

Search query (17): [SP]: backgroundbackground and relevant art[0001] in cloud computing, clusters have finite amounts of hardware resources. when a database is kept alive without running any user workload for an extended period of time, it does nothing useful but still takes up valuable resources such as cluster resources, internal applications and tools such as backup applications or tools, telemetry applications or tools, etc.[0002] the subject matter claimed herein is not limited to embodiments that solve any disadvantages or that operate only in environments such as those described above. rather, this background is only provided to illustrate one exemplary technology area where some embodiments described herein may be practiced.brief summary[0003] one embodiment illustrated herein includes a method that may be practiced in a cloud computing environment. the method includes acts for managing databases implemented in the cloud computing environment. the method includes detecting that a database implemented in the cloud computing environment is in a state of non-use. the method further includes as a result of detecting that a database implemented in the cloud computing environment is in a state of non-use, instantiating a workload in the cloud computing environment to deactivate the database. the workload is configured to store metadata for the database and database data remotely in cloud storage such that the database can be reactivated at a later time.[0004] this summary is provided to introduce a selection of concepts in a simplified form that are further described below in the detailed description. this summary is not intended to identify key features or essential features of the claimed subject matter, nor is it intended to be used as an aid in determining the scope of the claimed subject matter.[0005] additional features and advantages will be set forth in the description which follows, and in part will be obvious from the description, or may be learned by the practice of the teachings herein. features and advantages of the invention may be realized and obtained by means of the instruments and combinations particularly pointed out in the appended claims. features of the present invention will become more fully apparent from the following description and appended claims, or may be learned by the practice of the invention as set forth hereinafter.brief description of the drawings[0006] in order to describe the manner in which the above-recited and other advantages and features can be obtained, a more particular description of the subject matter briefly described above will be rendered by reference to specific embodiments which are illustrated in the appended drawings. understanding that these drawings depict only typical embodiments and are not therefore to be considered to be limiting in scope, embodiments will be described and explained with additional specificity and detail through the use of the accompanying drawings in which: [0007] fig. 1 illustrates a cloud service hosting databases and[0008] fig. 2 illustrates a method of managing databases.detailed description[0009] in cluster computing environments implementing databases, to avoid unnecessary work and save on the cost of goods sold resulting from cold databases, embodiments illustrated herein can detect cold databases and deactivate them. in some embodiments, this can be done by keeping minimal metadata and database files remotely, and removing all runtime resources, as well as database instances at the cluster. deactivated databases are reactivated automatically when a user connects to them or when database files need to be updated by the system.[0010] thus, embodiments may be configured to reliably detect inactiveness in user workloads. embodiments may alternatively or additionally be configured to implement a deactivation workflow configured to ensure transactional consistency of data. namely, all committed user transactions are persisted in a data/log file and backed up. embodiments may alternatively or additionally be configured such that in a deactivated state, data, log, and/or backup files survive over retention based cleanup. embodiments may alternatively or additionally be configured such that on-disk data or format changes are able to cause on-demand activation of databases without a user needing to connect to the databases. embodiments may alternatively or additionally be configured such that deactivation and/or activation of workflows is idempotent. in case of a cluster and/or software issue, embodiments should be able to force deactivation or activation as needed to try out different clusters.[0011] referring now to fig. 1, an example environment is illustrated. fig. 1 illustrates a cloud service 102. the cloud service 102 is configured to host database applications and provide database functionality to various users. for example, fig. 1 illustrates a user machine 104 that can connect to the cloud service 102 to access database services provided by the cloud service 102.[0012] a cloud service includes a plurality 106 of clusters. a given cluster such as cluster 106-1 is a logical division. each cluster is implemented on one or more physical machines such as the set of physical machines 108. thus, each cluster can use resources of the physical machines such as cpu cycles, memory, storage i/o, network functionality, etc.[0013] each cluster can host one or more database nodes such as the database node 110. each database node can host a database service such as database service 112 and a local agent such as local agent 114. each database node can also host a number of databases, such as the set of databases 115. the database service 112 provides database functionality to a user. the local agent 114 is the bridge between a database node and rest of the clusters in a data center.[0014] activation and deactivation workflows for activating and deactivating databases in the set of databases 115 are driven by a workflow service 120. deactivation is triggered by the database service 112.[0015] the database service 112 detects no user activity over period of time and as a result notifies the workflow service 120. as a result, a deactivation workflow starts to deactivate a database, such as database instance 115-1. at this point, any database interaction with the database instance 115-1 will trigger an activation workflow, as explained in more detail below.[0016] during the deactivation workflow, the workflow service 120 will contact the local agent 114 to monitor for new user activity from the user machine 104 or cloud service interactions (such as database system updates or other interactions). if interactions are detected, deactivation is cancelled. if no interactions are detected, deactivation is completed, including causing metadata 122 for the database instance 115-1 and database data 124 for the database instance 115-1 to be stored in remote storage 126.[0017] an activation workflow is triggered by a new user connection from a user machine 104. a new connection reaches the cluster 128. the cluster 128 determines that the database instance 115-1 is not running and indicates to the workflow service 120 to activate the database instance 115-1. the activation workflow retrieves the metadata 122 and database data 124 from the remote storage 126. the activation workflow creates a new instance of the database, database instance 115-1. at this point, the new connection should be able to reach the database instance 115-1.[0018] thus, upon a first user connection the system will activate the database instance 115-1 by creating/attaching to necessary physical resources provided by physical machines 108 underlying the plurality of clusters 106. the database instance 115-1 will remain active as long as there is user activity from the user machine 104. when the number of active requests (from the user machine 104 or from other system components) drops to 0 for configurable amount of time, the system will shut-down the physical database instance 115-1, but will persist remote storage files, such as metadata 122 and database data 124. a next user connection after deactivation will cause the physical database instance 115-1 to be started again using remote storage files, such as metadata 122 and database data 124, saved off earlier.[0019] in alternative embodiments, physical database placement may be dynamic. that is, database placement is not tied to the database node hosting the database prior to deactivation.[0020] in some such embodiments, at the time of activation the system will choose the best qualified database service instance based certain criteria. for example, preference may be given to: a set of database nodes with more capacity, a set of database nodes with targeted hardware choices, or a database instance with more appropriate computing power based on usage patterns.[0021] at deactivation time, the system shuts down the physical database and frees up a spot in the database service instance to activate a different database if needed. note that an entire database service can be shut down when the last database in that service is shut down.[0022] the following now illustrates additional details with respect to shutdown. the system, such as the local

Results: 9

1) Family number: 33215149 (US2006184535A)

© PatBase

Title: SUSPENSION AND RESUMING OF SESSIONS**Priority:** US20050057043 20050211

Family:	Publication number	Publication date	Application number	Application date
	US2006184535 AA	20060817	US20050057043	20050211
	US9176772 BB	20151103	US20050057043	20050211

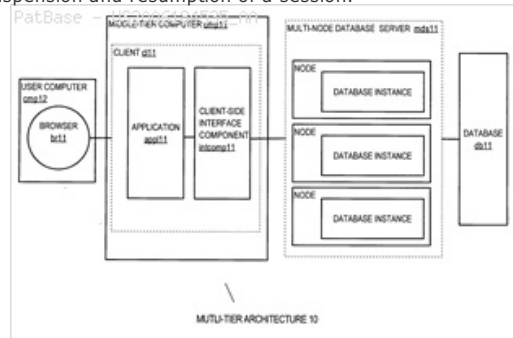
Probable Assignee: ORACLE CORP**Assignee(s):(std):** GOLLAPUDI SREENIVAS ; KALUSKAR SANJAY ; ORACLE CORP ; ORACLE INT CORP**Assignee(s):** ORACLE INT**Inventor(s):(std):** KALUSKAR SANJAY ; GOLLAPUDI SREENIVAS**Agent(s):** HICKMAN PALERMO TRUONG AND BECKER ORACLE; HICKMAN PALERMO BECKER BINGHAM LLP**International class**
(IPC 8-9): G06F17/30 G06F9/48 (Advanced/Invention);
G06F17/30 (Core/Invention)**CPC:** G06F9/4856 G06F16/21**European class:** G06F9/48C4P2**US class:** 1/1 707/10 707/999.01[Classification Explorer](#)

Cited documents: WO03063450 A1, WO03062983 A2, WO03014929 A1, WO03014928 A2, WO02097676, WO0207037, WO0205116, WO0200737, US7552171 BB, US7277945 BA, US7269157 BB, US7263590 BA, US7181492 BB, US7178050 BB, US7174379 BB, US7107294 BB, US7058957 BA, US7024394 BA, US6925477 BA, US6880156 BA, US6874031 BB, US6816907 BA, US6728748 BA, US6691155 BB, US6667751 BA,

US6604110 BA, US6601101 BA, US6587866 BA, US6556659 BA, US6505200 BA, US6442568 BA, US6347313 BA, US6327622 BA, US6272503 BA, US6243751 BA, US6182139 BA, US6182139 B1, US6178529 BA, US6178529 B1, US6173413 BA, US6173413 B1, US6088728 A, US6047323 A, US6041357 A, US6038677 A, US6038214 A, US6035412 A, US6006264 A, US5987430 A, US5978849 A, US5974463 A, US5963556 A, US5951694 A, US5944823 A, US5918059 A, US5890963 A, US5890169 A, US5890167 A, US5870746 A, US5870545 A, US5867713 A, US5862362 A, US5850507 A, US5832483 A, US5828879 A, US5819298 A, US5819019 A, US5805920 A, US5805827 A, US5805819 A, US5805816 A, US5796999 A, US5796941 A, US5796934 A, US5790800 A, US5784630 A, US5774668 A, US5774660 A, US5771349 A, US5761507 A, US5758345 A, US5740175 A, US5734896 A, US5734659 A, US5721918 A, US5696895 A, US5684800 A, US5682534 A, US5666479 A, US5652908 A, US5642515 A, US5633999 A, US5633861 A, US5617540 A, US5600722 A, US5598536 A, US5596745 A, US5596720 A, US5566297 A, US5566225 A, US5553242 A, US5544313 A, US5535326 A, US5530905 A, US5448559 A, US5392285 A, US5319754 A, US5289461 A, US5247671 A, US5247664 A, US5179660 A, US5157663 A, US5047922 A, US4868832 A, US4586134 A, US3444528 A, US2013232113 AA, US2007226323 AA, US2006036617 AA, US2005267965 AA, US2005239476 AA, US2005165925 AA, US2005132222 AA, US2005131966 AA, US2005066037 AA, US2005055446 AA, US2005050116 AA, US2005021771 AA, US2004268357 AA, US2004176996 AA, US2004117794 AA, US2004111506 AA, US2004078602 AA, US2004015600 AA, US2003236834 AA, US2003217159 AA, US2003208523 AA, US2003135642 AA, US2003108052 AA, US2003088671 AA, US2003063122 AA, US2003014480 AA, US2003007497 AA, US2002194015 AA, US2002161896 AA, US2002129157 AA, US2002073139 AA, US2001056493 AA, US2001047270 AA, JP9269903 A2, JP9231143, JP8077118 A2, JP2002342078, JP2002150000, JP2002091937, JP1997050412, EP1170662 A2, EP0992909 A2, EP0942363 A2,

Forward Citations: WO18005396, WO14096742, US9729416, US9727590, US9660879, US9621443, US9552387, US9503882, US9449520, US9300554, US9288156, US9104739, US9026659, US8965921, US8601137, US8433680, US8375126, US8280997, US8125908, US7979555, US7502824, US7415470, US2015150094, US2010228845, US2010153559, US2010136509, US2010070861, US2010005097, US2009141634, US2009106422, US2008209045, US2008162742, US2006200454, US2006059228, US10411978, US10397336, US10389574, US10382303, US10382296, US10318338, US10277618, US10264003, US10225455, US10204211, US10162713, US10116679, US10038611, FR3000336, EP3189440, EP2908563, EP2763374, EP2763374, EP2524302, CN104937905, CN104937905,

Abstract:
A session established for an application is suspended from an instance and later resumed on the server or a different server. When a session is suspended, its state is captured and persistently stored as a session image in a data repository, and the session is terminated. When the session is resumed, a new session is established on an instance, the session image of the session to resume is retrieved from the repository and restored to the newly established session. The suspension and resumption of a session may be initiated by an application, which may request the suspension and resumption of a session.



2) Family number: 46991176 (US2010250712A)

© PatBase

Title: CENTRALLY MANAGING AND MONITORING SOFTWARE AS A SERVICE (SAAS) APPLICATIONS
Priority: US20090202738P 20090331 US20100750894 20100331 US20120567280 20120806
US20120567271 20120806 US20140563753 20141208

Family:	Publication number	Publication date	Application number	Application date
	US2010250712 AA	20100930	US20100750894	20100331
	US2012290647 AA	20121115	US20120567280	20120806
	US2012296977 AA	20121122	US20120567271	20120806
	US2015160846 AA	20150611	US20140563753	20141208
	US8271615 BB	20120918	US20100750894	20100331
	US9026620 BB	20150505	US20120567271	20120806
	US10073605 BB	20180911	US20140563753	20141208

Probable Assignee: III HOLDINGS 1 LLC
Assignee(s):(std): CLOUD CONNEX LLC ; ELLISON BRIAN LEE ; III HOLDINGS 1 LLC ; PIERCE ELIZABETH NORD
Inventor(s):(std): ELLISON BRIAN LEE ; PIERCE ELIZABETH NORD
Agent(s): WENDEROTH LIND AND PONACK LLP; VOLPE AND KOENIG PC
International class (IPC 8-9): G06F15/16 G06F17/30 G06F3/0481 G06F3/0484 H04L12/24 (Advanced/Invention); H04L29/08 (Advanced/Non-invention); G06F15/16 (Core/Invention)
CPC: G06F3/04847 G06F3/0481 H04L41/0233 H04L29/08072 H04L29/08117 H04L67/06 H04L69/329
European class: H04L12/24A5 H04L41/02E
US class: 370/352 705/319 705/7 709/203 709/204 709/217 709/218 709/219 709/219P 709/224 709/224S 709/226 709/232 709/238 715/760 715/841 715/841S

[Classification Explorer](#)

Cited documents: US8621553 BB, US8190703 BB, US8180849 BB, US8073777 BB, US8028045 BB, US7788681 BA, US7721303 BB, US7640264 BA, US7623548 BB, US7596620 BA, US7580990 BA, US7506045 BA, US7363370 BB, US7213058 BA, US7072934 BB, US6795851 BA, US6605120 BA, US6237004 BA, US2013268357 AA, US2013124974 AA, US2012240063 AA, US2012216266 AA, US2012158521 AA, US2012150930 AA, US2012089704 AA, US2011252304 AA, US2011247045 AA, US2011125498 AA, US2011093941 AA, US2010325191 AA, US2010271951 AA, US2010250746 AA, US2010250712 AA, US2010169497 AA, US2010153544 AA, US2010064033 AA, US2010048170 AA, US2010031183 AA, US2009300169 AA, US2009299824 AA, US2009287837 AA, US2009271707 AA, US2009271498 AA,

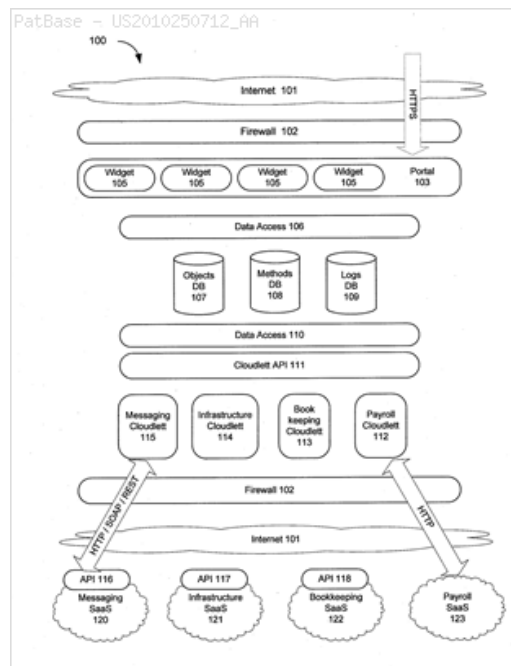
US2009249359 AA, US2009217352 AA, US2008320087 AA, US2008320081 AA, US2008275992 AA, US2007277109 AA, US2007266176 AA, US2007226319 AA, US2007136418 AA, US2007086435 AA, US2007038934 AA, US2006291462 AA, US2006230076 AA, US2006165040 AA, US2006106897 AA, US2006080592 AA, US2006031485 AA, US2006015584 AA, US2005216421 AA, US2005193222 AA, US2005144022 AA, US2004237049 AA, US2004054717 AA, US2004046789 AA, US2003208472 AA, US2003135543 AA, US2003120753 AA, US2003065541 AA, US2003061404 AA, US2003038834 AA, US2003033378 AA, US2002184312 AA, US2002147840 AA,

Forward Citations:

WO18005396, WO15123458, WO15035484, WO14088542, WO12128878, WO12128878, US9952888, US9942104, US9935894, US9838269, US9836229, US9798728, US9762460, US9754000, US9740566, US9720601, US9712401, US9710317, US9710282, US9697009, US9671960, US9648040, US9633101, US9626637, US9619498, US9612899, US9606995, US9606894, US9582306, US9507864, US9495394, US9477530, US9444820, US9444819, US9432263, US9424097, US9420035, US9384061, US9369438, US9251240, US9215264, US9210116, US9197694, US9183230, US9176994, US9176711, US9167050, US9158782, US9117027, US9092244, US9069898, US9054992, US9053170, US9043458, US9026620, US9015106, US9009804, US9003021, US9002891, US8996574, US8978122, US8943076, US8819579, US8819195, US8805716, US8782103, US8667024, US8661125, US8626891, US8589207, US8533661, US8407323, US2017339070, US2016275467, US2016034474, US2015304240, US2015296030, US2015235014, US2015200958, US2015200941, US2015193240, US2015172400, US2015006627, US2014372603, US2014289391, US2014181020, US2014173105, US2014136712, US2014136635, US2014101750, US2014081690, US2014068340, US2014053280, US2014006413, US2014006344, US2013117678, US2013086203, US2013031485, US2012331095, US2012296977, US2012203800, US2012110156, US2011313950, US2008270977, US10498858, US10476982, US10462136, US10461959, US10454984, US10439900, US10439877, US10432532, US10425288, US10423909, US10387387, US10382597, US10382534, US10382274, US10367914, US10365838, US10353800, US10334029, US10326817, US10320683, US10303894, US10289617, US10289457, US10275749, US10270841, US10270668, US10263898, US10257042, US10243875, US10241930, US10216503, US10212074, US10210082, US10205677, US10191671, US10157084, US10142346, US10140159, US10133511, US10129177, US10127030, US10122605, US10104156, US10095551, US10084703, US10073605, US10067780, US10050862, US10037617, US10034201, TWI559158, TWI547889, TWI459298, EP3105654, CN104823175, CN104823175, CN104067253, CN104067253, CN103957255, CN103957255, CN102651775, CN102651775,

Abstract:

An apparatus, system, method and program providing a multi-tenant software as a service (SaaS) application that manages and monitors the use of other SaaS applications via a common connection and database framework. An Internet-based interface is provided as a single portal for monitoring and managing the use of SaaS applications. Objects and the state of these objects including all associated attributes related to the SaaS applications are stored in databases associated with the Internet-based interface. The Internet-based interface also provides a social networking infrastructure and an application exchange infrastructure that allows sharing of information related to the SaaS applications.



3) Family number: 44211206 (US2010005097A)

© PatBase

Title:	CAPTURING AND RESTORING DATABASE SESSION STATE			
Priority:	US20080166272 20080701		US20080168272 20080701	
Family:	US20130852986 20130328			
	Publication number	Publication date	Application number	Application date
	US2010005097 AA	20100107	US20080166272	20080701
	US2013232113 AA	20130905	US20130852986	20130328
	US8433680 BB	20130430	US20080166272	20080701
	US9104739 BB	20150811	US20130852986	20130328

Probable Assignee: ORACLE CORP

Assignee(s):(std): CAO FENG ; LING CHAO ; ORACLE CORP ; ORACLE INT CORP ; PINGTE RAJENDRA

Inventor(s):(std): LIANG CHAO ; CAO FENG ; PINGTE RAJENDRA ; LING CHAO

Agent(s): HICKMAN PALERMO TRUONG AND BECKER ORACLE; HICKMAN PALERMO TRUONG BECKER BINGHAM WONG LLP; HICKMAN PALERMO BECKER BINGHAM LLP

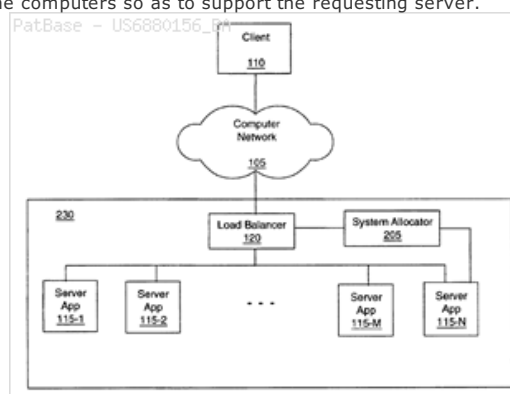
International class (IPC 8-9): G06F11/34 G06F12/00 G06F17/00 G06F17/30 G06F7/00 (Advanced/Invention); G06F12/00 G06F17/30 (Core/Invention)

CPC: G06F11/3414 G06F11/3495 G06F2201/86 G06F2201/87 G06F16/27

US9652293, US9641530, US9559938, US9544272, US9537742, US9477528, US9311155, US9176772, US9128764, US9069617, US9015322, US9009321, US8793267, US8763114, US8762537, US8661130, US8635690, US8631495, US8621638, US8621559, US8606910, US8606805, US8595332, US8589503, US8578480, US8578051, US8561167, US8549611, US8533674, US8424059, US8214497, US8179798, US8166059, US8145761, US8069481, US8042149, US8041802, US7991842, US7962609, US7930344, US7925688, US7873733, US7805529, US7730171, US7720949, US7664859, US7590746, US7523177, US7493380, US7437461, US7325047, US7269752, US7181524, US7080378, US2017279804, US2014379899, US2014136724, US2013080627, US2012233313, US2010318973, US2010169486, US2010153531, US2010077449, US2009248865, US2009222562, US2009210356, US2009172168, US2009055480, US2008281939, US2008263182, US2008209042, US2008168301, US2008071912, US2008016214, US2008015848, US2007300286, US2007233843, US2007112951, US2007011167, US2006251068, US2006224706, US2006184535, US2005267970, US2005193107, US2005021349, US2004260815, US2004047354, US2003226046, US2003217131, US2003188155, US2003187998, US2003187989, US2003187982, US2003131091, US2003123635, US2002178214, US10298579, US10057266, US10050917, JP4970939, JP4743904, JP4155403, JP3964896, JP3782429, JP2014021991, JP2009217769, JP2007506157, JP2006106859, JP2005234766, JP2005011331, JP2004084085, CN105393221, CN105393221, CN100416542,

Abstract:

A server and method of its operation adapt the number of server applications within the server. The server is connected to a computer network. The server comprises one or more active server applications, a load detector, an inactive additional server application and an allocator. The load detector, which may be part of a load balancer, is connected to the one or more server applications and the computer network. The allocator is connected to the load detector and the additional server application. The allocator causes the additional server application to activate in response to a load condition. The method measures a load on the server, detects when the load exceeds a threshold and, in response thereto, activates an additional server application on the server. Optionally, the method also detects when the load is less than a deactivation threshold, and in response thereto, deactivates the additional server application. Also disclosed is a system comprising a plurality of computers, one or more connections to one or more servers, and a module. Each of the computers is capable of hosting a server application. The module is connected to the: computers and the connection(s). The module receives a request for an additional server application from one of the servers. Such a request may, for example, be generated when the server is experiencing a surge. In response to the request, the module activates the server application on one or more of the computers so as to support the requesting server.



5) Family number: 68077434 (US2018004795A)

© PatBase

Title: DYNAMIC DEACTIVATION OF COLD DATABASE IN DATABASE SERVICE

Priority: US20160199345 20160630 WO2017US39351 20170627

Family:	Publication number	Publication date	Application number	Application date
	AU2017291514 AA	20181122	AU20170291514	20170627
	BR112018074914 A2	20190312	BR20181174914	20170627
	CA3023518 AA	20181106	CA20173023518	20170627
	CL2018003674 A1	20190405	CL20180003674	20181218
	CN109313573 A	20190205	CN201780035205	20170627
	CO20180013677 A2	20181228	CO20180013677	20181217
	EP3479234 A1	20190508	EP20170735359	20170627
	ID201901814 A	20190315	ID2018P0011023	20170627
	IL263855 A0	20190131	IL20170263855	20170627
	IN201847043553 A	20181228	IN201847043553	20181119
	JP2019526119 T2	20190912	JP20190500322T	20170627
	KR20190021269 A	20190305	KR20187037822	20170627
	MX2018015624 A1	20190306	MX20180015624	20170627
	PH2018550191 A	20190909	PH20180550191	20181112
	SG11201811066V A1	20190130	SG20181111066	20170627
	US2018004795 AA	20180104	US20160199345	20160630
	WO18005396 A1	20180104	WO2017US39351	20170627

Probable Assignee: MICROSOFT CORP

Assignee(s):(std): MICROSOFT CORP ; MICROSOFT TECH LICENSING LLC ; MICROSOFT TECHNOLOGY LICENSING LLC

Assignee(s): TALIU TOMAS ; XU SHIZE ; ARORA PANKAJ ; GUO QUN ; KALHAN AJAY

Inventor(s):(std): KALHAN AJAY ; TALIU TOMAS ; ARORA PANKAJ ; GUO QUN ; XU SHIZE ; AJAY KALHAN ; TOMAS TALIU ; PANKAJ ARORA ; QUN GUO ; SHIZE XU

Agent(s): DAVIES COLLISON CAVE PTY LTD; SMART AND BIGGAR; ESTUDIO VILLASECA Y CIA; GRUENECKER PATENT U RECHTSANWALTE PARTG MBG; LANNY SETIAWAN MBA MGMT MA LPC MA LMFT; ONO SHINJIRO; YAMAMOTO OSAMU; MIYAMAE TORU; NAKANISHI MOTOHARU; MINHSA SANDIP ET AL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JO JP KE KG KH KM KN KP KR KW KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class (IPC 8-9): G06F G06F16/21 G06F16/23 G06F16/27 G06F17/30 G06F9/50 (Advanced/Invention); G06F (Subclass/Invention)

International class (IPC 1-7): G06F17/30 G06F9/50

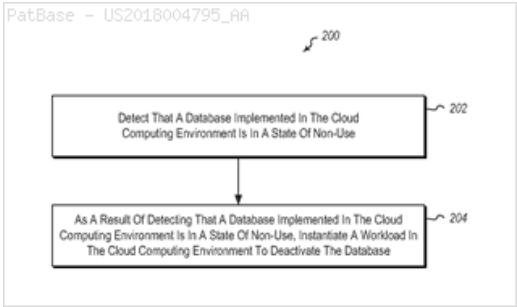
CPC: G06F9/505 G06F16/2308 G06F16/217 G06F16/2358

US class: 1/1 707/609

[Classification Explorer](#)

Cited documents: US8880687 BA, US6950848 BA, US6880156 BA, US2013066837 AA, US2012296977 AA, US2010005097 AA, US2007220028 AA, US2006184535 AA,

Abstract:
Managing databases implemented in a cloud computing environment. A method includes detecting that a database implemented in the cloud computing environment is in a state of non-use. The method further includes as a result of detecting that a database implemented in the cloud computing environment is in a state of non-use, instantiating a workload in the cloud computing environment to deactivate the database. The workload is configured to store metadata for the database and database data remotely in cloud storage such that the database can be reactivated at a later time.



6) Family number: 51282440 (US2012144932A)
© PatBase

Title: DETECTION DEVICE, ELECTRONIC APPARATUS, AND ROBOT

Priority: JP20100273261 20101208 US20110229641 20110909 US20110299641 20111118
CN201110402387 20111206 US20120448258 20120416 US20120448267 20120416
US20120448287 20120416 US20120542278 20120705 US20120563680 20120731
CN201280043498 20120907 EP20120762492 20120907 EP20120784360 20120907
EP20150155785 20120907 CN201280043616 20120907 EP20150161374 20120907
WO2012US54326 20120907 WO2012US54311 20120907 US20130936061 20130705
US20140224845 20140325 US20140231347 20140331 US20140587570 20141231
US20150748451 20150624

Family:	Publication number	Publication date	Application number	Application date
	CN102539022 A	20120704	CN201110402387	20111206
	CN102539022 B	20160817	CN201110402387	20111206
	CN103782573 A	20140507	CN201280043498	20120907
	CN103782573 B	20171107	CN201280043498	20120907
	CN103782574 A	20140507	CN201280043616	20120907
	CN103782574 B	20170510	CN201280043616	20120907
	CN104816318 A	20150805	CN201510141447	20111206
	CN107070919 A	20170818	CN201710250782	20120907
	CN107688487 A	20180213	CN201710929783	20120907
	DE602012006219 D1	20150507	DE201260006219T	20120907
	DE602012006770 D1	20150528	DE201260006770T	20120907
	DE602012028509 D1	20170323	DE201260028509T	20120907
	DE602012033141 D1	20170720	DE201260033141T	20120907
	EP2754283 A1	20140716	EP20120762492	20120907
	EP2754283 B1	20150325	EP20120762492	20120907
	EP2754284 A1	20140716	EP20120784360	20120907
	EP2754284 B1	20150415	EP20120784360	20120907
	EP2903239 A1	20150805	EP20150155785	20120907
	EP2903239 B1	20170201	EP20150155785	20120907
	EP2928160 A1	20151007	EP20150161374	20120907
	EP2928160 B1	20170531	EP20150161374	20120907
	JP2012122823 A2	20120628	JP20100273261	20101208
	US2012144932 AA	20120614	US20110299641	20111118
	US2013066837 AA	20130314	US20110229641	20110909
	US2013066948 AA	20130314	US20120448258	20120416
	US2013066949 AA	20130314	US20120448267	20120416
	US2013066952 AA	20130314	US20120542278	20120705
	US2013066955 AA	20130314	US20120563680	20120731
	US2013297566 AA	20131107	US20130936061	20130705
	US2014202259 AA	20140724	US20140224845	20140325
	US2014229531 AA	20140814	US20140231347	20140331
	US2015172390 AA	20150618	US20140587570	20141231
	US2015326673 AA	20151112	US20150748451	20150624
	US2016321304 A9	20161103	US20130936061	20130705
	US8549154 BB	20131001	US20110229641	20110909
	US8725882 BB	20140513	US20120563680	20120731
	US8800385 BB	20140812	US20110299641	20111118
	US8924346 BB	20141230	US20120448267	20120416
	US8984170 BB	20150317	US20120448258	20120416

US9097597 BB	20150804	US20140224845	20140325
US9124670 BB	20150901	US20140231347	20140331
US9591103 BB	20170307	US20150748451	20150624
US9600371 BB	20170321	US20120542278	20120705
US9779116 BB	20171003	US20130936061	20130705
US10250693 BB	20190402	US20140587570	20141231
WO13036871 A1	20130314	WO2012US54311	20120907
WO13036882 A1	20130314	WO2012US54326	20120907

Probable Assignee: ORACLE CORP

Assignee(s):(std): COLRAIN CAROL L ; DE LAVARENE JEAN ; HUNG HOCHAK ; IKEBE TOMO ; IKEDA NANCY R ; LAVARENE JEAN DE ; SEIKO EPSON CORP ; ORACLE INT CORP ; UTSUNOMIYA SUMIO ; NEEL KEVIN S ; ROESCH STEFAN HEINRICH ; SURBER DOUGLAS N ; ZHOU TONG ; ORACLE CORP

Assignee(s): ORACLE INT REDWOOD SHORES CORP ; ORACLE INT CORP REDWOOD SHORES

Inventor(s):(std): IKEBE TOMO ; UTSUNOMIYA SUMIO ; LAVARENE JEAN DE ; DE LAVARENE JEAN ; PARKINSON PAUL ; COLRAIN CAROL L ; SURBER DOUGLAS N ; NEEL KEVIN S ; ROESCH STEFAN HEINRICH ; ZHOU TONG ; IKEDA NANCY R ; TOMO IKEBE ; SUMIO UTSUNOMIYA ; HUNG HOCHAK

Inventor(s): ROESCH STEFAN HEINRICH REDWOOD SHORES ; DE LAVARENE JEAN REDWOOD SHORES ; SURBER DOUGLAS N ORINDA ; ZHOU TONG MERRICK ; LAVARENE JEAN DE REDWOOD CITY ; IKEDA NANCY R LOS ALTOS ; NEEL KEVIN S SAN MATEO ; ROESCH STEFAN HEINRICH SAN MATEO ; COLRAIN CAROL L REDWOOD SHORES

Agent(s): DENDORFER AND HERRMANN PATENTANWALTE PARTNERSCHAFT MBB; DENDORFER CLAUS; HICKMAN PALERMO TRUONG BECKER BINGHAM WONG LLP; OLIFF PLC; HICKMAN PALERMO BECKER BINGHAM LLP; MARCEL K; HICKMAN PALERMO BINGHAM BECKER LLP; SUTTON ERIC L ET AL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class (IPC 8-9): B25J13/08 B25J19/02 G01D7/00 G01L1/00 G01L1/04 G01L1/14 G01L1/20 G01L3/00 G01L5/00 G01L5/16 G01L5/22 G06F11/14 G06F15/16 G06F17/30 G06F3/0338 G06F3/0354 G06F3/038 G06F3/041 G06F9/46 H04L29/06 H04L29/08 (Advanced/Invention); B25J19/02 (Advanced/Non-invention)

CPC: G01L1/04 G01L1/20 Y10S901/46 B25J13/085 G01L1/205 G01L5/161 G01L5/228 G06F3/0338 G06F3/03547 G06F3/0414 G06F11/1438 G06F2201/80 G06F11/1443 G06F11/1474 H04L67/327 G06F9/466 G06F16/21 G06F16/2365 H04L67/142 H04L67/146 H04L67/148 H04L67/42

European class: G01L7/10C

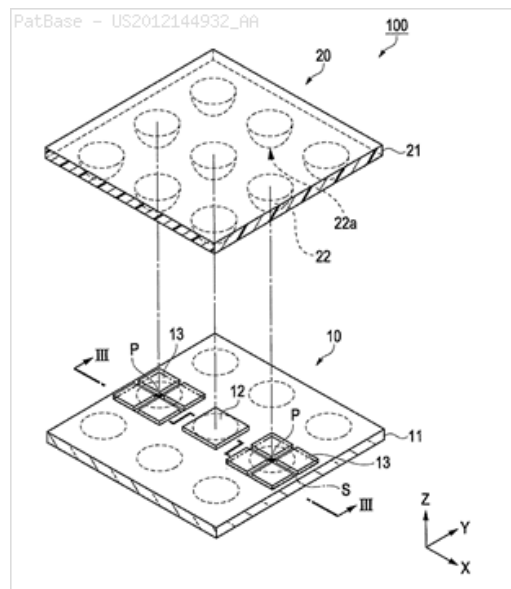
US class: 1/1 707/615 707/674 707/703 707/E17.007 709/203 709/227 709/238 709/248 73/862.041 73/862.041P 73/862.381 73/862.621 73/862.621S 73/862.625 73/862.625S 901/46 901/46S

[Classification Explorer](#)

Cited documents: WO09144767 A1, WO05029028 A1, US9323922 BB, US8024299 BB, US8005966 BB, US7890458 BB, US7890457 BB, US7853698 BB, US7849177 BB, US7849173 BA, US7761435 BB, US7747754 BB, US7634512 BB, US7631107 BB, US7552218 BB, US7539746 BB, US7536462 BB, US7502824 BB, US7415470 BB, US6889565 BB, US6728747 BA, US6442552 BA, US6109117 A, US6041357 A, US6041357 A, US5986221 A, US5490421 A, US4953410 A, US2016321304 A9, US2015326673 AA, US2014229531 AA, US2014095547 AA, US2013304714 AA, US2013297566 AA, US2013066955 AA, US2013066952 AA, US2013066949 AA, US2013066948 AA, US2013066837 AA, US2012179645 AA, US2012144932 AA, US201213448267, US2012096952 AA, US2012072131 AA, US2011276550 AA, US2011258630 AA, US2011218981 AA, US2011212783 AA, US2011212783 AA, US201113076313, US2011067504 AA, US2011043491 AA, US2010318394 AA, US2010293137 AA, US2010179645 AA, US2010063982 AA, US2010042601 AA, US2010030818 AA, US2010005097 AA, US2009327468 AA, US2009182787 AA, US2009077135 AA, US2009077135 AA, US2008228834 AA, US2008210019 AA, US2008134219 AA, US2008098048 AA, US2008098003 AA, US2008097996 AA, US2008097995 AA, US2008097961 AA, US2008097960 AA, US2008010240 AA, US2007261054 AA, US2007226218 AA, US2007226218 AA, US2007067266 AA, US2007040107 AA, US2006282422 AA, US2006036617 AA, US2006036617 AA, US2005228834 AA, US2005186975 AA, US2005131879 AA, US2005038848 AA, US2005038848 AA, US2005021514 AA, US2004216109 AA, US2004046574 AA, US2004015600 AA, US2003204769 AA, US2003131045 AA, US2003028654 AA, JP7128163 A2, JP60135834 A2, JP518966, JP2008164557 A2, JP2007518966 T2, JP164557, JP135834, JP128163, CN1836416, CN1764191, CN1677068 A, CN102104532 A, CN102037340 A, CN101853186 A, CN101185076 A, CN101076992 A,

Forward Citations: WO18027026, WO18005396, WO17132621, WO16043953, WO16033056, US9984121, US9984120, US9970836, US9953053, US9948726, US9933946, US9921903, US9892160, US9841339, US9838505, US9811426, US9800685, US9781215, US9779116, US9760584, US9734187, US9734025, US9719868, US9665392, US9658879, US9652353, US9632887, US9614918, US9600371, US9591103, US9591085, US9582375, US9519551, US9477557, US9461879, US9459801, US9459712, US9436561, US9417974, US9405574, US9389905, US9346426, US9342351, US9251194, US9239868, US9235464, US9233473, US9207966, US9200972, US9183236, US9164554, US9149930, US9141351, US9135259, US9135064, US9124670, US9121782, US9098359, US9097597, US9092377, US9047351, US9004553, US8984170, US8954385, US8924346, US8898109, US8800385, US8725882, US8549154, US2018137210, US2018137185, US2017171352, US2017059432, US2017048339, US2016342616, US2016299948, US2016299022, US2016246522, US2016182298, US2016179875, US2016147855, US2016085648, US2016085646, US2016078079, US2016057240, US2015324259, US2015302020, US2015269498, US2015268880, US2015237131, US2015233774, US2015183389, US2015178122, US2015177084, US2015169529, US2015127611, US2015120674, US2015106348, US2015006741, US2014304245, US2014297609, US2014297608, US2014280768, US2014280470, US2014246874, US2014201042, US2014144253, US2014025205, US2014006607, US2013339533, US2013298106, US2013254782, US2012198945, US2012005154, US2010234997, US10496665, US10491695, US10474532, US10473538, US10467246, US10423475, US10423332, US10419514, US10417038, US10412190, US10365992, US10365838, US10353723, US10339127, US10318520, US10303678, US10289443, US10284621, US10261869, US10255158, US10250693, US10241765, US10235252, US10204130, US10152605, US10133596, US10133511, US10095704, US10061779, US10049130, US10048983, US10025821, JP6128581, JP6050133, JP6007636, JP2014163815, JP2014146269, JP2014085306, JP2014018931, EP3009923, DE102014019035, CN108279762, CN106850820, CN106825960, CN106825960, CN106527797, CN106527797, CN106142133, CN105915627, CN105867687, CN105740258, CN105740258, CN105716748, CN105653356, CN105653356, CN105205175, CN105205175, CN104866581, CN104793988, CN104793988, CN104742125, CN103568011, CN103568011,

Abstract:
A detection unit includes a sensor that detects the presence of force and a force component separation mechanism that separates the magnitude and the direction of the force and a control unit that controls the detection action of the force component separation mechanism based on the detection result of the sensor.



7) Family number: 57707668 (US8880687B)

© PatBase

Title: DETECTING AND MANAGING IDLE VIRTUAL STORAGE SERVERS

Priority: US20120366961 20120206

Family:	Publication number	Publication date	Application number	Application date
	US8880687 BA	20141104	US20120366961	20120206

Probable Assignee: NETAPP INC

Assignee(s):(std): CHANDRACHARI ARAVINDA ; GUNNAM SREE PARDHASARADHI ; NETAPP INC ; PANKAJ ASHWIN ; PONUGOTI SRI MAHESH

Inventor(s):(std): PONUGOTI SRI MAHESH ; GUNNAM SREE PARDHASARADHI ; PANKAJ ASHWIN ; CHANDRACHARI ARAVINDA

Agent(s): KACVINSKY DAISAK BLUNI PLLC

International class G06F15/173 (Advanced/Invention)
(IPC 8-9):

CPC: H04L41/0816 H04L43/065

US class: 709/224

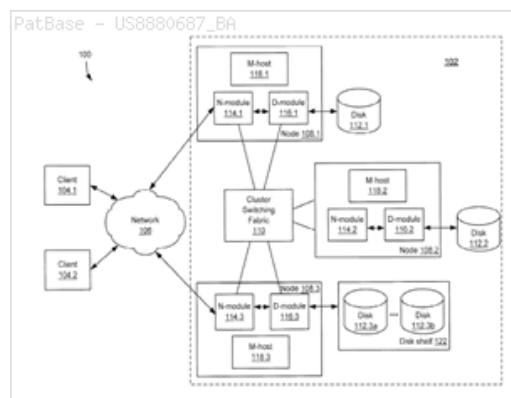
[Classification Explorer](#)

Cited documents: US2012066677 AA, US2011099268 AA, US2009248870 AA,

Forward Citations: WO18005396, US9665385, US9525621, US2018024755, US2016134584, US2016127509, US2015019485, US2014064271, US2013091183, US10474557, US10452539, US10437798, US10387127, US10263870, US10158703, US10108685, US10079797, US10003568, GB2569872,

Abstract:

Detecting and managing idle virtual storage servers (VSSs) on a host system. The host system may execute several VSSs, each VSS may comprise a virtual machine implementing a virtualized storage operating system and provide storage services for one or more clients. Detecting and managing idle virtual storage servers comprises three stages: 1) detecting idle VSSs, 2) suspending an idle VSS, and 3) un-suspending a suspended VSS. For the first stage, idle VSSs are detected using a first metric relating to network activity of the VSS, a second metric relating to storage object-related requests received by a VSS, and a third metric relating to inbound data for a VSS. For the second stage, an idle virtual storage server is suspended to release its resources while preserving its state for possible later use. For the third stage, a suspended virtual storage server may be unsuspended if a client attempts to access it.



8) Family number: 36078904 (US2007220028A)

© PatBase

Title: METHOD AND SYSTEM FOR MANAGING LOAD BALANCING IN DATA-PROCESSING SYSTEM

Priority: JP20060070402 20060315

Family:	Publication number	Publication date	Application number	Application date
	JP2007249468 A2	20070927	JP20060070402	20060315
	US2007220028 AA	20070920	US20060471479	20060621

Probable Assignee: HITACHI LTD

Assignee(s):(std): HARA NORIHIRO ; HIKAWA MASAMI ; HITACHI LTD ; KAWASHIMA TOORU

Inventor(s):(std): KAWASHIMA TOORU ; HARA NORIHIRO ; HIKAWA MASAMI ; TOIKAWA MASAMI ; KAWASHIMA TORU

Agent(s): ISONO MICHIZO; ANTONELLI TERRY STOUT AND KRAUS LLP

International class
(IPC 8-9): G06F7/00 G06F9/50 (Advanced/Invention);
G06F7/00 G06F9/46 (Core/Invention)

CPC: G06F2209/5022 G06F2209/508 G06F9/505 G06F9/5077 G06F16/217

European class: G06F17/30S1T G06F9/50A6L G06F9/50C6

US class: 1/1 1/1P 707/101 707/999.101 707/999.101S 707/E17.005 707/E17.005S

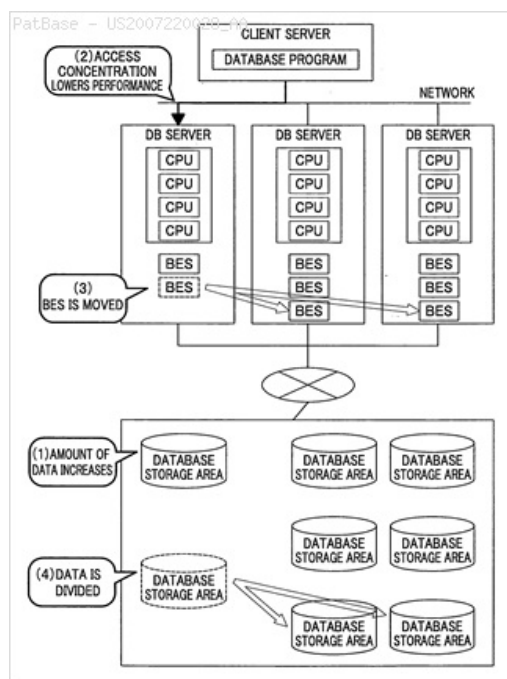
[Classification Explorer](#)

Cited documents: US7542975 BB, US7447693 BB, US7287186 BB, US6880002 BB, US5970495 A, US5813005 A, US2008288554 AA, US2007174290 AA, US2005267888 AA, US2005027719 AA, US2004267897 AA, US2004243650 AA, US2004215640 AA, US2004148289 AA, US2004015978 AA, JP6337710 A2, JP2005234766 A2, JP2003157177 A2, JP11039340,

Forward Citations: WO18005396, WO12081066, US9182923, US8346744, US2013151358, US2011040725, US10459637, US10171568, JP4801761, JP2016092604, JP2011039800, CN103098014, CN103098014,

Abstract:

In a database management system, responsive to imbalances appearing in amounts of data in databases to be used by database servers, loss in performance of database management system is reduced, and the imbalances in the performances of processing of the database servers, which execute access transactions, are redressed. Allocation of CPU resources for execution of the access transactions are determined by changing or maintaining the CPU resource allocations to the database servers. Amounts of data to be used respectively by the database servers during access transactions are obtained from each database and stored into a storage device. A ratio of CPU resource allocations is calculated based upon a ratio of the amounts of data stored for the respective database servers. The CPU resource allocations for the respective database servers are changed based upon the calculated ratio.



9) Family number: 32270941 (US6950848B)

© PatBase

Title: DATABASE LOAD BALANCING FOR MULTI-TIER COMPUTER SYSTEMS

Priority: US20000565777 20000505

Family:	Publication number	Publication date	Application number	Application date
	US6950848 BA	20050927	US20000565777	20000505

Probable Assignee: YOUSEFI ZADEH HOMAYOUN

Assignee(s):(std): YOUSEFI ZADEH HOMAYOUN

Inventor(s):(std): YOUSEFI ZADEH HOMAYOUN

International class
(IPC 8-9): G06F15/16 G06F9/50 H04L29/06 H04L29/08 (Advanced/Invention);
G06F15/16 G06F9/46 H04L29/06 H04L29/08 (Core/Invention)

International class
(IPC 1-7): G06F15/16

CPC: H04L67/02 H04L67/1002 H04L67/1008 H04L67/101 H04L67/1017 H04L67/1036 H04L67/14 G06F9/50
G06F9/505

European class: G06F9/50 G06F9/50A6L H04L29/06C8A H04L29/08N1 H04L29/08N13 H04L29/08N9A H04L29/08N9A13
H04L29/08N9A1B H04L29/08N9A1C H04L29/08N9A1F

US class: 707/10 707/999.01 709/203 709/217 709/226 718/105

[Classification Explorer](#)

Cited documents: US6446109 BB, US6286104 BA, US6266666 BA, US6209029 BA, US6175869 BA, US6175869 B1, US6134594 A, US6125363 A, US6085198 A, US5754772 A,

Forward Citations: WO18005396, WO15100488, WO15100487, WO09029873, WO08045078, WO07053940, WO06079052, WO06079052, US9979631, US9979630, US9880878, US9665400, US9660884, US9589029, US9584360, US9495394, US9479574, US9424093, US9384442, US9361156, US9338182, US9231999, US9225775, US9219579, US9215154, US9197710, US9141449, US9130954, US9122984, US9116946, US9104962, US9098340, US9092475, US9043438, US9021111, US9015323, US9005027, US8966493, US8966197, US8959219, US8954595, US8949850, US8938522, US8924981, US8914522, US8910176, US8898325, US8892778, US8892719, US8874787, US8863145, US8862740, US8856777, US8848710, US8843632, US8818988, US8799918, US8782075, US8756130, US8755279, US8745032, US8738742, US8732157, US8682853, US8667101, US8655755, US8631409, US8620954, US8615454, US8612616, US8612321, US8606907, US8606825, US8589365, US8583796, US8560685, US8555288, US8549521, US8549148, US8549038, US8544013, US8543566, US8539066, US8538843, US8533344, US8521875, US8516488, US8510428, US8504721, US8499086, US8495176, US8473603, US8434086, US8429049, US8423535, US8402101, US8392380, US8387052, US8386611, US8364758, US8332857, US8316131, US8312000, US8302100, US8280998, US8266258, US8260757, US8245230, US8219981, US8209699, US8209696, US8209515, US8166095, US8151269, US8145759, US8091078, US8055706, US8037264, US8024441, US8010551, US8004532, US7984183, US7962609, US7953860, US7949757, US7937551, US7930269, US7925696, US7921151, US7920555, US7908606, US7903673, US7899899, US7885188, US7881325, US7870554, US7865465, US7853579, US7840966, US7840678, US7840653, US7814176, US7801860, US7774403, US7756965, US7752174, US7748006, US7747717, US7743083, US7739252, US7707581, US7707563, US7706895, US7694306, US7694107, US7693581, US7685310, US7676576, US7664847, US7653908, US7640545, US7627650, US7610305, US7571206, US7558858, US7549145, US7546610, US7536280, US7523157, US7516456, US7496917, US7493380, US7480719, US7478390, US7475257, US7464223, US7461146, US7444632, US7441007, US7415703, US7406692, US7406511, US7395537, US7392511, US7389508, US7143078, US7065526, US2017214737, US2015134839, US2015012483, US2014047104, US2014040346, US2013198040, US2013138782, US2013138611, US2013117234, US2012297237, US2012233313, US2012174118, US2012166483, US2012096183, US2012072604, US20111208943, US20111191412, US2011179105, US2011137909, US2011107358, US2011029516, US2011029498, US2011016203, US2010332594, US2010332550, US2010332531, US2010318570, US2010211816, US2010191719, US2009287747, US2009276490, US2009275414, US2009265473, US2009240613, US2009157684, US2009138582, US2009133031, US2009063509, US2009007160, US2008301695, US2008287194, US2008287193, US2008287192, US2008281784, US2008276232, US2008271003, US2008250414, US2008235679, US2008228872, US2008220873, US2008215729, US2008209042, US2008196031, US2008168443, US2008162834, US2008155203, US2008126525, US2008104140, US2008104138, US2008103911, US2008066073, US2008005317, US2007271570, US2007263538, US2007245021, US2007233603, US2007226739, US2007203910, US2007177507, US2007157210, US2007118694, US2007118663, US2007112618, US2007106857, US2007078843, US2007067606, US2007061809, US2007061788, US2007032253, US2006265713, US2006245361, US2006206887, US2006195579, US2006167829, US2006129528, US2006069723, US2006026006, US2005265317, US2005144197, US2005120095, US2005108235, US2005091473, US2005086655, US2005081203, US2005081202, US2005081201, US2005081182, US2005081181, US2005071828, US2005071651, US2005071526, US2005071513, US2005071447, US2005055325, US2005038833, US2005038801, US2005038772, US2005033794, US2005015425, US2004267719, US2004250248, US2004236817, US2004216111, US2004216109, US2004215792, US2004210724, US2004167960, US2004153606, US2004143823, US2004143648, US2004143637, US2004073640, US2004039777, US2004030755, US2004006549, US2003158847, US2003149755, US2003005080, US2002051458, US2002040398, US2002007359, US10496645, US10491534, US10474653, US10469513, US10469442, US10469355, US10467042, US10447648, US10387387, US10375202, US10372499, US10348639, US10341234, US10324952, US10303894, US10303702, US10291716, US10289617, US10193852, US10191671, US10152508, US10095803, US10038619, US10021202, EP2073118, CN106664314, CN106506221, CN102387193, CN102387193, CN102331993, CN102331993,

Abstract:

A load balancing method and system for a transaction computer system having multiple database servers for at least one database, wherein database servers cooperate to provide a unified view of the data in the database. The method includes the steps of establishing connections to said multiple database servers for communicating with said database servers; and assigning transactions to respective ones of said multiple database servers to balance respective loads of said multiple database servers. Assigning each new transaction includes the steps of determining possible assignments of that new transaction to one or more of said multiple database servers, each said possible assignment to one of said multiple database servers being based on a load balancing scheme to balance respective loads of said multiple database servers; and assigning that new transaction to one of said multiple database servers as a function of said possible assignments of that new transaction, to balance respective loads of said multiple database servers.

