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[Continued on next page]

(54) Title: COORDINATED UPGRADES IN DISTRIBUTED SYSTEMS

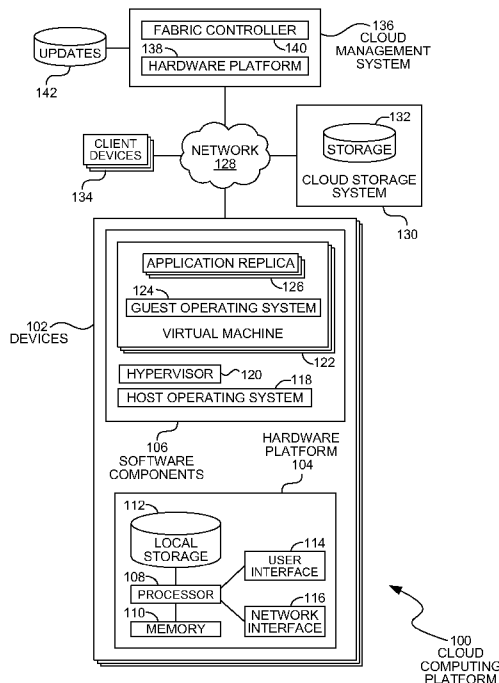


FIG. 1

(57) Abstract: A distributed application may be updated by using information provided by the application to determine grouping, sequencing, and whether or not to advance an update sequence. The application may provide input to an update sequence, and may cause the update sequence to repair one or more replicas prior to updating. The update mechanism may be used to change the distributed application topology as well as make changes to the application executable code, application configuration, quest operating system, virtual machine, and host systems, among others. In some cases, the distributed application may use a quorum to determine which version is current, and the quorum may change during the update process.

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MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, 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.

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Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

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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)

G06F 9/44; G06F 15/16; G06F 15/173; G06F 9/46; G06F 15/177

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: cloud, software, update, group, version, replica

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2009-0007135 A1 (RATHUNDE DALE FRANK et al.) 01 January 2009 See the abstract, paras.[0018], [0021], figs.1-2, claim 1.	1-15
A	US 2009-0119655 A1 (QUILTY JOHN) 07 May 2009 See the abstract, para.[0057], fig.5, claim 1.	1-15
A	US 2005-0267951 A1 (SAMEER JOSHI et al.) 01 December 2005 See the abstract, paras.[0034]-[0041], [0046], [0049], fig.2A, 2B, claim 1.	1-15
A	US 2010-0106767 A1 (LIVSHITS BENJAMIN et al.) 29 April 2010 See the abstract, para.[0017].	1-15

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:

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"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

Date of the actual completion of the international search

24 APRIL 2012 (24.04.2012)

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2009-0007135 A1	01.01.2009	None	
US 2009-0119655 A1	07.05.2009	CN 101843129 A EP 2208135 A1 EP 2208135 A4 WO 2009-058066 A1	22.09.2010 21.07.2010 08.06.2011 07.05.2009
US 2005-0267951 A1	01.12.2005	US 7360208 B2	15.04.2008
US 2010-0106767 A1	29.04.2010	None	