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- Published:**
- with international search report
 - before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
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(54) Title: METHOD AND SYSTEM FOR SIMPLIFYING DISTRIBUTED SERVER MANAGEMENT

(57) Abstract: A method and system for managing a large number of servers and their server components distributed throughout a heterogeneous computing environment is provided. In one embodiment, an authenticated user, such as an IT system administrator, can securely and simultaneously control and configure multiple servers, supporting different operating systems, through a "virtual server." A virtual server is an abstract model representing a collection of actual target servers. To represent multiple physical servers as one virtual server, abstract system calls that extend execution of operating-system-specific system calls to multiple servers, regardless of their supported operating systems, are used. A virtual server is implemented by a virtual server client and a collection of virtual server agents associated with a collection of actual servers. A method and system for executing and undoing distributed server change operations for a collection of server objects across multiple target servers in a transaction-safe manner is provided.



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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/17927

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G06F9/54

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 7 G06F

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 practical, search terms used)

EPO-Internal, WPI Data, IBM-TDB, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	RIGHTNOUR T: "Clusterit version 2.0 (Archive)" TAR, 2001, pages 1-30, XP002328731 Retrieved from the Internet: URL:http://www.garbled.net/download/cluste rit-2.0.tar.gz>	1,2, 6-13, 19-26, 30-36, 42-47
Y	This compilation contains only some files of the TAR. HTML files have been viewed and printed using Microsoft Internet Explorer 6.0. the whole document ----- -/--	3-5, 14-18, 27-29, 37-41, 48-65

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "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
- "P" document published prior to the international filing date but later than the priority date claimed

- "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

23 May 2005

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20. 10. 2005

Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/17927

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	PAWLOWSKI B ET AL: "The NFS Version 4 Protocol" PROCEEDINGS OF THE INTERNATIONAL SYSTEM ADMINISTRATION AND NETWORKING CONFERENCE, 22 May 2000 (2000-05-22), pages 1-20, XP002262978	3-5, 27-29
A	page 1, left-hand column, line 1 - page 7, left-hand column, line 18 page 12, left-hand column, line 22 - page 15, left-hand column, line 44	1,2, 6-13, 15-18, 24-26, 30-36, 38-41, 47-65
Y	ANONYMOUS: "LSF JobScheduler User's Guide" PLATFORM COMPUTING CORPORATION, August 1998 (1998-08), pages 1-138, XP002328737 Retrieved from the Internet: URL:http://www.urz.uni-heidelberg.de/l sf3.2/pdf/jsusers.pdf>	14,37
A	page 45 - page 58	1-13, 24-36
Y	ANONYMOUS: "OpenBSD SSH(1) Manual Page" OPENBSD.ORG, 1999, pages 1-9, XP002328739 Retrieved from the Internet: URL:http://www.openbsd.org/cgi-bin/man.cgi?query=ssh> the whole document -& ANONYMOUS: "OpenBSD SSHD (8) Manual" OPENBSD.ORG, 1999, pages 1-7, XP002328740 Retrieved from the Internet: URL:http://www.openbsd.org/cgi-bin/man.cgi?query=sshd> the whole document -& ANONYMOUS: "OpenBSD SSH_CONFIG(5) Manual" OPENBSD.ORG, 1999, pages 1-7, XP002328741 Retrieved from the Internet: URL:http://www.openbsd.org/cgi-bin/man.cgi?query=ssh_config> page 4, line 59 - line 64 -& ANONYMOUS: "OpenBSD SSHD_CONFIG(5) Manual" OPENBSD.ORG, 1999, pages 1-7, XP002328742 Retrieved from the Internet: URL:http://www.openbsd.org/cgi-bin/man.cgi?query=sshd_config> page 6, line 1 - line 7	15-18, 38-41, 48-65
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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 03/17927

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	<p>-& DERAADT: "OpenBSD ssh.c cvs revision 1.1" OPENBSD.ORG, 1999, pages 1-10, XP002328743 Retrieved from the Internet: URL:http://www.openbsd.org/cgi-bin/cvsweb/src/usr.bin/ssh/ssh.c?rev=1.1&content-type=text/x-cvsweb-markup> Cited passages show logging page 10, line 39</p> <p>-& DERAADT: "OpenBSD sshd.c cvs revision 1.1" 1999, pages 1-29, XP002328744 Retrieved from the Internet: URL:http://www.openbsd.org/cgi-bin/cvsweb/src/usr.bin/ssh/sshd.c?rev=1.1&content-type=text/x-cvsweb-markup> Cited passages show logging page 7, last line page 8, line 68 page 13, line 14 page 13, line 23 page 14, line 21 page 14, line 59 - line 60 page 15, line 57 page 19, line 13 - line 14 page 19, line 51</p>	
A	<p>----- WO 99/31584 A (SIEMENS AKTIENGESELLSCHAFT; SCHUETZ, WOLFGANG; STADEL, MANFRED) 24 June 1999 (1999-06-24) abstract page 1, line 1 - page 7, line 21 -----</p>	1,2,25, 26

INTERNATIONAL SEARCH REPORT

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-65

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-65

Method and system for receiving and executing an abstract system call

2. claims: 66-103

Method and system for executing change operations across a plurality of servers in a transaction-safe manner

3. claims: 104-154

Method and system for configuring a plurality of heterogeneous servers across a network

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 03/17927

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9931584	A	24-06-1999	EP 1040414 A1	04-10-2000
			JP 2002508565 T	19-03-2002
			US 6725451 B1	20-04-2004
