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(54) Title: ACHIEVING CONSENSUS AMONG NETWORK NODES IN A DISTRIBUTED SYSTEM

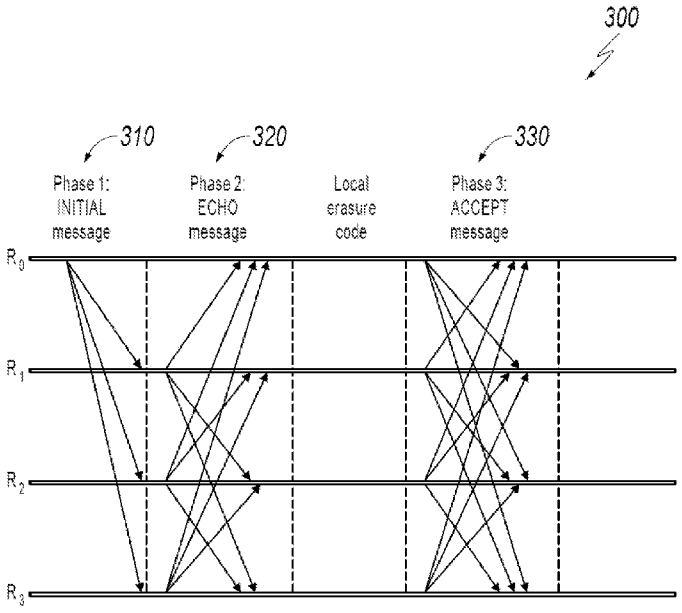


FIG. 3

(57) Abstract: Implementations of the present specification include a computer-implemented method for achieving a consensus among a number of network nodes of a blockchain network. The blockchain network includes a primary node and one or more backup nodes. The method includes receiving a transaction request by the primary node, sending a number of first messages to the backup nodes by the primary node, receiving second messages from the backup nodes by the primary node, reconstructing the transaction request based on data in the second messages by the primary node, sending a third message to the backup nodes by the primary node, and executing the transaction request in response to receiving a predetermined number of third messages.

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[Continued on next page]

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A. CLASSIFICATION OF SUBJECT MATTER

H04L 29/08(2006.01)i; H04L 12/18(2006.01)i; G06Q 20/20(2012.01)i; G06Q 40/04(2012.01)i

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; G06Q

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)

CNPAT; WPI; EPODOC; CNKI; IEEE: distributed ledger system, DLSs, blockchain, erasure code, EC, consensus, block, divide, byzantine, code, transaction, threshold, reconstruct, primary, backup

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 106529951 A (HANGZHOU YUNXIANG NETWORK TECHNOLOGY CO., LTD.) 22 March 2017 (2017-03-22) see description, paragraphs [0023]-[0034]	1-57
A	CN 107360206 A (ALIBABA GROUP HOLDING LIMITED) 17 November 2017 (2017-11-17) the whole document	1-57
A	US 2018101560 A1 (IBM) 12 April 2018 (2018-04-12) the whole document	1-57
A	US 2018181751 A1 (CISCO TECHNOLOGY, INC.) 28 June 2018 (2018-06-28) the whole document	1-57
A	WO 2017036546 A1 (NEC EUROPE LTD.) 09 March 2017 (2017-03-09) the whole document	1-57

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

* Special categories of cited documents:

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
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Information on patent family members

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Patent document cited in search report			Publication date (day/month/year)	Patent family member(s)			Publication date (day/month/year)
CN	106529951	A	22 March 2017	None			
CN	107360206	A	17 November 2017	US	2018285412	A1	04 October 2018
				WO	2018183148	A1	04 October 2018
				TW	201837733	A	16 October 2018
US	2018101560	A1	12 April 2018	None			
US	2018181751	A1	28 June 2018	None			
WO	2017036546	A1	09 March 2017	EP	3345360	A1	11 July 2018
				US	2018191502	A1	05 July 2018