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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/164,925	01/27/2014	Leonidas Kontothanassis	098981-1142	3426

10575 7590 12/01/2015
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EXAMINER

MIAN, MOHAMMAD YOU A

ART UNIT	PAPER NUMBER
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2448

NOTIFICATION DATE	DELIVERY MODE
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12/01/2015

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.

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Office Action Summary	Application No. 14/164,925	Applicant(s) KONTOTHANASSIS ET AL.	
	Examiner MOHAMMAD YOUSUF A. MIAN	Art Unit 2448	AIA (First Inventor to File) 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 01/27/2014.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

- 5) ☒ Claim(s) 1-20 is/are pending in the application.
5a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) _____ is/are allowed.
- 7) ☒ Claim(s) 1-20 is/are rejected.
- 8) ☐ Claim(s) _____ is/are objected to.
- 9) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp 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 01/27/2014 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)
Paper No(s)/Mail Date <u>01/27/2014, 04/27/2015</u> | 4) ☐ Other: _____ |

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The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

DETAILED ACTION

Claims 1-20 are pending examination.

Claim Rejections - 35 USC § 103

1. 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.

2. Claim 1, 4, 5, 13, 16, 19 and 20 are rejected under 35 U.S.C. 103 as being unpatentable over Slocombe et al. (US 2008/0235400) in view of Swildens et al. (US 7,346,676) (hereinafter "Swildens-676").

3. As to **claim 1**, Slocombe discloses ***receiving a request for a network address of a content server*** ([¶ 0039, FIG. 3 and 5], "The DNS server 70a sends a request to the ABCD DNS server 64 (DNS Req 94)");

responding to the request with a network address selected from a plurality of anycast network addresses ([¶ 0039, FIG. 3 and 5], “returns the anycast address of the CDN nodes 76 to the requesting DNS server 70a (DNS Resp 96)”);

receiving load information from at least one of a plurality of content servers ([¶ 0041], “the CDN node contains software to monitor the load in various parts of the node cache system (disk, CPU, I/O, et cetera) by determining at least one load metric value (based on metrics such as utilization, latency, etc.) and comparing each such metric value to a predefined overload threshold”);

instructing, based on the received load information, one or more overloaded content servers to cease advertising one or more of the plurality of anycast network addresses ([¶ 0041], “Upon reaching a predefined overload threshold, the monitoring software informs the routing software in the CDN DNS server to withdraw its BGP routing advertisement”).

However, Slocombe does not disclose ***balancing load over a set of content servers from a domain name system (DNS) server***. Swildens-676 discloses ***balancing load over a set of content servers from a domain name system (DNS) server*** ([Col 2, line 15-19], “The system provides DNS servers useful information to effectively perform load balancing. In addition, the invention provides performance metrics that allow DNS servers to select the proper content servers for clients”).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Slocombe to incorporate the aforementioned manner as taught by Swildens-676 in order to implement the method of balancing load over a set of content servers from a domain name system (DNS) server. For example, the method of Slocombe can be implemented by using a domain name system (DNS) server as taught by Swildens-676.

4. As to **claim 4**, Slocombe discloses ***instructing other of the one or more of the plurality of content servers to forward received in-progress requests that are associated with the one or more over-loaded content servers ceasing to advertise one or more of the plurality of anycast network addresses to the one or more content servers*** ([0043] “This overload detection and load balancing mechanism has the advantage that Web transactions already in progress are not interrupted by a shift in resources. Any system that has already resolved a DNS name to the now inactive node will continue using that node until the DNS name expires”

5. As to **claim 5**, Slocombe discloses ***receiving additional load information from the at least one of the plurality of content servers and instructing, based on the additional load information, the one or more of the plurality of content servers to re- advertise the one or more of the plurality of anycast network addresses*** [¶ 0043], “The load in that node will slowly decrease until such time as the node can start accepting new clients, at which time it will start advertising its DNS system address to the network again.”).

6. As to **claim 16**, the claim is rejected for reasons similar to claim 1.
7. As to **claim 13 and 20**, the claims are rejected for reasons similar to claim 5.
8. As to **claim 19**, the claim is rejected for reasons similar to claim 4.
9. Claim 2, 3, 12, 17 and 18 are rejected under 35 U.S.C. 103 as being unpatentable over Slocombe et al. (US 2008/0235400) in view of Swildens et al. (US 7,346,676) and Swildens et al. (US 2009/0327489) (hereinafter "Swildens-489").
10. As to **claim 2**, Slocombe in view of Swildens-676 is silent on ***responding to the request with a network address selected from the plurality of anycast network addresses includes selecting the network address from the plurality of anycast network addresses in a round robin fashion***. However, Swildens-489 discloses ***responding to the request with a network address selected from the plurality of anycast network addresses includes selecting the network address from the plurality of anycast network addresses in a round robin fashion*** ([¶ 0538] "client DNS 1210 picks IP addresses from list 1212 in a round-robin sequence").

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Slocombe in view of Swildens-676 to incorporate the aforementioned manner as taught by Swildens-489 in order to select the network address from the plurality of anycast network addresses in a round robin fashion. The motivation of the modification is to do so in order to use round-robin fashion.

11. As to **claim 3**, Slocombe in view of Swildens-676 is silent on *responding to the request with a network address selected from the plurality of anycast network addresses includes randomly selecting the network address from the plurality of anycast network addresses*. However, Swildens-489 discloses *responding to the request with a network address selected from the plurality of anycast network addresses includes randomly selecting the network address from the plurality of anycast network addresses* ([¶ 0477] “A query is made to log.speedera.com. If multiple IPs are returned, any random IP will be selected”).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Slocombe in view of Swildens-676 to incorporate the aforementioned manner as taught by Swildens-489 in order to randomly select the network address from the plurality of anycast network addresses. The motivation of the modification is to do so in order to select anycast network addresses randomly.

12. As to **claim 12 and 17**, the claims are rejected for reasons similar to claim 2.

13. As to **claim 18**, the claim is rejected for reasons similar to claim 3.

14. Claim 6-11, 14 and 15 are rejected under 35 U.S.C. 103 as being unpatentable over Slocombe et al. (US 2008/0235400) in view of Swildens et al. (US 7,346,676), Brown et al. (US 2005/0198335), Chaturvedi et al. (US 2012/0054276), Lee et al. (US 2010/0131663) and van Wijk et al. (US 2009/0054091).

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15. As to **claim 6**, Slocombe discloses ***a method for responding to communications received at a server from one or more client computers within a network, comprising: receiving a plurality of anycast network addresses from a domain name system (DNS) server; advertising the plurality of anycast network addresses to a network*** ([¶ 0037, ¶ 0038, Fig. 5], “in the dns.abcd.com system, the entry for “www.abcd.com” no longer resolves to a specific address but instead refers the content requester to the CDN DNS server 78 at the anycast address of 4.2.2.19. The CDN DNS server entry resolves to the address of the associated node's caching server 80. As a result, each node 76 resolves the Web site name to a different address. In the above example, DNS server 78a in node 76a (node 1) resolves the name “www.abcd.com” to 10.3.15.1, whereas in node 76b (node 2), the DNS server 78b resolves the same address to 10.3.15.2. In this manner, therefore, the entry made in the CDN DNS server 78 in each node enables distribution of the Web site among the cache servers 80 in their respective nodes and locations. Once the appropriate configurations have been completed [i.e. by receiving anycast network address], it is assumed that the Web site www.abcd.com is being handled by the CDN nodes 76. Each node 76 advertises the anycast address of its own DNS server 78 to the network 72 using the BPG protocol”);

ceasing to advertise one or more of the plurality of anycast network addresses ([¶ 0041], “Upon reaching a predefined overload threshold, the monitoring software informs the routing software in the CDN DNS server to withdraw its BGP routing advertisement.”).

However, Slocombe does not disclose ***sending load information to the DNS server and instructions received from the DNS server***. Swildens-676 discloses ***sending load information to the DNS server and instructions received from the DNS server*** ([Col 2, line 15-19], “The system provides DNS servers useful information to effectively perform load balancing. In addition, the invention provides performance metrics that allow DNS servers to select the proper content servers for clients”).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Slocombe to incorporate the aforementioned manner as taught by Swildens-676 in order to sending load information to the DNS server and receive instruction from the DNS server. The motivation of the modification is to do so in order to effectively perform load balancing by using the DNS server.

16. As to **claim 7**, Slocombe discloses ***receiving a first request from a first client addressed to an advertised one of the plurality of anycast network addresses*** ([¶ 0039], “Referring to FIGS. 3 and 5, the Web transaction operation 90 is as follows. When an end user of the end-user station 66a requests an object from the now “accelerated” Web site, the end-user system 66a first resolves the content provider name via DNS. That is, the end-user station (acting as a content requestor) sends a request to the local DNS server 70a (“DNS Req 92”). That server 70a resolves the name, ultimately by sending a request to the CDN DNS anycast address. The DNS server 70a sends a request to the ABCD DNS server 64 (“DNS Req 94”), which returns the anycast address of the CDN nodes 76 to the requesting DNS server 70a (DNS

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Resp 96). The DNS server 70a then transmits a DNS name resolution request addressed to the anycast address and that request is generally routed (by various ones of the network routers 74a-74h) to the CDN node nearest the user's DNS system ("DNS Req 96"). In this instance, because the request enters the network via the router 74b, the router 74b determines that the shortest path to the anycast address is the path to the node 76b (node 2)").

However, Slocombe in view of Swildens-676 is silent on ***maintaining state information associated with the first request; and communicating the state to another server that is configured to advertise the plurality of anycast network addresses***. Brown discloses ***maintaining state information associated with the first request; and communicating the state to another server that is configured to advertise the plurality of anycast network addresses*** ([¶ 0017], it is not uncommon for clusters to provide some interactive service to clients and retain information related to a client request throughout a client session. ...the cluster must keep track of a client's session state. Stateful nodes typically update a database when serving a client request. When multiple stateful nodes are used, they must coordinate updates [i.e. communicate to another server] to avoid conflicts and keep shared data consistent.").

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Slocombe in view of Swildens-676 to incorporate the aforementioned manner as taught by Brown in order to maintain state information associated with the request and communicate the state to another server. The

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motivation of the modification is to do so in order to keep state information of the client request consistent to all servers.

17. As to **claim 8**, Slocombe in view of Swildens-676 is silent on ***receiving a second request from a second client addressed to one of the plurality of anycast network addresses***. However, Chaturvedi discloses ***receiving a second request from a second client addressed to one of the plurality of anycast network addresses*** ([¶ 0323], “receiving, by the server, a second request from the second endpoint to initiate a second recording session for the ongoing communication session, wherein the second request includes the unique identifier of the ongoing communication session and address information of the second endpoint”).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Slocombe in view of Swildens-676 to incorporate the aforementioned manner as taught by Chaturvedi in order to receive a second request of an ongoing transaction. The motivation of the modification is to do so in order to serve an ongoing transaction correctly.

Slocombe in view of Swildens-676 is silent on ***encapsulating the second request and forwarding the encapsulated second request to another server***. However, Lee discloses ***encapsulating the second request and forwarding the encapsulated second request to another server*** ([¶ 0153], “the home agent performs encapsulation of packet to be transmitted to the mobile host, and transmits the

encapsulated packets to the foreign agent, such that the FA's address is determined to be a destination of the above packets”).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Slocombe in view of Swildens-676 to incorporate the aforementioned manner as taught by Lee in order to encapsulate the second request and forwarding the encapsulated second request to another server. The motivation of the modification is to do so in order to encapsulate a request and forward to the original server.

18. As to **claim 9**, Slocombe in view of Swildens-676 is silent on ***determining that the second request is part of an in-progress transaction between the second client and the another server***. However, Chaturvedi discloses ***determining that the second request is part of an in-progress transaction between the second client and the another server*** ([¶ 0323], “receiving, by the server, a second request from the second endpoint to initiate a second recording session for the ongoing communication session, wherein the second request includes the unique identifier of the ongoing communication session”).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Slocombe in view of Swildens-676 to incorporate the aforementioned manner as taught by Chaturvedi in order to determine the request is part of an in-progress transaction. The motivation of the modification is to do so in order to identify an in-progress request.

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19. As to **claim 10**, Slocombe in view of Swildens-676, Chaturvedi and Lee is silent on *receiving a communication from the another server in response to the encapsulated second request and forwarding the communication to the client.*

However, van Wijk discloses *receiving a communication from the another server in response to the encapsulated second request and forwarding the communication to the client* ([¶ 0038], “a server 106a receives requests from the client 102, forward the requests to a second server 106b and responds to the request by the client 102 with a response to the request received from the server 106b”).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Slocombe in view of Swildens-676, Chaturvedi and Lee to incorporate the aforementioned manner as taught by van Wijk in order to receive the response to the encapsulated second request and forward the response to the client. The motivation of the modification is to do so in order to provide the requested data to the client.

20. As to **claim 11**, the claim is rejected for reasons similar to claim 1 and 6.

21. As to claim **14**, the claim is rejected for reasons similar to claim 7.

22. As to **claim 15**, the claim is rejected for reasons similar to claim 8.

Conclusion

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad Yousuf A. Mian whose telephone number is 571-272-9206. The examiner can normally be reached on Monday - Friday (9:00 am to 5:00 PM EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached on 571-272-2092. 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.

/Mohammad Yousuf A. Mian/
Examiner, Art Unit: 2448

/KRISTIE SHINGLES/
Primary Examiner, Art Unit 2448

Notice of References Cited	Application/Control No. 14/164,925		Applicant(s)/Patent Under Reexamination KONTOTHANASSIS ET AL.	
	Examiner MOHAMMAD YOUSUF A. MIAN		Art Unit 2448	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2005/0198335 A1	09-2005	Brown, Justin D.	H04L67/1014	709/229
*	B	US-7,346,676 B1	03-2008	Swildens; Eric Sven-Johan	H04L67/1008	709/223
*	C	US-2008/0235400 A1	09-2008	Slocombe; Michael	H04L29/06	709/245
*	D	US-2009/0054091 A1	02-2009	van Wijk; Jacques	H04L67/24	455/466
*	E	US-2009/0327489 A1	12-2009	Swildens; Eric Sven-Johan	G06F9/505	709/224
*	F	US-2010/0131663 A1	05-2010	Lee; Jin	H04L29/12216	709/228
*	G	US-2012/0054276 A1	03-2012	CHATURVEDI; SIVAKUMAR	H04L67/1046	709/204
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FOREIGN PATENT DOCUMENTS

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NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
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