(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization

International Bureau





(10) International Publication Number WO 2016/109672 A3

- (43) International Publication Date 7 July 2016 (07.07.2016)
- (21) International Application Number:

(51) International Patent Classification:

PCT/US2015/068073

(22) International Filing Date:

G06F 17/30 (2006.01)

30 December 2015 (30.12.2015)

(25) Filing Language:

English

(26) Publication Language:

English

- (30) Priority Data: 201410855934.3 31 December 2014 (31.12.2014) CN
- (71) Applicant: ALIBABA GROUP HOLDING LIMITED [—/US]; Fourth Floor, One Capital Place, P.O. Box 847, Grand Cayman (KY).
- (72) Inventors: NING, Xiaojin; Alibaba Group Legal Department, 5/F, Building 3, No. 969 West Wen Yi Road, Yu Hang District, Hangzhou, 311121 (CN). ZHOU, Xiliang; Alibaba Group Legal Department, 5/F, Building 3, No. 969

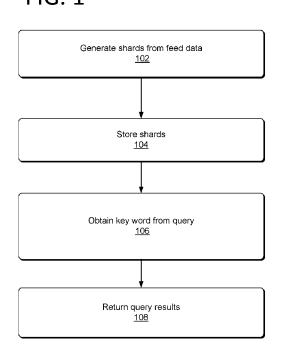
West Wen Yi Road, Yu Hang District, Hangzhou, 311121 (CN).

- (74) Agents: NELSON, Brett L. et al.; Lee & Hayes, PLLC, 601 W. Riverside Ave, Suite 1400, Spokane, WA 99201 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ,

[Continued on next page]

(54) Title: FEED DATA STORAGE AND QUERY

FIG. 1



(57) Abstract: Methods and devices for storing and querying feed data. A method includes generating, by a computing device, multiple shards from feed data of an individual user. An individual shard may include first data, second data and third data. The computing device may thereby form a linked list structure of the multiple shards, and store the individual shard in a storage system. When the user sends a query for feed data, the computing device may obtain a unique identifier from the query, and search the storage system using the unique identifier. The computing device may then determine the current shard based on the unique identifier in the storage system and an additional shard corresponding to the third data of the current shard. The computing device may return the first data and second data of the additional shard to the user.

TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, Published: TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

- with international search report (Art. 21(3))
- (88) Date of publication of the international search report: 13 October 2016

INTERNATIONAL SEARCH REPORT

International application No. PCT/US2015/068073

Blaine R. Copenheaver

PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

		PCT/US2015	/068073
A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - G06F 17/30 (2016.01) CPC - G06F 17/30321 (2016.01) 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) IPC(8) - G06F 17/30, G06F 21/20 (2016.01) CPC - G06F 17/30321, G06F 17/30486, G06F 17/30631, G06F 17/30699, G06F 17/30864, G06F 17/30867, G06F 17/3087 G06Q 30/02, H04L 12/58, H04L 63/102, H04L 67/02, H04L 67/22, H04L 67/26, H04L 67/306, Y10S 707/99931 (2016.01)			
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched USPC - 1/1, 707/711, 707/737, 707/741, 707/769, 707/999.006, 707/E17.002, 707/E17.054, 707/E17.059, 707/E17.108, 707/E17.109 (keyword delimited)			
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)			
Orbit, Google Patents, Google Scholar, Google Search terms used: store, query, feed data, generate shards, user, amount, unique identifier, next shard, form linked list structure			
C. DOCUMENTS CONSIDERED TO BE RELEVANT			
Category* Citation of document, with indication, where a	ppropriate, of the relevan	ıt passages	Relevant to claim No.
X US 2011/0196855 A1 (WABLE et al) 11 August 2011	(11.08.2011), entire docur	ment	1, 9, 10
Y .			2-8, 11-20
Y US 8,914,323 B1 (ALLEN et al) 16 December 2014 (1	US 8,914,323 B1 (ALLEN et al) 16 December 2014 (16.12.2014), entire document		2, 3, 11, 12
Y US 2003/0177187 A1 (LEVINE et al) 18 September 2	US 2003/0177187 A1 (LEVINE et al) 18 September 2003 (18.09.2003), entire document		4, 13
Y US 2014/0289610 A1 (GOOGLE INC.) 25 September	US 2014/0289610 A1 (GOOGLE INC.) 25 September 2014 (25.09.2014), entire document		5-8, 14-20 -
A. US 2014/0156632 A1 (AMAZON TECHNOLOGIES, II document	US 2014/0156632 A1 (AMAZON TECHNOLOGIES, INC.) 05 June 2014 (05.06.2014), entire document		1-20
A US 2010/0269158 A1 (EHLER et al) 21 October 2010	US 2010/0269158 A1 (EHLER et al) 21 October 2010 (21.10.2010), entire document		1-20
A US 2013/0073581 A1 (SANDHOLM) 21 March 2013 (US 2013/0073581 A1 (SANDHOLM) 21 March 2013 (21.03.2013), entire document		1-20
A US 2007/0239716 A1 (WEININGER et al) 11 October	US 2007/0239716 A1 (WEININGER et al) 11 October 2007 (11.10.2007), entire document		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 "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			
"E" earlier application or patent but published on or after the international "X" document of particular relevance; the claimed invention cannot be filing date considered novel or cannot be considered to involve an inventive			
"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 being obvious to a person skilled in the art "P" document published prior to the international filing date but later than "&" document member of the same patent family			
the priority date claimed Date of the actual completion of the international search	the priority date claimed		
16 February 2016 2 5 F E B 2076			
Name and mailing address of the ISA/ Authorized officer			

Facsimile No. 571-273-8300 .

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, VA 22313-1450