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[Continued on next page]

- (54) Title: VERIFYING THE GEOGRAPHIC LOCATION OF A WORKLOAD IN A CLOUD COMPUTING ENVIRONMENT

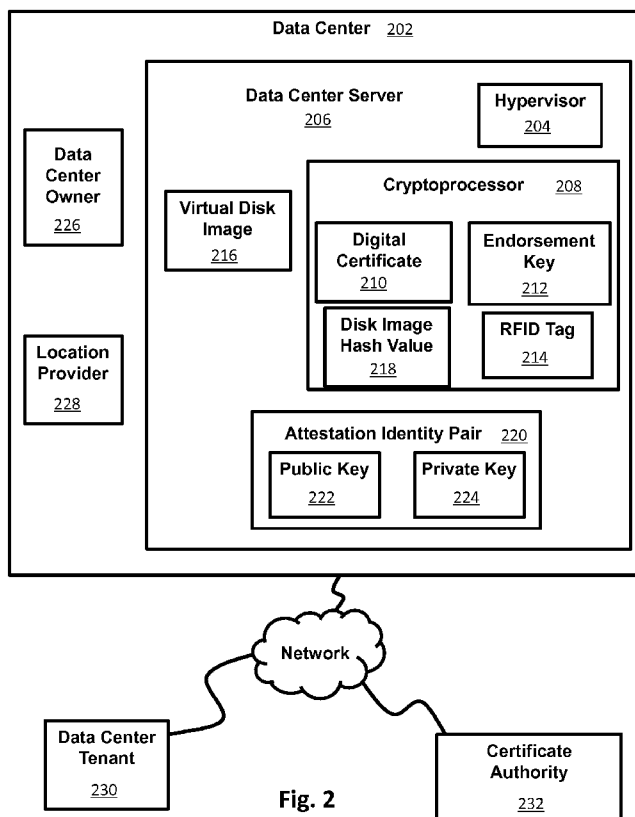


Fig. 2

(57) Abstract: A method to verify a geographic location of a virtual disk image executing at a data center server within a data center. One embodiment includes a cryptoprocessor proximate the data center server, a hypervisor configured to send a disk image hash value of the virtual disk image, a digital certificate issued to the cryptoprocessor, an endorsement key to a data center tenant and a location provider. The method includes sending a disk image hash value of the virtual disk image, an endorsement key unique to a cryptoprocessor proximate the data center server to a data center tenant, and a digital certificate to a data center tenant. Next, the location provider sends the geographic location of the cryptoprocessor matching the endorsement key to the data center tenant.



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A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - G06F 15/16 (2014.01)

USPC - 709/217

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)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC - 709/226, 707/E17.115, 707/E17.026, 709/232, 455/410, 455/456.1 (See keywords Below)

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

Thomsoninnovation.com; Patbase; Google Scholar; Google Patents; Gogole.com; Freepatentsonline; ProQuest Dialog

Search Terms: Cloud, data center, hypervisor, virtual, location, geography, jurisdiction, country, verify, validate, authenticate, audit, confirm, landmark, proximity, cryptoprocessor, endorser, certifier, certificate, public key, privat

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2012/039714 A1 (BRANDT et al.), 29 March 2012 (29.03.2012), entire document, especially Abstract; para [1017], [1027]-[1031], [1048], [1097]-[1098]	1-25
Y	Ries et al. "Verification of Data Location in Cloud Networking." In: Utility and Cloud Computing (UCC), 2011 Fourth IEEE International Conference, 5-8 December 2011 [online] [retrieved on 30 March 2014 (30.03.2014)] Retrieved from the Internet <URL: http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arnumber=6123537&url=http%3A%2F%2Fieeexplore.ieee.org%2Fxppls%2Fabs_all.jsp%3Farnumber%3D6123537 >, entire document, especially Abstract; page 2, col 2; page 3, col 1	1-25
Y	US 2009/0237210 A1 (CIESLA et al.), 24 September 2009 (24.09.2009), entire document, especially Abstract; para [0013], [0022]-[0024]	13, 15 and 22
Y	US 2005/0149733 A1 (CATHERMAN et al.), 07 July 2005 (07.07.2005), entire document, especially Abstract; para [0019]-[0021], [0045]-[0047]	8-12 and 17-19
A	US 2012/0078946 A1 (DARCY), 29 March 2012 (29.03.2012), entire document	1-25
A	US 2002/0032787 A1 (OVERTON et al.), 14 March 2002 (14.03.2002), entire document	1-25

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