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[Continued on next page]

(54) Title: MANAGING COMMUNICATIONS IN A MULTI-CLIENT, MULTI-SERVER ENVIRONMENT

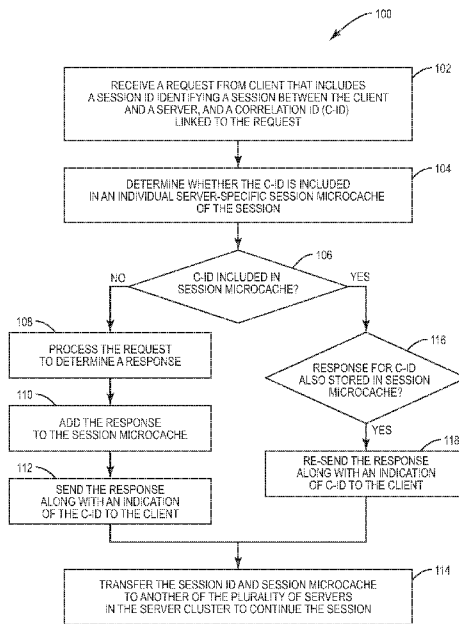
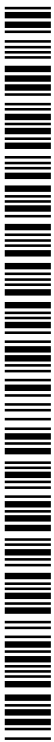


FIG. 2

(57) Abstract: According to one aspect of the present disclosure, a method is implemented by a server in a server cluster. A request received from a client includes a session identifier (ID) identifying a session between the client and the server, and a correlation ID that is linked to the request. If the correlation ID is not included in an individual server-specific session microcache for the session, the request is processed to determine a response, the response is added to the session microcache, and the response and an indication of the correlation ID are sent to the client. If the correlation ID and a response to the request are stored in the session microcache, the response and an indication of the correlation ID are re-sent to the client. The session ID and session microcache are transferred to another of the plurality of servers in the server cluster to continue the session.





TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

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INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2014/038373

A. CLASSIFICATION OF SUBJECT MATTER  
INV. H04L29/08  
ADD.  
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED  
Minimum documentation searched (classification system followed by classification symbols)  
H04L  
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
EPO-Internal, WPI Data, COMPENDEX, INSPEC, IBM-TDB

| C. DOCUMENTS CONSIDERED TO BE RELEVANT |   |                                 |
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| Category*                              | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No.           |
| X<br>A                                 | US 8 171 227 B1 (GOLDSCHMIDT JASON L [US] ET AL) 1 May 2012 (2012-05-01)<br>abstract<br>column 4, line 6 - line 24<br>column 7, line 52 - column 8, line 10<br>column 8, line 55 - line 57<br>column 10, line 25 - line 29<br>column 11, line 27 - line 43<br>----- | 1-6,<br>11-16<br>7-10,<br>17-20 |
| A                                      | US 2006/155997 A1 (FRITZGES ERIC A [US] ET AL) 13 July 2006 (2006-07-13)<br>abstract<br>paragraph [0023]<br>paragraph [0034] - paragraph [0035]<br>paragraph [0040] - paragraph [0041]<br>-----<br>-/--   | 1-20                            |

Further documents are listed in the continuation of Box C.

See patent family annex.

\* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

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| Date of the actual completion of the international search<br><br>21 January 2015   | Date of mailing of the international search report<br><br>02/02/2015 |
| Name and mailing address of the ISA/<br>European Patent Office, P.B. 5818 Patentlaan 2<br>NL - 2280 HV Rijswijk<br>Tel. (+31-70) 340-2040,<br>Fax: (+31-70) 340-3016 | Authorized officer<br><br>Cichra, Michael                            |

## INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2014/038373

| C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT |   |                       |
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| Category*  | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No. |
| A  | US 2011/153937 A1 (ANNAMALAISAMI SARAVANAKUMAR [US] ET AL)<br>23 June 2011 (2011-06-23)<br>abstract<br>paragraph [0004] - paragraph [0009]<br>paragraph [0042]<br>paragraph [0051]<br>paragraph [0230] - paragraph [0231]<br>-----  | 1-20                  |
| A  | WO 98/53410 A2 (UNIV BOSTON [US])<br>26 November 1998 (1998-11-26)<br>abstract<br>page 4, line 1 - line 24<br>page 19, line 19 - line 29<br>page 24, line 25 - page 25, line 2<br>page 39, line 30 - page 41, line 2<br>-----   | 1-20                  |
| A  | US 2011/087733 A1 (SHRIBMAN DERRY [IL] ET AL)<br>14 April 2011 (2011-04-14)<br>abstract<br>claims 26,27<br>paragraph [0010]<br>paragraph [0064]<br>paragraph [0089]<br>claim 5<br>-----   | 1-20                  |
| A  | WO 2006/057852 A2 (CISCO TECH INC [US]; CHAN ALEX YIU-MAN [US]; HARIDAS SNEHAL [US]; DE D)<br>1 June 2006 (2006-06-01)<br>abstract<br>paragraph [0016] - paragraph [0019]<br>paragraph [0069] - paragraph [0072]<br>paragraph [0101] - paragraph [0102]<br>claim 1<br>----- | 1-20                  |
| A  | US 7 908 649 B1 (ARORA KOMAL [IN] ET AL)<br>15 March 2011 (2011-03-15)<br>abstract<br>column 3, line 54 - line 64<br>column 4, line 57 - line 64<br>claim 1<br>-----  | 1-20                  |

# INTERNATIONAL SEARCH REPORT

Information on patent family members

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|---|
| International application No<br>PCT/US2014/038373 |
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| Patent document cited in search report | Publication date | Patent family member(s) | Publication date            |
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**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-6, 11-16

Managing client-server communications to provide for idempotence in processing client requests in a multi-client, multi-server environment through the use of a server-specific session microcache while cleaning up the microcache of already acknowledged responses.

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2. claims: 7-10, 17-20

A method implemented by a client in a multi-client, multi-server environment using a server-specific session microcache containing response lists, updating the locally stored response list to include a correlation ID, and sending the updated response list to a server of the server cluster.

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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2014/038373

## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2.  As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.