006-05-23	Cohen	
	7	7436782		2008-10-14	Ngo	
	8	6546427		2003-04-08	Ehrlich	

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Attorney Docket Number		PL133-0047

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10	7200104		2007-04-03	Saleh	
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18	7590070		2009-09-15	Asawa	
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	8	20030039237		2003-02-00	Forslow	
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33	20070206607	2007-09-00	Chapman
34	20080031129	2008-02-00	Arseneault
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36	20020112072	2002-08-15	Sudhanshu

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	1	Braden et al. "Integrated Services in the Internet Architecture: an overview," Network Working Group, Jun. 1994.	

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2	Brayant et al. "Pseudo wire Emulation Edge-to-Edge (PWE3) Architecture," Network Working Group, Mar. 2005.
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21	Pan, Ping, Internet Draft, Dry-Martini: Supporting Pseudo-wires in Sub-IP Access Networks, Network Working Group, Jul. 2005.
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26	International Search Report for PCT Application Serial No. PCT/US2006/039257, dated Apr. 18, 2007, 2 pgs. Final Office Action dated Mar. 9, 2010 for U.S. Appl. No. 11/543,727, 17 pages.
27	Office Action dated Sep. 15, 2010 for U.S. Appl. No. 11/543,727, 18 pages.
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30	Non-Final Office Action dated Apr. 14, 2015 for U.S. Appl. No. 14/055,721, 30 pages.

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Art Unit	2478
Examiner Name	Renner, Brandon M
Attorney Docket Number	PL133-0047

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.

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

☒ None

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	/Daniel Juffernbruch/	Date (YYYY-MM-DD)	2017-12-12
Name/Print	Daniel Juffernbruch	Registration Number	33122

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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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.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Global Innovation Aggregators LLC. Examiner: RENNER, BRANDON M

Serial No.: 15838014 Group Art Unit: 2478

Confirmation No: 4691

Filed: 12/11/2017 Docket: PL133-0047

Title: APPLICATION WIRE

LETTER RE: IDS

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

Dear Sir:

The Information Disclosure Statements submitted in this continuation application may cite Foreign Patent Publications and non-Patent Literature that was cited in parent applications.

Copies of these patents, publications, pending U.S. applications, or other information submitted in the parent application need not be resubmitted in the continuing application. (MPEP 609.02 B 2.)

The Applicants authorize informal communications via email. If issues remain, the Patent Office is invited to contact the undersigned by email or telephone.

Respectfully submitted,

Global Innovation Aggregators LLC.

By their Representatives,

By _____
Daniel W. Juffernbruch
Reg. No. 33,122
847-458-6313

Patents and Licensing LLC
28 Barrington Bourne
Barrington, IL 60010-9605
tel: 847-458-6313
fax: 815-301-8408
Dan@patentsandlicensing.com

Electronic Acknowledgement Receipt

EFS ID:	31205547
Application Number:	15838014
International Application Number:	
Confirmation Number:	4691
Title of Invention:	APPLICATION WIRE
First Named Inventor/Applicant Name:	Ping Pan
Customer Number:	141440
Filer:	Daniel W. Juffernbruch
Filer Authorized By:	
Attorney Docket Number:	PL133-0047 616.P0004-1a
Receipt Date:	12-DEC-2017
Filing Date:	
Time Stamp:	16:57:02
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	PL133-0047_IDS.pdf	614863	no	11
			a1b378a7ac31de43931b03fe7c71419d0600872b		

Warnings:

Information:					
2	Transmittal Letter	PL133-0047_Letter_to_PTO_ID S_NPL_Parent.pdf	46597 f97eada9c11d5fdace5d4dcd3723c6b3133a 1d30	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			661460		
<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><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

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NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	
Filing Date	
First Named Inventor	Ping Pan
Title	APPLICATION WIRE
Art Unit	2478
Examiner Name	RENNER, BRANDON M
Attorney Docket Number	PL133-0047

SIGNATURE of Applicant or Patent Practitioner

Signature	/Daniel W Juffernbruch/	Date (Optional)	12/08/2017
Name	Daniel W Juffernbruch	Registration Number	33122
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

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



*Total of 1 forms are submitted.

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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

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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:

141440

OR



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The address associated with the above-mentioned Customer Number

OR



The address associated with Customer Number: 141440

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):

Global Innovation Aggregators LLC.



Inventor or Joint Inventor (title not required below)



Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)



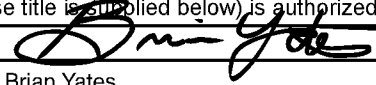
Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)



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		Date (Optional)	
Name	Brian Yates		
Title	CEO of Global Innovation Aggregators 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.



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Name	Registration Number

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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.

Electronic Patent Application Fee Transmittal

Application Number:				
Filing Date:				
Title of Invention:	APPLICATION WIRE			
First Named Inventor/Applicant Name:	Ping Pan			
Filer:	Daniel W. Juffernbruch			
Attorney Docket Number:	PL133-0047 616.P0004-1a			
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY APPLICATION FILING	1011	1	280	280
UTILITY SEARCH FEE	1111	1	600	600
UTILITY EXAMINATION FEE	1311	1	720	720
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1600

Electronic Acknowledgement Receipt

EFS ID:	31192362
Application Number:	15838014
International Application Number:	
Confirmation Number:	4691
Title of Invention:	APPLICATION WIRE
First Named Inventor/Applicant Name:	Ping Pan
Customer Number:	141440
Filer:	Daniel W. Juffernbruch
Filer Authorized By:	
Attorney Docket Number:	PL133-0047 616.P0004-1a
Receipt Date:	11-DEC-2017
Filing Date:	
Time Stamp:	18:08:43
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 1600
RAM confirmation Number	121217INTEFSW18094900
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		PL133-0047_spec_claims_abst.pdf	812297	yes	20
			ddb8c486b17355d19f5048ab31159206a9d6f144		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	14	
	Claims		15	19	
	Abstract		20	20	
Warnings:					
Information:					
2	Drawings-only black and white line drawings	PL133-0047_drwgs.pdf	173131	no	9
			421029b952ad036cb727a6b84d3f1f8c5414c736		
Warnings:					
Information:					
3	Application Data Sheet	PL133-0047_Application_Data_Sheet.pdf	1793841	no	9
			8a41821e9120c4d4b5f1414148bdefd971c0d315		
Warnings:					
Information:					
4	Oath or Declaration filed	PL133-0047_Pan_oath_AIA.pdf	74648	no	1
			0dd9b033abaa5b8750da652e66d7279de70488be		
Warnings:					
Information:					
5	Oath or Declaration filed	PL133-0047_Substitute_Statement_signed.pdf	168238	no	3
			3a2421957c6da1aa37758ba0fac5bb1b68627daf		

Warnings:					
Information:					
6	Power of Attorney	PL133-0047_Power_of_Attorney_signed.pdf	144842 e75cc11778764caf24dff67c838a7c59a9b437b4	no	4
Warnings:					
Information:					
7	Fee Worksheet (SB06)	fee-info.pdf	34929 f6129abeccf355238cad5722f523c0c1c99ec31	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			3201926		
<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><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

APPLICATION WIRE

CROSS REFERENCE TO OTHER APPLICATIONS

[0001] This application is a continuation of U.S. Patent Application Serial No. 14/055,721, filed on October 16, 2013, and entitled "Application Wire," which is a continuation of U.S. Patent Application Serial No. 11/543,727, filed October 5, 2006, which claims priority to U.S. Provisional Application No. 60/725,038, filed October 7, 2005 and entitled "Application wire: mapping application streams to pseudo-wires." The entireties of these related applications are incorporated herein by reference.

BACKGROUND OF THE INVENTION

[0002] In recent years, network service providers have been upgrading and managing networks based on Multi Protocol Label Switching (MPLS) technology. MPLS has been deployed in most backbone networks. MPLS provides capabilities such as Quality of Service (QoS), redundancy, Operations Administration and Maintenance (OAM), and Virtual Private Network (VPN). MPLS is typically used to provision and manage data streams at individual flow levels. Each flow is known as a Label Switched Path (LSP). Existing MPLS systems typically handle data traffic at the Layer-3 (IP) level and below.

[0003] Some MPLS networks use Pseudowires to map Open System Interconnections (OSI) Layer-1 or Layer-2 traffic flows into "virtual circuits." A Pseudowire refers to the emulation of a Layer-1 or Layer-2 native service over a network. Examples of native services include Asynchronous Transfer Mode (ATM), Frame Relay, Ethernet Virtual Local Area Network (VLAN), Time Division Multiplexing (TDM), Synchronous Optical Network (SONET), Synchronous Digital Hierarchy (SDH), etc. In the control plane, the Pseudowires are maintained and managed using a simplified version of Label Distribution Protocol (LDP), the Target LDP. Each Pseudowire is associated with an MPLS label for packet forwarding and a control word for flow management.

[0004] Since existing MPLS networks only allow Layer-1 or Layer-2 connections to be mapped to Pseudowires in a one-to-one mapping, the system typically cannot guarantee the QoS for individual applications that generate application data in Layer-3 or above. QoS behavior in the application layer is sometimes different from the behavior in Layer-1 or Layer-2. For example, packet video streams can generally tolerate out-of-sequence delivery, and packet voice traffic can sometimes tolerate packet loss but is sensitive to packet delay. Existing Layer-1 and Layer-2 systems, however, typically do not address network-level QoS for these voice and video applications.

[0005] Some proposed IP-based models have been developed to address the QoS requirement associated with applications, but some issues remain. For example, the IntServ/RSVP model identifies connections by applications based on the IP addresses of the source and destination, the protocol type, and the protocol's source and destination port number (together known as the 5-tuple). Each connection is required to comply with a number of service parameters such as bandwidth consumption and delay budget. As a result, the intermediate nodes (such as the core routers) are required to store the identity of all the connections, perform deep packet inspection, and implement extensive QoS mechanisms to satisfy the service parameters for each flow. Network service providers tend to find this model limiting because it is not very scalable as the number of users grow.

[0006] The DiffServ model addresses the scalability problems associated with the IntServ/RSVP model. Instead of handling QoS on a per flow basis, the user applications are classified into a small number of uniformly defined traffic classes. Each data packet stores its traffic class information in its IP header. At each intermediate node, the packet receives appropriate QoS treatment according to its traffic class. Since DiffServ provides relative QoS, in order to guarantee QoS to a particular flow, the model typically requires the network bandwidth to be over-provisioned. Further, the model only incorporates a subset of available QoS technology, such as priority queuing and Random Early Discard (RED) in dealing with temporary traffic congestion. The model is often not applicable in networks where physical links cannot be sufficiently over-provisioned.

[0007] It would be useful to have a way to better manage application traffic over a carrier network without requiring changes to the intermediate nodes. It would also be desirable if QoS guarantee can be achieved at per-application flow level. Furthermore, the solution should to be scalable.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] Various embodiments of the invention are disclosed in the following detailed description and the accompanying drawings.

[0009] FIG. 1 is a system diagram illustrating an example of an MPLS based network supporting Pseudowires.

[0010] FIG. 2 is a system diagram illustrating an example of a network supporting Application Wires.

[0011] FIG. 3 is a flowchart illustrating an embodiment of a process for transferring data.

[0012] FIG. 4 is a flowchart illustrating another embodiment of a process for handling ingress data streams.

[0013] FIG. 5 is a diagram illustrating the format of a Real Time Protocol (RTP) packet example.

[0014] FIG. 6 is a diagram illustrating an example of a Pseudowire encapsulated MPEG-4 packet.

[0015] FIG. 7 is a flowchart illustrating an embodiment of a process for handling data traffic in the egress direction.

[0016] FIG. 8 is a block diagram illustrating an embodiment of an application flow engine.

[0017] FIG. 9 is a diagram illustrating an example of a multicast environment supporting Application Wires.

DETAILED DESCRIPTION

[0018] The invention can be implemented in numerous ways, including as a process, an apparatus, a system, a composition of matter, a computer readable medium such as a computer readable storage medium or a computer network wherein program instructions are sent over optical or communication links. In this specification, these implementations, or any other form that the invention may take, may be referred to as techniques. A component such as a processor or a memory described as being configured to perform a task includes both a general component that is temporarily configured to perform the task at a given time or a specific component that is manufactured to perform the task. In general, the order of the steps of disclosed processes may be altered within the scope of the invention.

[0019] A detailed description of one or more embodiments of the invention is provided below along with accompanying figures that illustrate the principles of the invention. The invention is described in connection with such embodiments, but the invention is not limited to any embodiment. The scope of the invention is limited only by the claims and the invention encompasses numerous alternatives, modifications and equivalents. Numerous specific details are set forth in the following description in order to provide a thorough understanding of the invention. These details are provided for the purpose of example and the invention may be practiced according to the claims without some or all of these specific details. For the purpose of clarity, technical material that is known in the technical fields related to the invention has not been described in detail so that the invention is not unnecessarily obscured.

[0020] Transferring data over a network using Application Wires is disclosed. An Application Wire refers to the emulation of a virtual circuit or a transparent wire for transferring one or multiple application flows. An Application Wire maps one or more application flows into Pseudowires, and is at the same time aware of the application protocol and the protocol requirements associated with the application flows. As used herein, an application flow refers to a set of packets exchanged between two or more

devices for accomplishing a specific function. Application flow data includes data associated with Layer-4 or above as defined by the OSI protocol stack. In some embodiments, an application flow includes data packets transmitted and received by an application, such as a Voice over IP (VoIP) session, instant messaging, Video-on-Demand (VoD), etc. The application may be configured to operate on various wired, wireless, or hybrid devices. The interface between the application and the underlying network is provided by protocols such as the Session Initialization Protocol (SIP) and the Real-time Transport Protocol (RTP). From the perspective of the application, transferring data over an Application Wire has the same effect as transferring data over a dedicated wire. As will be shown in more detail below, in some embodiments, Application Wires are formed by mapping application flows to Pseudowires.

[0021] FIG. 1 is a system diagram illustrating an example of an MPLS based network supporting Pseudowires. In this example, client devices such as 102 and 104 reside on an edge network and transfer data to an edge device (also referred to as an edge node) 106. The edge node, for example an edge router, supports MPLS and is capable of mapping Layer-1 and Layer-2 data streams into Pseudowires. Each data stream is mapped to a single Pseudowire in a one-to-one mapping. Each packet in the Pseudowire is encapsulated with an MPLS label for forwarding, and includes a control word for flow management. The edge device forwards the packet to a core network that includes core routers such as 108. The core network is compatible with MPLS and IP. The end user traffic flows are mapped to Pseudowires and then fed to the core network. The Pseudowires are maintained throughout the core network. The Pseudowires terminate at edge node 109, which receives the Pseudowire traffic and forwards the packets to their appropriate destinations such as devices 110 and 112. Traffic from devices such as 110 and 112 to devices such as 102 and 104 is processed similarly.

[0022] Since the mapping of one data stream to one Pseudowire does not account for the bandwidth demand of individual applications generating traffic on the client devices, it is often difficult to guarantee the quality of service (QoS) for these individual applications. For example, assuming that Pseudowires A and B each support a data rate

of 50 Mbps, and that the application executing on device 102 require 70 Mbps of bandwidth while the application on device 104 only requires 20 Mbps. Because of the one-to-one mapping, the bandwidth requirement of device 102 is not met by Pseudowire, even though there is excess capacity on the network overall.

[0023] Application Wires improve on the Pseudowire scheme described above. FIG. 2 is a system diagram illustrating an example of a network supporting Application Wires. In this example, client devices 202-206 are configured to communicate with client devices 208-218 in the following manner: device 202 communicates with devices 208, 210, and 212; device 204 with device 214; device 206 with devices 216 and 218. Specifically, one or more applications executing on each client device send data to and receive data from applications executing on other client devices. Application flows a-f are shown between devices 202-206 and 208-218.

[0024] At the edge of the core network, edge nodes 220 and 222 are configured to transfer the data streams between a core network (such as a backbone network of a service provider) and the client devices. As used herein, data traffic is said to be in the ingress direction if it is being transferred from client devices to the core network, and in the egress direction if it is being transferred from the core network to clients devices. A data connection that transfers data in the ingress direction is referred to as a network-bound connection. Depending on the direction of the data flow, an edge node may be referred to as an ingress node or an egress node.

[0025] As will be shown in more detail below, the edge nodes map the application flows into Pseudowires in the ingress direction. A number of mapping schemes are possible, such as a one-to-one mapping, a distributed mapping where an application flow is mapped to multiple Pseudowires, or an aggregated mapping where multiple flows are mapped to a single Pseudowire. In the example shown, application flows a and b are one-to-one mapped to a separate Pseudowire each, application flow d is distributed to Pseudowires d1 and d2, and application flows e and f are aggregated to a single Pseudowire (e+f). The mapping scheme for each application flow is selected

based at least in part on the bandwidth and traffic requirement associated with the application. In the egress direction, packets transferred on the Pseudowires are reassembled to the corresponding application flows and sent to the appropriate destinations. Each Pseudowire may span a plurality of intermediate nodes such as core routers 230 and 232. Unlike data transfer schemes where deep packet inspection is required at each intermediate node, the intermediate nodes used in this example can be standard MPLS devices and no change is required to make them support the Application Wire scheme.

[0026] FIG. 3 is a flowchart illustrating an embodiment of a process for transferring data. Process 300 may be implemented on an edge node and can be used to process data streams in the ingress direction. In this example, the process initiates by identifying an application flow associated with a data stream being transferred over the network (302). Depending on the data stream, there may be one or more application flows within the same data stream. The identification may be achieved, for example, by inspecting the headers of the packets in the data stream. Further details of the identification process are discussed below. Once identified, the application flow is mapped to one or more network-bound connections such as Pseudowires (304) in accordance with the requirements of the application, forming one or more Application Wires.

[0027] FIG. 4 is a flowchart illustrating another embodiment of a process for handling ingress data streams. Process 400 may be implemented on an edge node. In this example, process 400 initiates when a data packet is received (402). The header information of the received packet is read (404). The header information is used to identify the application flow. For purposes of example, it is assumed that the data stream carries IP data and that the data packet is an IP packet. Other types of data can be processed similarly based on the corresponding header formats. In this example, the IP packet includes a Layer-2 MAC header having fields such as the Ethernet addresses of the source and the destination. The IP packet further includes higher layer headers such

as Layer-4 application protocol headers. The combination of various headers is used to identify specific application flows.

[0028] It is useful to inspect an example of a packet to understand how the application flow identification is done. FIG. 5 is a diagram illustrating the format of a Real Time Protocol (RTP) packet example. Packet 500 shown in the example is an MPEG-4 packet. It includes a header portion 502 and a payload portion 504. The header portion includes a Layer-3 (IPv4) header 506, and Layer-4 headers which in this case include UDP header 508 and RTP header 510. Several fields from each of the headers are extracted to provide information useful for identifying the application flow, including the IP source address and IP destination address, protocol type (which is UDP in this example), UDP source port, UDP destination port, synchronization source (SSRC) identifier, and contributing source (CSRC) identifier. Some of the fields are optional in some embodiments. Other types of applications such as Voice over IP or instant messaging can be identified using a similar technique, although different headers and fields may be used.

[0029] Returning to FIG. 4, the header information associated with the packet is looked up in a database of application flows (406). If the header information is not found in the database, it is determined whether a new application flow can be created based on the header information (407). If so, a new entry that includes information identifying the new application flow is created in the application flow database (408). If a new application flow cannot be created, the packet is discarded and appropriate error handling such as event logging is optionally performed. New application flows are disallowed in some embodiments where the system is configured to only allow pre-configured application flows.

[0030] If, however, the header information is found in the database, the packet is mapped to an application flow (410). Admission control is optionally performed on the flow (412). In various embodiments, admission control includes shaping traffic by changing the packets priority, applying a policy/rule, tagging, dropping the packet, etc. If

the packet is not dropped by admission control, it is mapped to one or more Pseudowires configured to service the application flow (414). In some embodiments, a database of available Pseudowires is searched to find one or more suitable Pseudowires for carrying the application flow. The mapping is based on, among other things, IP routing or manual configuration.

[0031] As previously discussed, the mapping of application flow to Pseudowire may be one-to-one, N-to-one, or one-to-N. One-to-one mapping is the most straightforward. Sometimes multiple application flows are aggregated into a single flow (N-to-one). Aggregation is appropriate when, for example, the application flows are similar and have the same priority level. Sometimes, an application flow is distributed into multiple streams and transferred over the network via multiple Pseudowires (one-to-N). For example, a large flow exceeding a certain data rate threshold may be split into several Pseudowires to better utilize the available bandwidth. The division of the application flow into multiple streams is based at least in part on application-specific parameters. For example, a large RTP stream is sometimes split based on SSRC or payload frame type. In one example, an application flow involves a large RTP stream having a large amount of MPEG traffic over a network without any per flow QoS guarantee. To reduce the impact of dropped packets, the more important packets such as M-frames in the application flow are separated from the rest. The important packets are mapped to a Pseudowire with a higher priority level. The rest of the packets are mapped to one or more lower priority Pseudowires.

[0032] Returning to FIG. 4, once the appropriate Pseudowire for sending the packet is determined, the packet is encapsulated with a Pseudowire header (416) and sent to the core MPLS/IP network (418). FIG. 6 is a diagram illustrating an example of a Pseudowire encapsulated MPEG-4 packet. In this example, a Pseudowire header 602 is pre-pended to packet 600. The Pseudowire header includes packet label information, which has the same format as the of an MPLS packet. In addition to the label information, several other fields are updated to provide information useful for the Application Wire. The sequence number field is used to keep packets in the application

flow in the correct order. Ingress packets are assigned sequence numbers in the order they are received by the edge node. The EXP field is used to store service differentiation information such as priority level. The differentiation information is encoded according to the Internet Engineering Task Force (IETF)'s Request For Comments (RFC) 3270. The differentiation information, which is derived based on the service parameters associated with the application flow, gives service providers greater control over service quality for individual flows. In some embodiments, the reserved field in the control word is used for functions such as OAM (e.g. the VCCV function), service guarantee, protection, and flow control.

[0033] Since the resulting packet is an MPLS formatted packet, it can be processed by any intermediate nodes on the network (e.g. network routers and switches as) a regular MPLS packet. So long as the intermediate node is a standard MPLS enabled device, no modification is required of the device for processing an Application Wire related packet.

[0034] FIG. 7 is a flowchart illustrating an embodiment of a process for handling data traffic in the egress direction. Process 700 may be implemented on an edge node on the termination end of a Pseudowire. In this example, process 700 initiates when a packet is received on a Pseudowire (702). The application flow that corresponds to the Pseudowire is identified (704). In some embodiments, the identification is accomplished by looking up in a database that maps Pseudowires to application flows. In the event that the Pseudowire is configured to carry more than one application flow, the packet header is further inspected to locate the matching application flow.

[0035] Since it is possible for packets sent on different Pseudowires to arrive out of order, the packets are re-sequenced as appropriate (706). In some embodiments, the re-sequencing includes re-sequencing at the Pseudowire level. The sequence number field in the Pseudowire header is examined and used to sort the packets in the appropriate sequence. In some embodiments, the re-sequencing includes an application flow level re-sequencing. Application header and/or payload information is used to sort packets

belonging to the same application flow in the appropriate order. For example, the SSRC and the sequence numbers in the RTP header, as well as the payload data are used in some embodiments to re-sequence an RTP flow. Once re-sequenced, the Pseudowire header of the packet is removed and the packet is forwarded to its destination (708).

[0036] In some embodiments, processes 300, 400 and 700 are carried out by an application flow engine (AFE). FIG. 8 is a block diagram illustrating an embodiment of an application flow engine. In this example, AFE 800 is included in an edge node device. The components of the AFE may be implemented as software, firmware, hardware or a combination thereof. The AFE is configured to send data streams from the client devices to the core network as well as to receive data streams from the network designated for client devices on the edge network.

[0037] When handling ingress data streams, the AFE identifies and maps application flows in the data streams to a plurality of Pseudowires. The application flows are denoted as $F = \{f_1, f_2, \dots, f_n\}$ and the Pseudowires are denoted as $W = \{w_1, w_2, \dots, w_m\}$. An application flow identifier 806 identifies new application flows in the data stream, and stores information associated with the application flows in a database labeled as an application flow table (AFT) 802. The AFT is also used to identify data packets that match application flows already stored in the AFT. Information stored in the AFT includes, among other things, flow identification information and service parameters. The flow identification information includes attributes used to identify the specific application flow and may vary depending on the application. For example, for an RTP-based application flow, the corresponding IP source and destination addresses, UDP protocol type, UDP source and destination port number, SSRC and CSRC are recorded in the AFT. Examples of the service parameters include various measured or assigned characteristics, such as the average and peak bandwidth of the flow, the burst size, the importance level of the flow (for example, emergency 911 traffic is assigned the highest importance and can preempt other flows at runtime), sub-flow information such as the bandwidth and importance levels associated with different sources, as well as other application dependent information such as whether to allow out-of-sequence packets in

the flow. In some embodiments, at least a part of the AFT is populated ahead of time by the service provider. For example, the service parameters may be manually configured or populated using a configuration file when the system is initialized. Having a pre-populated AFT allows the service providers to offer different levels of services, and/or provide QoS guarantee based on subscription.

[0038] In FIG. 8, a mapper 808 maps incoming data packets to appropriate application flows if possible, and optionally performs admission control functions on the data flows. The mapper also maps each application flow to one or more Pseudowires based on information stored in a Pseudowire table (PWT) 804. A Pseudowire filter 810 encapsulates the packets with Pseudowire headers. The encapsulated packets are sent to the core network.

[0039] In some embodiments, the PWT maintains the network-bound Pseudowires, $W = \{w_1, w_2, \dots w_m\}$. For each Pseudowire, w_j , the following attributes are stored in one example: MPLS label for in packet encapsulation, QoS information indicating the level of QoS to be applied to the Pseudowire, Protection Path information identifying one or more backup Pseudowires used to protect this Pseudowire, OAM capability information used for error detection and loop-back, Multicast grouping information such as group ID used to transport multicast traffic over the MPLS/IP network.

[0040] When handling egress data streams, a process similar to 700 is carried out by the AFE. The PWT is used to look up the application flows that correspond to the packets received on various Pseudowires. The mapper re-sequences the packets, removes the Pseudowire headers, and forwards the packets to the destination.

[0041] The Application Wire techniques described above are also applicable for environments in which multimedia streams are multicasted to multiple sites in the network. To support multicast over Application Wires, a fully-meshed Pseudowire network for each multicast group is set up. Various mechanisms for supporting

Pseudowire based multicast can be used, including Virtual Private LAN Service (VPLS) and IP LAN Service (IPLS).

[0042] FIG. 9 is a diagram illustrating an example of a multicast environment supporting Application Wires. In the example shown, application flow mapping is performed at any given network edge node, and a copy of the data packet is forwarded to all the other edge nodes in the group. In some embodiments, a packet is transmitted following these steps: for an application flow, f_i^G , that belongs to a multicast group, G , the PWT is searched and the adjacencies (i.e., the other edge nodes of the group denoted as $A_k^G, A_{k+1}^G \dots$) are obtained. A copy of the data packet is sent to each adjacency. Between a pair of edge nodes (i.e., one adjacency), there may be multiple Pseudowires, $A_k^G = \{w_j^G, w_{j+1}^G \dots\}$. As described above, an application flow may be split among the Pseudowires, according to application-specific parameters.

[0043] On an egress network edge node, the Pseudowire headers of the packets are removed, the packets are reassembled and/or re-sequenced as necessary, and forwarded to the destination. Any IP or Layer-2 multicast scheme may be used to forward the packets to a destination beyond the network edge nodes.

[0044] An Application Wire based data transfer technique has been described. The technique gives service providers greater flexibility in providing services based on applications, without requiring changes to intermediate devices.

[0045] Although the foregoing embodiments have been described in some detail for purposes of clarity of understanding, the invention is not limited to the details provided. There are many alternative ways of implementing the invention. The disclosed embodiments are illustrative and not restrictive.

[0046] WHAT IS CLAIMED IS:

CLAIMS

1. A method, comprising:
identifying, by a system comprising at least one processor, a first subset of data packets having a defined priority based on a parameter associated with an application flow;
assigning, by the system, the first subset of the data packets to a first data stream;
assigning, by the system, a second subset of the data packets that excludes the first subset of the data packets to a second data stream;
encapsulating, by the system, a first data packet of the first data stream with a first pseudowire header associated with a first pseudowire; and
encapsulating, by the system, a second data packet of the second data stream with a second pseudowire header associated with a second pseudowire.
2. The method of claim 1, wherein the assigning the first subset and the assigning the second subset comprises assigning the first subset and assigning the second subset in response to determining that the data packets exceed an available data rate of the first pseudowire.
3. The method of claim 1, further comprising:
in response to determining that a first priority of the first pseudowire is higher than a second priority of the second pseudowire, mapping, by the system, the first data stream to the first pseudowire.
4. The method of claim 1, further comprising identifying, by the system, the application flow based on header information associated with at least one of the data packets.
5. The method of claim 4, further comprising mapping, by the system, the at least one of the data packets to the application flow based on the header information.
6. The method of claim 4, further comprising determining, by the system, the parameter based on the application flow.

7. The method of claim 1, further comprising setting, by the system, at least one of a packet label field, a sequence number field, a service differentiation field, a service guarantee field, or a flow control field in at least one of the first pseudowire header or the second pseudowire header.

8. The method of claim 1, wherein the encapsulating the first data packet yields a first encapsulated data packet, and the encapsulating the second data packet yields a second encapsulated data packet, and the method further comprises:

sending, by the system, the first encapsulated data packet over the first pseudowire via one or more first multi-protocol label switching devices; and

sending, by the system, the second encapsulated data packet over the second pseudowire via one or more second multi-protocol label switching devices.

9. A device, comprising:

a memory that stores executable instructions; and

a processor, communicatively coupled to the memory, that executes or facilitates execution of the executable instructions to at least:

determine a first subset of data packets that have a defined priority based on a parameter associated with an application flow;

assign the first subset of the data packets to a first data stream;

assign a second subset of the data packets that excludes the first subset of the data packets to a second data stream;

encapsulate a first data packet of the first data stream with a first pseudowire header corresponding to a first pseudowire; and

encapsulate a second data packet of the second data stream with a second pseudowire header corresponding to a second pseudowire.

10. The device of claim 9, wherein the processor further executes or facilitates the execution of the computer-executable instructions to assign the first subset of the data packets to the first data stream and assign the second subset of the data packets to the second data stream in response to a determination that a data flow of the data packets exceeds a defined data rate of the first pseudowire.

11. The device of claim 9, wherein the processor further executes or facilitates the execution of the computer-executable instructions to:

compare a first priority associated with the first pseudowire with a second priority associated with the second pseudowire; and

assign the first data stream to the first pseudowire based on a determination that the first priority exceeds the second priority.

12. The device of claim 9, wherein the processor further executes or facilitates the execution of the computer-executable instructions to identify the application flow based on header information read from at least one of the data packets.

13. The device of claim 12, wherein the processor further executes or facilitates the execution of the computer-executable instructions to assign the at least one of the data packets to the application flow based on the header information.

14. The device of claim 12, wherein the processor further executes or facilitates the execution of the computer-executable instructions to determine the parameter based on identification of the application flow.

15. The device of claim 9, wherein at least one of the first pseudowire header or the second pseudowire header comprises at least one of a packet label field, a sequence number field, a service differentiation field, a service guarantee field, or a flow control field.

16. The device of claim 9, wherein encapsulation of the first data packet and the second data packet yields a first encapsulated data packet and a second encapsulated data packet, respectively, and the processor further executes or facilitates the execution of the computer-executable instructions to:

transfer the first encapsulated data packet over the first pseudowire via one or more first multi-protocol label switching devices; and

transfer the second encapsulated data packet via the second pseudowire using one or more second multi-protocol label switching devices.

17. A computer-readable storage device having stored thereon computer-executable instructions that, in response to execution, cause a device comprising a processor to perform operations, comprising:

identifying a first subset of data packets having a defined priority based on a parameter associated with an application flow;

assigning the first subset of the data packets to a first data stream;

assigning a second subset of the data packets excluding the first subset to a second data stream;

encapsulating a first data packet of the first data stream with a first pseudowire header corresponding to a first pseudowire; and

encapsulating a second data packet of the second data stream with a second pseudowire header corresponding to a second pseudowire.

18. The computer-readable storage device of claim 17, the operations further comprising determining that a data rate of the data packets exceeds an available data rate of the first pseudowire,

wherein the assigning the first subset and the assigning the second subset comprises assigning the first subset and assigning the second subset in response to the determining.

19. The computer-readable storage device of claim 17, the operations further comprising:

determining that a first priority assigned to the first pseudowire exceeds a second priority assigned to the second pseudowire; and

mapping the first data stream to the first pseudowire in response to the determining.

20. The computer-readable storage device of claim 17, wherein the encapsulating the first data packet yields a first encapsulated data packet, the encapsulating the second data packet yields a second encapsulated data packet, and the operations further comprise:

sending the first encapsulated data packet via the first pseudowire using one or more first multi-protocol label switching devices; and

sending the second encapsulated data packet via the second pseudowire using one or more second multi-protocol label switching devices.

APPLICATION WIRE

ABSTRACT OF THE DISCLOSURE

[0047] Transferring data over a network includes identifying an application flow and mapping the application flow to a network bound connection.

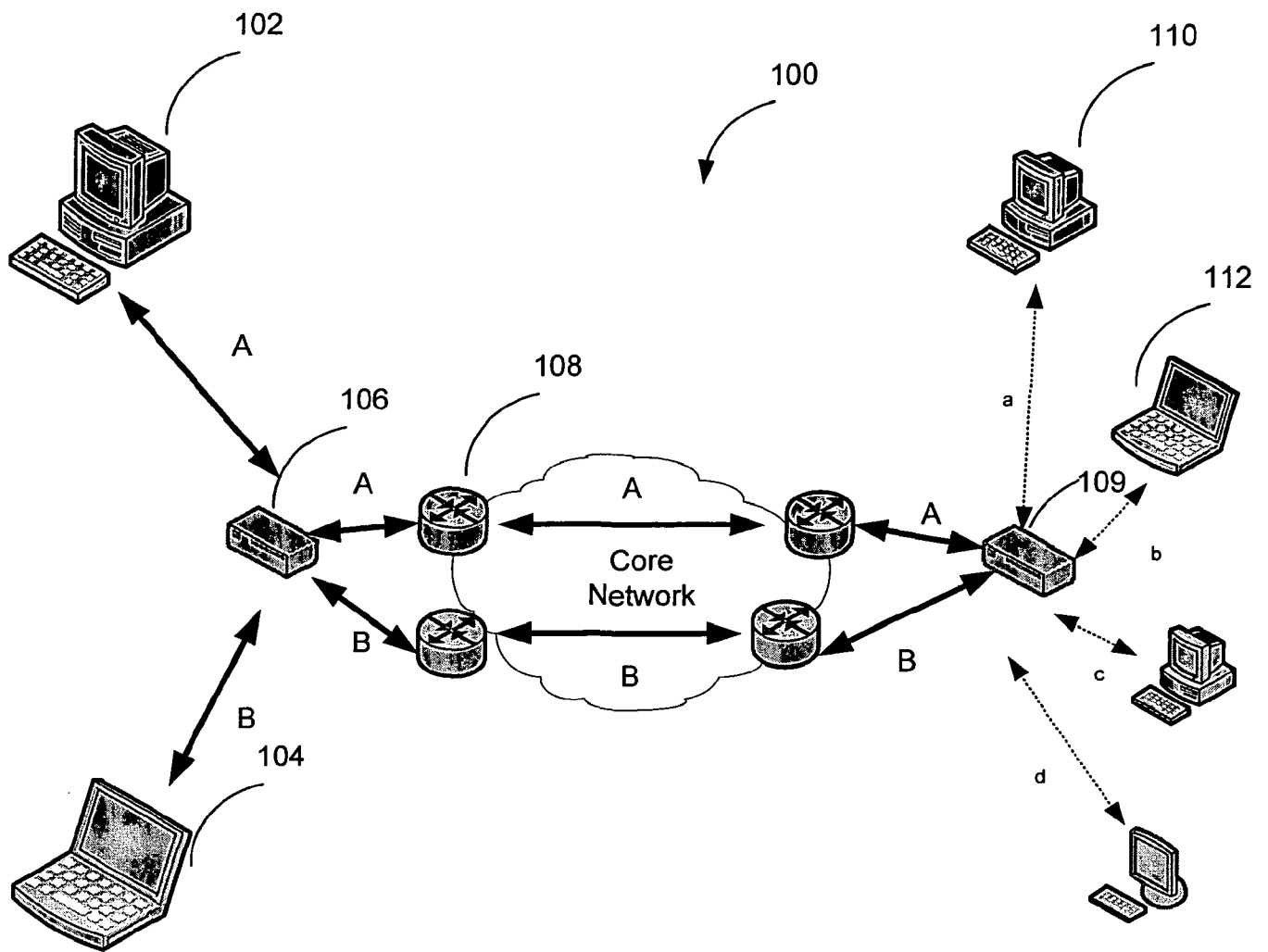


FIG. 1

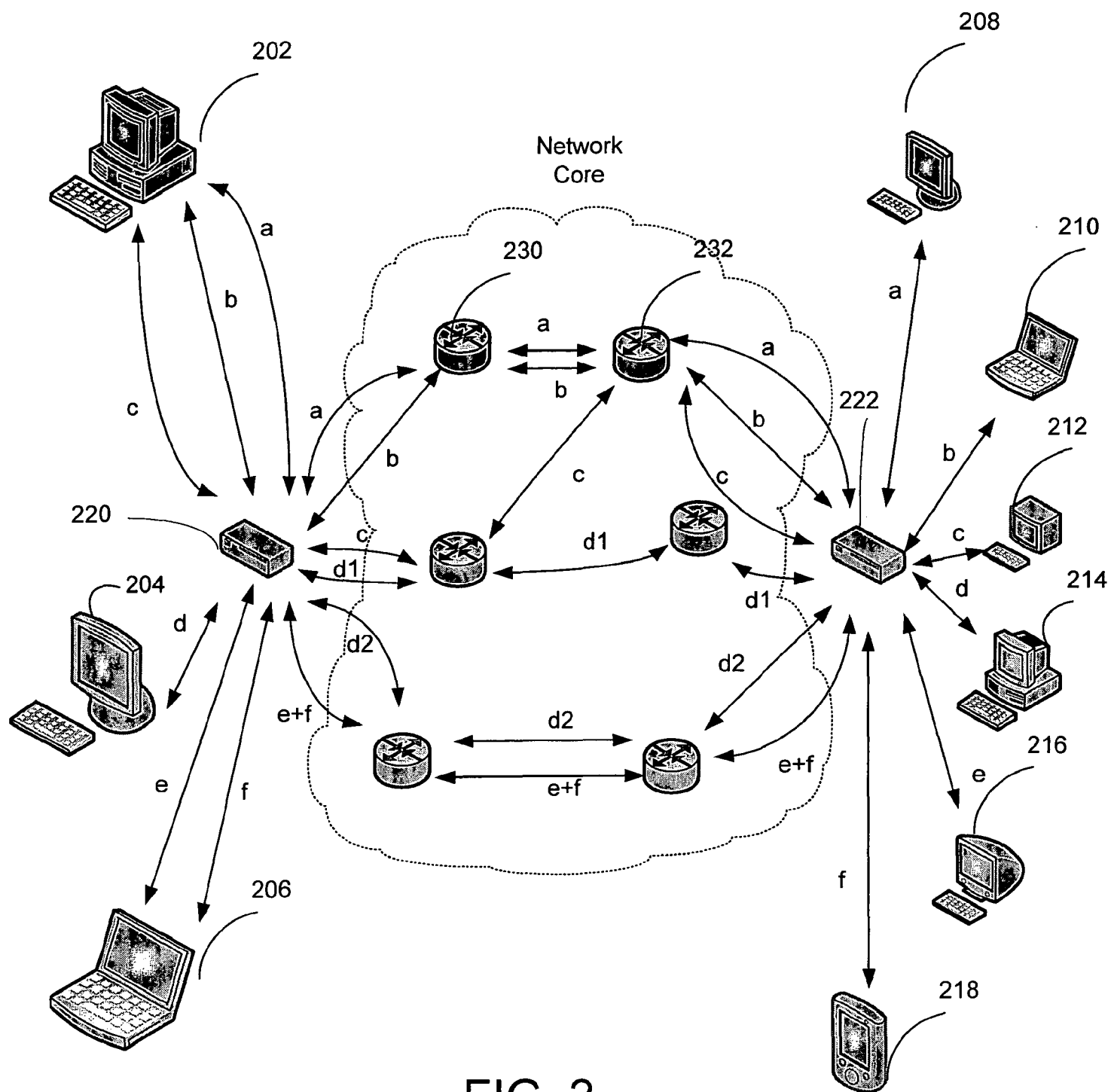


FIG. 2

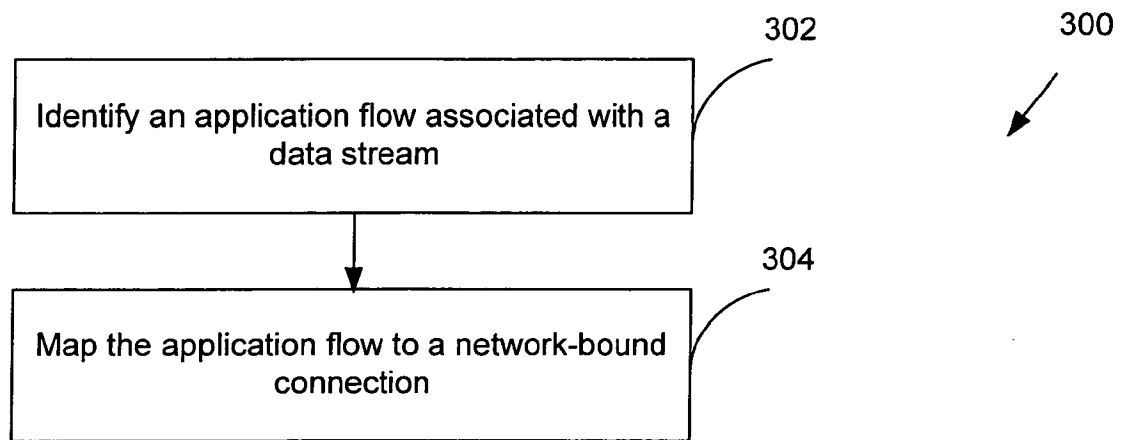


FIG. 3

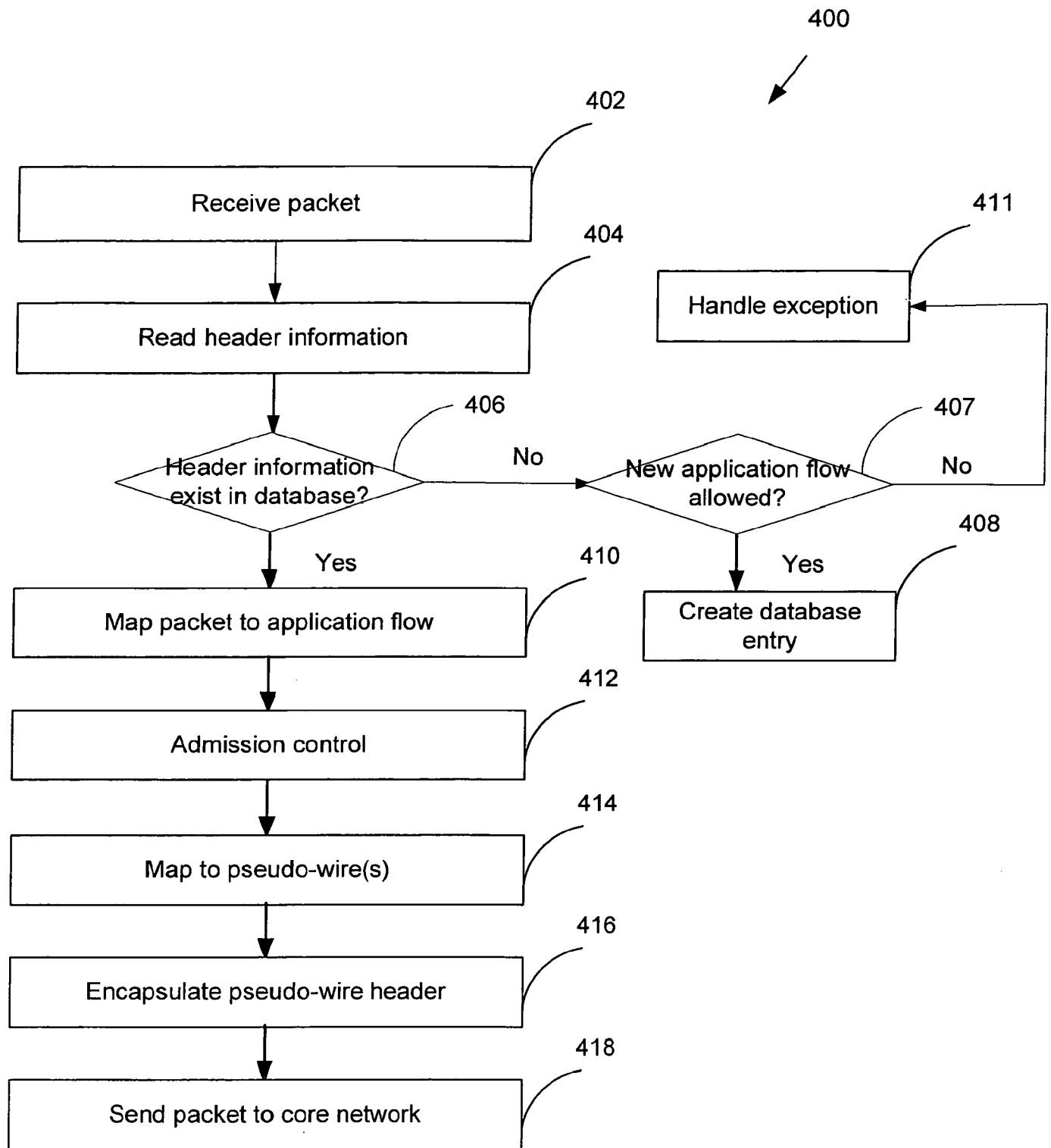


FIG. 4

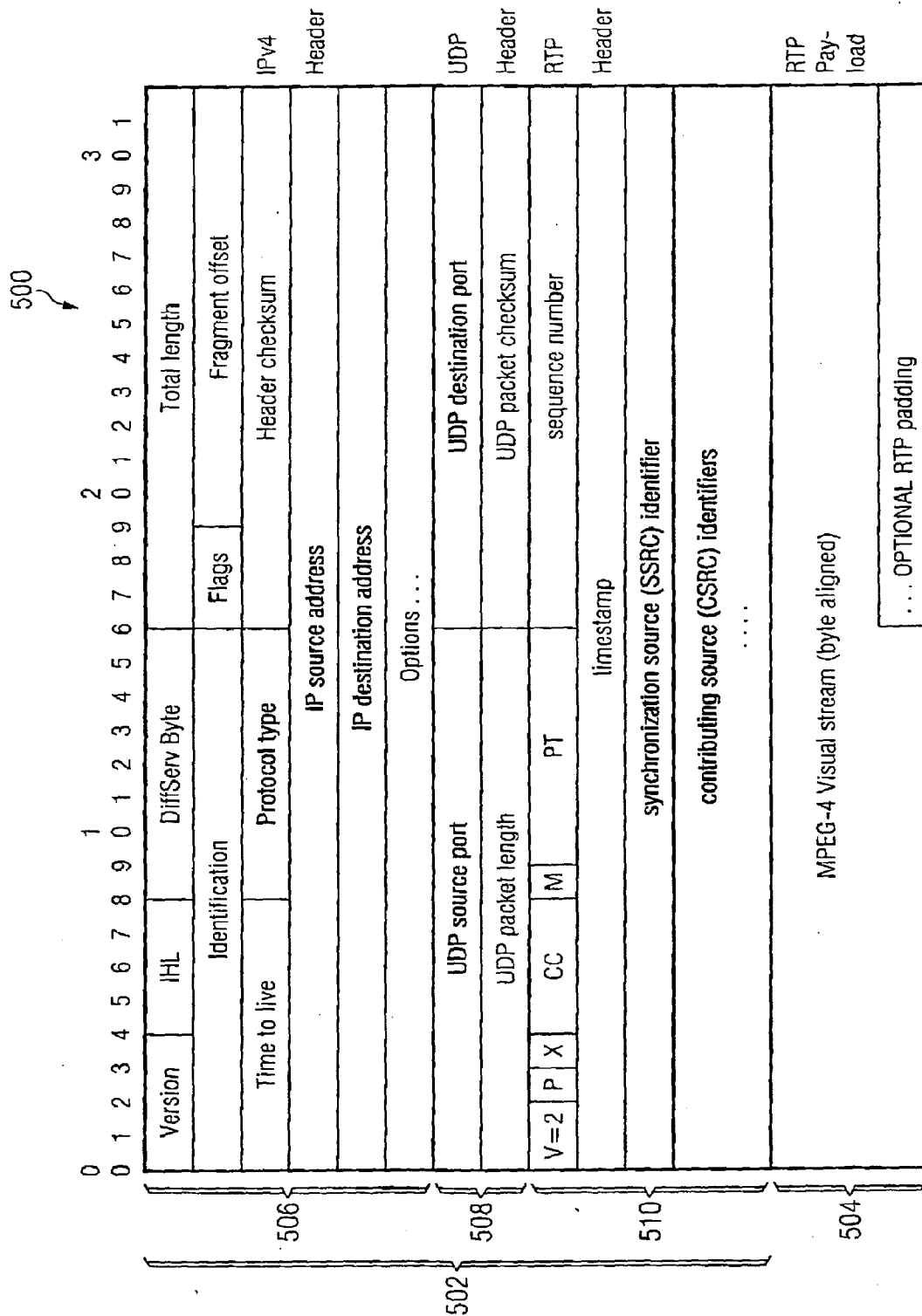


FIG. 5

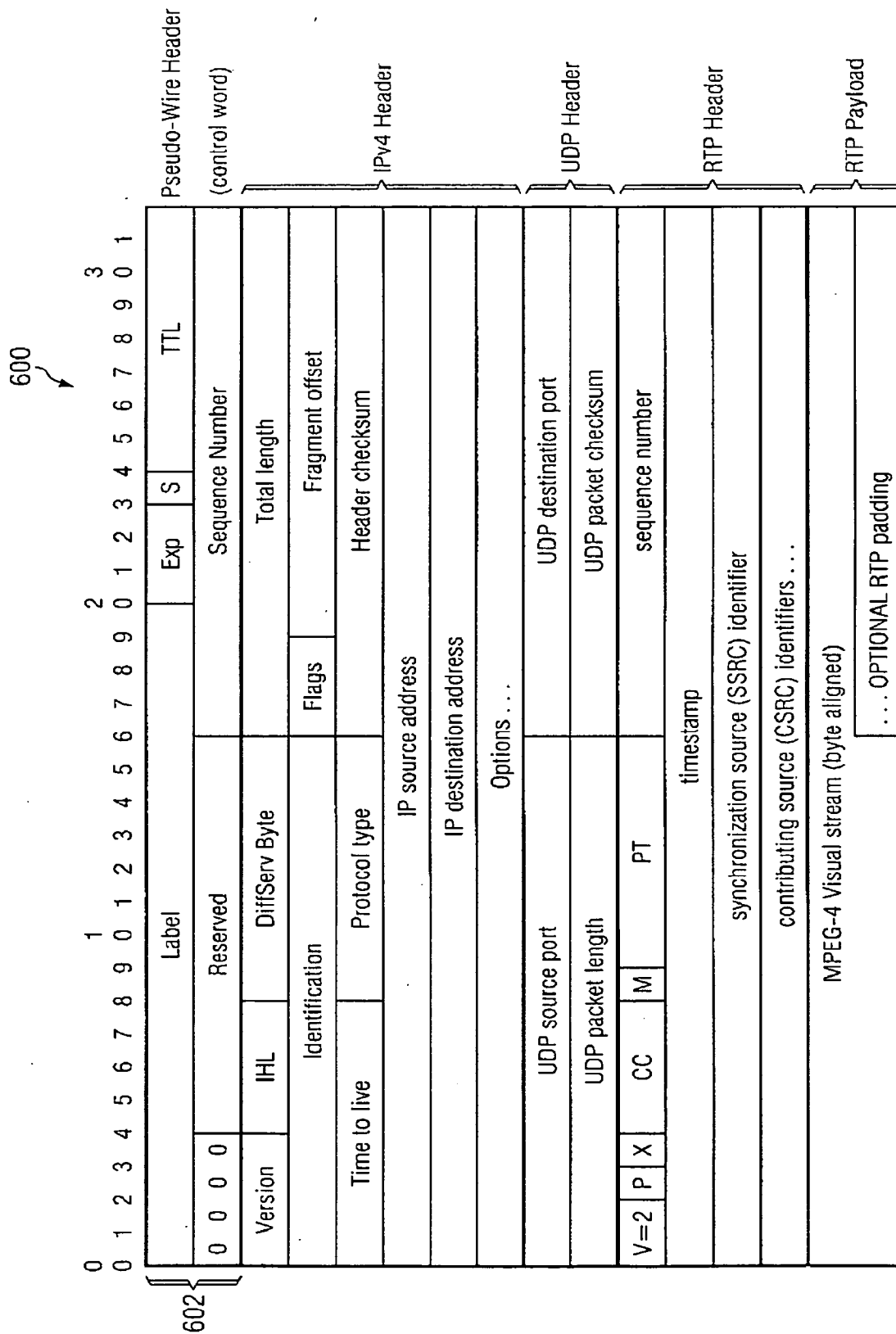


FIG. 6

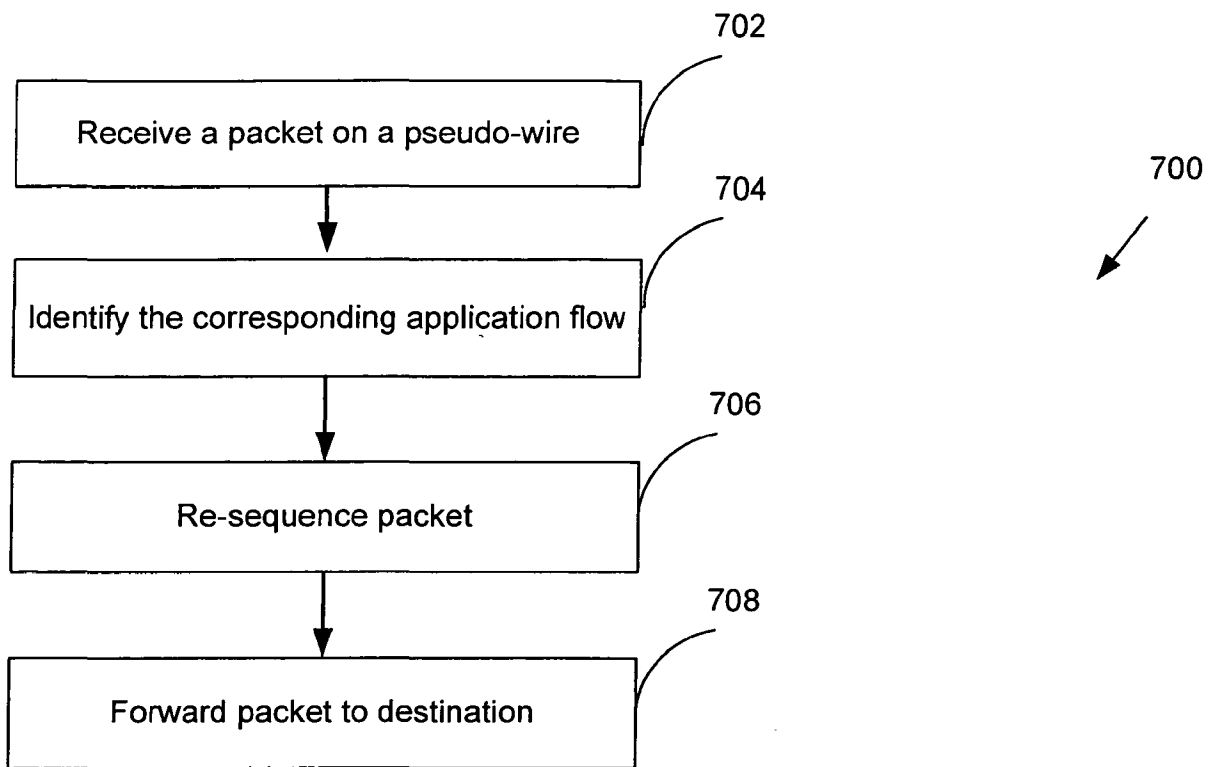


FIG. 7

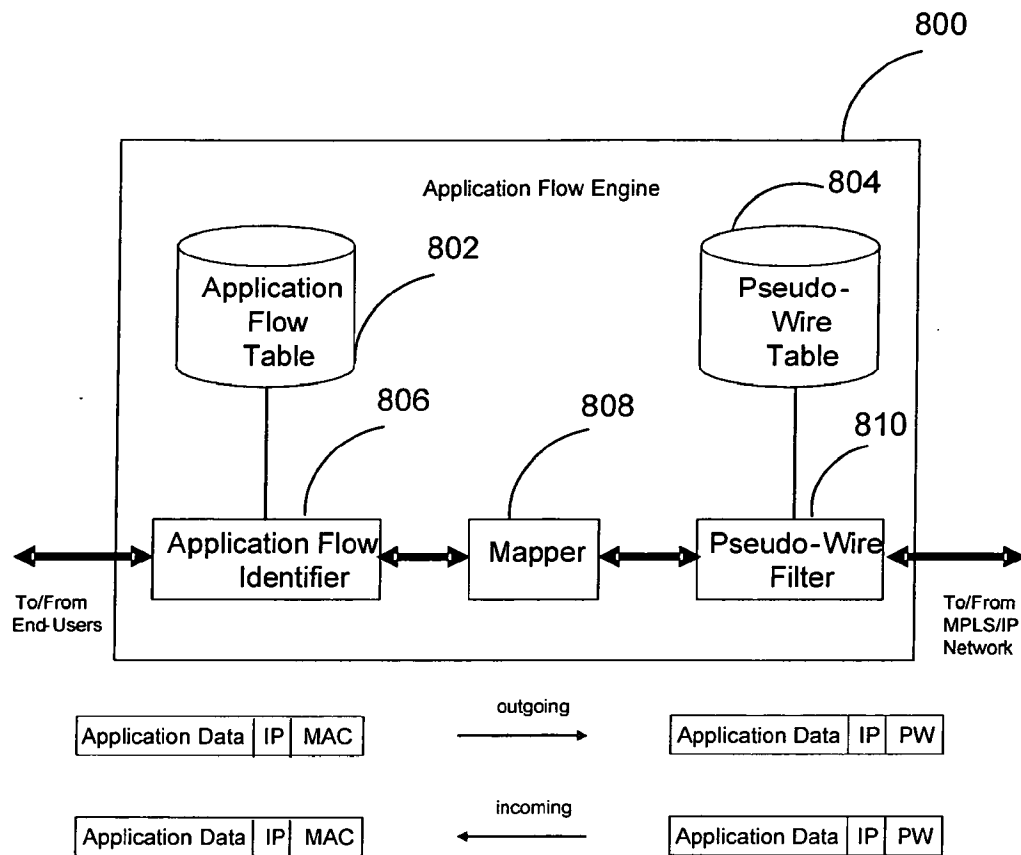


FIG. 8

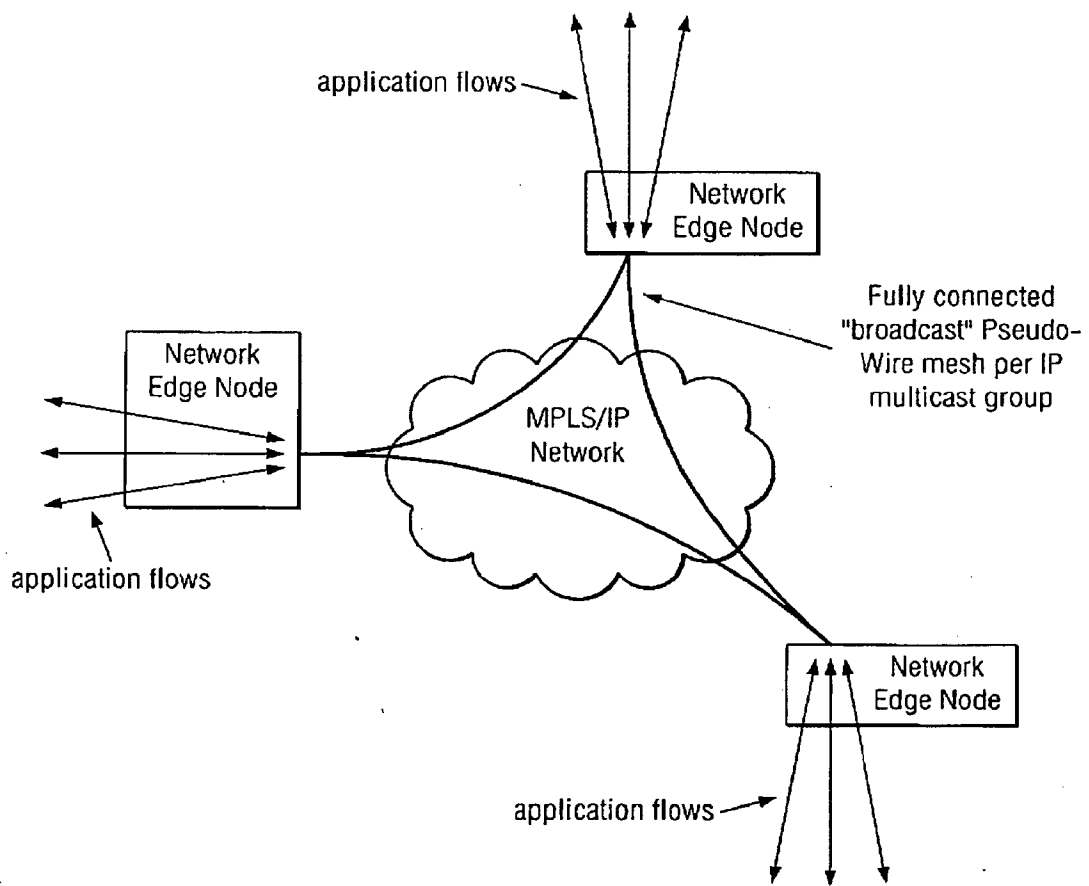


FIG. 9

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PL133-0047
		Application Number	
Title of Invention	APPLICATION WIRE		
<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>			

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PL133-0047
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Title of Invention	APPLICATION WIRE		

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Title of the Invention	APPLICATION WIRE		
Attorney Docket Number	PL133-0047	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	9	Suggested Figure for Publication (if any)	1

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

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Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	141440		

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PL133-0047
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Domestic Benefit/National Stage Information:

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

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

Prior Application Status	Pending		Remove		
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
	Continuation of	14919687	2015-10-21		
Prior Application Status	Patented		Remove		
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14919687	Continuation of	14055721	2013-10-16	9197675	2015-11-24
Prior Application Status	Patented		Remove		
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14055721	Continuation of	11543727	2006-10-05	8588061	2013-11-19
Prior Application Status	Expired		Remove		
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
11543727	Claims benefit of provisional	60725038	2005-10-07		
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.					Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)ⁱ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PL133-0047
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Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

<p>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.</p> <p>☐ 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.</p>	
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PL133-0047
		Application Number	
Title of Invention	APPLICATION WIRE		

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PL133-0047
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Title of Invention	APPLICATION WIRE		

Applicant Information:

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

Applicant	1	Remove
<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;">Clear</p>		
☒ 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. ☒		
Organization Name	Global Innovation Aggregators LLC.	
Mailing Address Information For Applicant:		
Address 1	1055 E. Colorado Boulevard, Fifth Floor	
Address 2		
City	Pasadena	State/Province CA
Country	US	Postal Code 91106
Phone Number		Fax Number
Email Address		
Additional Applicant Data may be generated within this form by selecting the Add button. Add		

Assignee Information including Non-Applicant Assignee Information:

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PL133-0047
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Title of Invention	APPLICATION WIRE		

Assignee	1		
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.			
			<input type="button" value="Remove"/>
If the Assignee or Non-Applicant Assignee is an Organization check here.			☒
Organization Name	Global Innovation Aggregators LLC.		
Mailing Address Information For Assignee including Non-Applicant Assignee:			
Address 1	1055 E. Colorado Boulevard, Fifth Floor		
Address 2			
City	Pasadena	State/Province	CA
Country ⁱ	US	Postal Code	91106
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.

Signature	/Daniel W Juffernbruch/		Date (YYYY-MM-DD)	2017-12-08
First Name	Daniel	Last Name	Juffernbruch	Registration Number
				33122
Additional Signature may be generated within this form by selecting the Add button.				<input type="button" value="Add"/>

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PL133-0047
		Application Number	
Title of Invention	APPLICATION WIRE		

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

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

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

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

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

Title of
Invention

APPLICATION WIRE

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 14/055,721

filed on October 16, 2013

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: Ping Pan

Date (Optional): 1/21/2014

Signature: [Signature]

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional PTO/SB/AIA01 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.

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.

**SUBSTITUTE STATEMENT IN LIEU OF AN OATH OR DECLARATION FOR UTILITY
OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)**

Title of Invention	APPLICATION WIRE		
This statement is directed to:			
☒ The attached application,			
OR			
☐ United States application or PCT international application number _____ filed on _____.			
LEGAL NAME of inventor to whom this substitute statement applies:			
(E.g., Given Name (first and middle (if any)) and Family Name or Surname)			
Richard D Gitlin			
Residence (except for a deceased or legally incapacitated inventor):			
City	Little Silver	State	NJ
Country	US		
Mailing Address (except for a deceased or legally incapacitated inventor):			
640 Clyde Court			
City	Mountain View	State	CA
Zip	91106	Country	US
I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.			
The above-identified application was made or authorized to be made by me.			
I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.			
Relationship to the inventor to whom this substitute statement applies:			
☐ Legal Representative (for deceased or legally incapacitated inventor only),			
☒ Assignee,			
☐ Person to whom the inventor is under an obligation to assign,			
☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.46 is required), or			
☐ Joint Inventor.			

[Page 1 of 2]

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.

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.

SUBSTITUTE STATEMENT

Circumstances permitting execution of this substitute statement:

- ☐ Inventor is deceased,
- ☐ Inventor is under legal incapacity,
- ☐ Inventor cannot be found or reached after diligent effort, or
- ☒ Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

- ☒ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.

OR

- ☐ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) has not been submitted. Thus, a Substitute Statement Supplemental Sheet (PTO/AIA/11 or equivalent) naming the entire inventive entity and providing inventor information is attached. See 37 CFR 1.64(b).

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.

PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: **Brian Yates** Date (Optional):

Signature:

**APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:**

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Global Innovation Aggregators LLC.

Applicant Name:

Title of Person Executing
This Substitute Statement: **CEO of Global Innovation Aggregators LLC.**

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City **Pasadena** State **CA** Country **US**

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

1055 E. Colorado Boulevard, Fifth Floor

City **Pasadena** State **CA** Zip **91106** Country **US**

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

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.