UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/238,938	01/03/2019	Weiping XU	4657-91100	4444

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EXAMINER
ZAIDI, IQBAL

ART UNIT	PAPER NUMBER
2464	

NOTIFICATION DATE	DELIVERY MODE
08/06/2020	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):

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PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
	16/238,938	XU et al.
Office Action Summary	Examiner	Art Unit	AIA (FITF) Status
	IQBAL ZAIDI	2464	Yes

-- 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 07/21/2020.
  ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
2a) ☐ This action is **FINAL.** 2b) ☑ This action is non-final.
3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-20 is/are pending in the application.
  5a) Of the above claim(s) _____ is/are withdrawn from consideration.
6) ☐ Claim(s) _____ is/are allowed.
7) ☑ Claim(s) 1,8-9 and 16-17 is/are rejected.
8) ☑ Claim(s) 2-7,10,12 and 18-20 is/are objected to.
9) ☐ Claim(s) _____ are subject to restriction and/or election requirement
* If any claims have been determined <u>allowable</u>, 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 _____ 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

1.   The instant application having application No 16/238938 filed on 07/21/2020 is

presented for examination by the examiner.

Examiner Notice

2.   **Claim 1** would be allowable if (i) claim 2 or 4 is incorporated into the independent

claim 1.

3.   **Claim 9** would be allowable if (i) claim 10 or 12 is incorporated into the

independent claim 9.

4.   **Claim 17** would be allowable if (i) claim 18 or 20 is incorporated into the

independent claim 17.

Response to Argument

5.   Applicant's arguments with respect to claims 1-20 have been considered but are

moot in view of the new ground(s) of rejection. However the new ground(s) of rejection

is made in view of Rajagopal et al. (US 20150227404, Aug. 13, 2015) and JOKELA et

al. (US 20160254998, Sep. 1, 2016).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103 which forms the basis for all

obviousness rejections set forth in this Office action:

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not
identically disclosed as set forth in section 102 of this title, if the differences between the claimed invention and
the prior art are such that the claimed invention as a whole would have been obvious before the effective filing

date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains.
Patentability shall not be negated by the manner in which the invention was made.

6.   **Claims 1, 8-9, and 16-17** are rejected under 35 U.S.C. 103 as being

unpatentable over Rajagopal et al. (US 20150227404, Aug. 13, 2015) in view of

JOKELA et al. (US 20160254998, Sep. 1, 2016).

Regarding **Claim 1**, Rajagopal discloses the service chain fault detection method

comprising obtaining a first fault tracing detection request packet on a service chain

(page 5, par (0052), line 1-10, When SDS receives a central fault report perform service

fault segregation to identify fault nodes where a fault have occurred, and rules to be

executed by RE to identify remediation measures. SDS use service chain information

and other received service faults to identify the nodes, SDS be able to identify

dependencies between central fault records submitted by different SAs, a fault in one

node because several SAs linked to nodes with which the faulty node communicates to

generate and send central fault records. SDS use the segregation procedure to identify

the faulty node based on the multiple central fault records from the multiple linked SAs),

wherein the first fault tracing detection request packet comprises a path identifier

(ID), and wherein the path ID identifies a path of the service chain*(page 1, par (0004),*

line 1-10, obtaining one or more fault classification rules; identifying one or more fault

nodes and associated fault conditions in the media network using the one or more fault

classification rules, by analyzing the aggregated relevant fault reports; and providing an

agent configuration instruction for one or more agent applications using the identification

of the one or more fault nodes and associated fault conditions);

determining to communicate with a first service function (SF) node on the service chain *(page 2, par(0023), line 1-10, Upon obtaining fault related data, agent device generate the central fault report, and provide it to diagnostics server (service function node) for fault detection)* by sending the first fault tracing detection request packet to the first SF node *(page 2, par(0023), line 1-10, agent device make a data request to another device (e.g., device 160) for fault-related data(wherein the agent device sending the fault tracing detection request packet to the first SF node or device 160))*;

and sending a first fault tracing detection response packet to a device for initiating fault detection, wherein the first fault tracing detection response packet comprises the path ID and the ID of the first SF node *(page 5, par (0052), line 1-10, When SDS receives a central fault report perform service fault segregation to identify fault nodes where a fault have occurred, and rules to be executed by RE to identify remediation measures. SDS (wherein SDS which is smart diagnostic server does the SFS function obtain the fault information and sending the information) use service chain information and other received service faults to identify the nodes, SDS be able to identify dependencies between central fault records submitted by different SAs, a fault in one node cause several SAs linked to nodes with which the faulty node communicates to generate and send central fault records. SDS use the segregation procedure to identify the faulty node based on the multiple central fault records from the multiple linked SAs).*

Rajagopal discloses all aspects of the claimed invention, *except a service chain fault detection method implemented by a service forwarding entity (SFE), obtaining an ID of the first SF node.*

JOKELA is the same field of invention teaches a *service chain fault detection method implemented by a service forwarding entity (SFE)* *(page 3, par (0040), line 10-20, the SPEs in each node is operatively coupled to a Service Forwarding Entity (SFE), which routes the data packets to their intended physical and virtual nodes from an SFE point of view, the SPEs appears as virtual/physical nodes when a forwarding decisions is made based on an iBF of a data packet), obtaining an ID of the first SF node (page 9, par (0088), line 1-10, the SFE receives an updated IBF where one more link identifiers as indicated in the complementing information has been included such that the data packet can be forwarded to its intended node, the SFE of the network node updates the IBF, the updated IBF is added to the data packet accordingly and forwarded to its intended destination).*

Rajagopal and JOKELA are analogous art because they are from the same field of endeavor of access to a service device.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teaching of Rajagopal to include the teaching of JOKELA because it is providing iBF, determine that a service is to be provided by the virtual node SPE, before deriving the final destination from the iBF, which subsequently will deliver the data packet to its intended destination node.

Regarding **Claim 8**, Rajagopal discloses receiving, the first fault tracing detection

request packet sent from the device; receiving; the first fault tracing detection request

packet from a previous-hop SFE of the SFE on the service chain; or generating the first

fault tracing detection request packet *(page 5, par (0052), line 1-10, When SDS receives*

a central fault report perform service fault segregation to identify fault nodes where a

fault have occurred, and rules to be executed by RE to identify remediation measures.

SDS (wherein SDS which is smart diagnostic server does the SFS function obtain the

fault information and sending the information) use service chain information and other

received service faults to identify the nodes, SDS be able to identify dependencies

between central fault records submitted by different SAs, a fault in one node cause

several SAs linked to nodes with which the faulty node communicates to generate and

send central fault records. SDS use the segregation procedure to identify the faulty

node based on the multiple central fault records from the multiple linked SAs).

Regarding **Claim 9**, Rajagopal discloses a service forwarding apparatus

comprising: a memory storing instructions; and a processor coupled to the memory and

configured to execute the instructions, which causes the processor to be configured to

obtain a first fault tracing detection request packet on a service chain *(page 5, par*

(0052), line 1-10, When SDS receives a central fault report perform service fault

segregation to identify fault nodes where a fault have occurred, and rules to be

executed by RE to identify remediation measures. SDS use service chain information

and other received service faults to identify the nodes, SDS be able to identify

dependencies between central fault records submitted by different SAs, a fault in one

node because several SAs linked to nodes with which the faulty node communicates to

generate and send central fault records. SDS use the segregation procedure to identify

the faulty node based on the multiple central fault records from the multiple linked SAs),

wherein the first fault tracing detection request packet comprises a path identifier (ID),

and wherein the path ID identifies a path of the service chain *(page 1, par (0004), line 1-*

10, obtaining one or more fault classification rules; identifying one or more fault nodes

and associated fault conditions in the media network using the one or more fault

classification rules, by analyzing the aggregated relevant fault reports; and providing an

agent configuration instruction for one or more agent applications using the identification

of the one or more fault nodes and associated fault conditions);

determine to communicate with a first service function (SF) node on the service

chain *(page 2, par(0023), line 1-10, Upon obtaining fault related data, agent device*

generate the central fault report, and provide it to diagnostics server (service function

node) for fault detection) by sending the first fault tracing detection request packet to the

first SF node *(page 2, par(0023), line 1-10, agent device make a data request to another*

device (e.g., device 160) for fault-related data(wherein the agent device sending the fault

tracing detection request packet to the first SF node or device 160);

and send a first fault tracing detection response packet to a device for initiating

fault detection, wherein the first fault tracing detection response packet comprises the

path ID and the ID of the first SF node *(page 5, par (0052), line 1-10, When SDS receives*

a central fault report perform service fault segregation to identify fault nodes where a fault

have occurred, and rules to be executed by RE to identify remediation measures. SDS

(wherein SDS which is smart diagnostic server does the SFS function obtain the fault

information and sending the information) use service chain information and other received

service faults to identify the nodes, SDS be able to identify dependencies between central

fault records submitted by different SAs, a fault in one node cause several SAs linked to

nodes with which the faulty node communicates to generate and send central fault

records. SDS use the segregation procedure to identify the faulty node based on the

multiple central fault records from the multiple linked SAs).

Rajagopal discloses all aspects of the claimed invention, except *obtain an ID of
the first SF node.*

JOKELA is the same field of invention teaches obtaining an ID of the first SF node

(page 9, par (0088), line 1-10, the SFE receives an updated IBF where one more link

identifiers as indicated in the complementing information has been included such that the

data packet can be forwarded to its intended node, the SFE of the network node updates

the IBF, the updated IBF is added to the data packet accordingly and forwarded to its

intended destination).

Rajagopal and JOKELA are analogous art because they are from the same field

of endeavor of access to a service device.

It would have been obvious to one of ordinary skill in the art at the time of the

invention to modify the teaching of Rajagopal to include the teaching of JOKELA

because it is providing IBF, determine that a service is to be provided by the virtual

node SPE, before deriving the final destination from the IBF, which subsequently will

deliver the data packet to its intended destination node.

Regarding **Claim 16**, Rajagopal discloses the processor is further configured to

receive the first fault tracing detection request packet from the device; receive the first

fault tracing detection request packet from a previous-hop SFE of the service forwarding

apparatus on the service chain; or generate the first fault tracing detection request

packet*(page 5, par (0052), line 1-10, When SDS receives a central fault report perform*

service fault segregation to identify fault nodes where a fault have occurred, and rules to

be executed by RE to identify remediation measures. SDS (wherein SDS which is smart

diagnostic server does the SFS function obtain the fault information and sending the

information) use service chain information and other received service faults to identify

the nodes, SDS be able to identify dependencies between central fault records

submitted by different SAs, a fault in one node cause several SAs linked to nodes with

which the faulty node communicates to generate and send central fault records. SDS

use the segregation procedure to identify the faulty node based on the multiple central

fault records from the multiple linked SAs).

Regarding **Claim 17**, Rajagopal discloses a computer program product

comprising computer-executable instructions stored on a non-transitory computer-

readable medium, wherein when the instructions are executed by a processor, the

instructions cause the processor to:

obtain a first fault tracing detection request packet on a service chain *(page 5, par*

(0052), line 1-10, When SDS receives a central fault report perform service fault

segregation to identify fault nodes where a fault have occurred, and rules to be executed

by RE to identify remediation measures. SDS use service chain information and other

received service faults to identify the nodes, SDS be able to identify dependencies

between central fault records submitted by different SAs, a fault in one node because

several SAs linked to nodes with which the faulty node communicates to generate and

send central fault records. SDS use the segregation procedure to identify the faulty node

based on the multiple central fault records from the multiple linked SAs), wherein the first

fault tracing detection request packet comprises a path identifier (ID), and wherein the

path ID identifies a path of the service chain;

determine to communicate with a first service function (SF) node *(page 1, par*

(0004), line 1-10, obtaining one or more fault classification rules; identifying one or more

fault nodes and associated fault conditions in the media network using the one or more

fault classification rules, by analyzing the aggregated relevant fault reports; and

providing an agent configuration instruction for one or more agent applications using the

identification of the one or more fault nodes and associated fault conditions); and

send a first fault tracing detection response packet to a device for initiating fault

detection, wherein the first fault tracing detection response packet comprises the path

ID and the ID of the first SF node *(page 5, par (0052), line 1-10, When SDS receives a*

central fault report perform service fault segregation to identify fault nodes where a fault

have occurred, and rules to be executed by RE to identify remediation measures. SDS

(wherein SDS which is smart diagnostic server does the SFS function obtain the fault

information and sending the information) use service chain information and other

received service faults to identify the nodes, SDS be able to identify dependencies

between central fault records submitted by different SAs, a fault in one node cause

several SAs linked to nodes with which the faulty node communicates to generate and

send central fault records. SDS use the segregation procedure to identify the faulty

node based on the multiple central fault records from the multiple linked SAs).

Rajagopal discloses all aspects of the claimed invention, except *on the service*

chain by obtain an ID of the first SF node.

JOKELA is the same field of invention teaches *on the service chain by obtain an*

ID of the first SF node (page 3, par (0040), line 10-20, the SPEs in each node is

operatively coupled to a Service Forwarding Entity (SFE), which routes the data packets

to their intended physical and virtual nodes from an SFE point of view, the SPEs appears

as virtual/physical nodes when a forwarding decisions is made based on an iBF of a data

packet), obtaining an ID of the first SF node (page 9, par (0088), line 1-10, the SFE

receives an updated IBF where one more link identifiers as indicated in the

complementing information has been included such that the data packet can be

forwarded to its intended node, the SFE of the network node updates the IBF, the updated

IBF is added to the data packet accordingly and forwarded to its intended destination).

Rajagopal and JOKELA are analogous art because they are from the same field

of endeavor of access to a service device.

It would have been obvious to one of ordinary skill in the art at the time of the

invention to modify the teaching of Rajagopal to include the teaching of JOKELA

because it is providing iBF, determine that a service is to be provided by the virtual node

SPE, before deriving the final destination from the iBF, which subsequently will deliver

the data packet to its intended destination node.

Conclusion

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

Any inquiry concerning this communication or earlier communications from the examiner should be directed to IQBAL ZAIDI whose telephone number is (571)-270-3943. The examiner can normally be reached on M to Thu 8.a.m to 6.p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NGO RICKY can be reached on 571-272-3139. 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).

/IQBAL ZAIDI/
Primary Examiner, Art Unit 2464