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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/325,513	05/20/2021	Weiping Xu	4657-91101	8295

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EXAMINER	
ZAIDI, IQBAL	

ART UNIT	PAPER NUMBER
2464	

NOTIFICATION DATE	DELIVERY MODE
04/13/2023	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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Office Action Summary	Application No. 17/325,513	Applicant(s) Xu et al.	
	Examiner IQBAL ZAIDI	Art Unit 2464	AIA (FITF) Status 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 12/29/2022.

☐ 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) 1,9 and 15 is/are rejected.

8) ☑ Claim(s) See Continuation Sheet 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 _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

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

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

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

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

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

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

Attachment(s)

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

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

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

4) ☐ Other: _____.

Continuation of Disposition of Claims* 8) Claim(s) is/are objected to: /IQBAL ZAIDI/
Primary Examiner, Art Unit 24642-8,10-14 and 16-20

DETAILED ACTION

1. The instant application having application No 17/325513 filed on 12/29/2022 is presented for examination by the examiner.

Examiner Notice

2. **Claim 1** would be allowable if (i) claim 2 or 7 or 8 is incorporated into the independent claim 1, (ii) if obviousness-Variant type double patenting rejection resolved.

3. **Claim 9** would be allowable if (i) claim 10 or 12 or 13 or 14 is incorporated into the independent claim 9, (ii) if obviousness-Variant type double patenting rejection resolved.

4. **Claim 15** would be allowable if (i) claim 16 or 17 or 18 or 19 or 20 is incorporated into the independent claim 15, (ii) if obviousness-Variant type double patenting rejection resolved.

Response to Argument

5. Applicant's arguments with respect to **claims 12-16, 18-20 and 24-28** have been considered. However, Examiner respectfully disagrees with Applicant's arguments and would like to provide a further clarification regarding the interpretation of the cited references.

In response to the argument on page 10-11 of Applicant's Remark, "**a first fault tracing detection request packet comprising a path identifier (ID), wherein the path ID identifies a path of a service chain**". whereas the Examiner wants to provide further clarification of the cited claim limitation, whereas the *Rajagopal's* is directed to

"*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*".

As stated in *Rajagopal's – 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*. Thus, *Rajagopal's* disclosure still covers the limitations of claim 1. whereas the Examiner wants to provide further clarification of the cited claim limitation, whereas the Rajagopal's is directed to "par (0053), When a service fault is reported, FAE use the fault classification map to identify the service chain component at issue. FAE identify fault nodes that are part of the service chain component in the fault scenario map. FAE then performs fault scenario identification. FAE analyze the edges (e.g., communication links) associated with the triggered node(s) (wherein identifies the path of a service chain) that satisfies edge conditions, and thereby attempts to identify an origin node of the fault scenarios that are linked, where a fault in one node causes several SAs linked to nodes with which the faulty node communicates to send central fault records, all nodes included in the fault scenario map, and FAE identify the faulty node as the origin node.

Therefore, Examiner respectfully disagrees with Applicant's arguments.

Thus, *Rajagopal's* and *Jokela's* disclosures still cover the limitations of claims 1, 9, 11, 15 and 17. Therefore, Examiner respectfully disagrees with Applicant's arguments.

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, 9, and 15** 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 a first fault tracing detection request packet comprising a path identifier (ID), wherein the path ID identifies a path of a 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, after obtaining the first fault tracing detection request packet, to communicate with a first service function (SF) node on the 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)*;

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 first ID *(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 forwarding entity (SFE) comprising: a memory configured to store instructions; obtain a first ID of the first SF node*.

JOKELA is the same field of invention teaches a service forwarding entity (SFE) comprising: a memory configured to store instructions; obtain a first 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.

Regarding **Claim 9**, Rajagopal discloses a method implemented by a device for initiating fault detection, the method comprising sending, to a service forwarding entity (SFE) *(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)*,

a first fault tracing detection request packet comprising a path identifier (ID) identifying a path of a 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)*;

receiving, from the SFE in response to the first fault tracing detection request packet*(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)*, a first fault tracing detection response packet comprising the path ID and a first ID of a first service function (SF) node*(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)*; and determining, based

on the first fault tracing detection response 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)*.

Rajagopal discloses all aspects of the claimed invention, except *the service chain passes through the first SF node*.

JOKELA is the same field of invention teaches the service chain passes through 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 15**, Rajagopal discloses a device for initiating fault detection and comprising a memory configured to store instructions; and a processor coupled to the memory and configured to execute the instructions to cause the device to: send, to a service forwarding entity (SFE) *(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)*, a first fault tracing detection request packet comprising a path ID identifying a path of 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)*;

receive, from the SFE in response to the first fault tracing detection request packet, a first fault tracing detection response packet comprising the path ID and a first

ID of 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 determine, based on the first fault tracing detection response 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).*

Rajagopal discloses all aspects of the claimed invention, except the service chain passes through the first SF node.

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

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Q Ngo can be reached on 57-272-3139. 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). 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.

/IQBAL ZAIDI/
Primary Examiner, Art Unit 2464