

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
13 July 2000 (13.07.2000)

PCT

(10) International Publication Number
WO 00/041093 A3

(51) International Patent Classification⁷: G06F 11/14

(21) International Application Number: PCT/US99/29499

(22) International Filing Date:
13 December 1999 (13.12.1999)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/224,637 31 December 1998 (31.12.1998) US

(71) Applicant: EMC CORPORATION [US/US]; 171 South Street, Hopkinton, MA 01748-9103 (US).

(72) Inventors: OFEK, Yuval; 20 Lanterns Road, Framingham, MA 01702 (US). CAKELJIC, Zoran; 135 Florence

Street, #19, Newton, MA 02467 (US). BITNER, Haim; Hagdud Haivri Street 4, 43560 Raanana (IL). GALTZUR, Sharon; Kedoshey Kahiv 6, Holon (IL). ISH-SHALOM, Ariel, J.; Hasavorian Street 17, 69207 Tel-Aviv (IL). KEDEM, Nadav; Tagor Street 37, 69203 Tel-Aviv (IL). KRIKLER, Samuel; Boaz 6/6, 47402 Ramat HaSharon (IL). ARNON, Dan; 78 Montgomery Street, Boston, MA 02116 (US).

(74) Agent: LOWRIE, Matthew, B.; Wolf, Greenfield & Sacks, P.C., 600 Atlantic Avenue, Boston, MA 02210 (US).

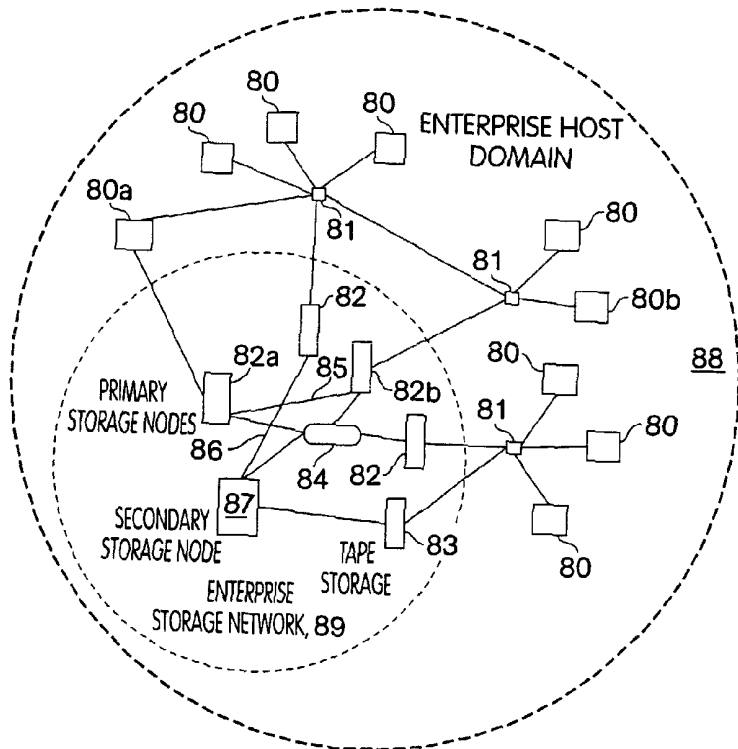
(81) Designated States (national): DE, GB, JP, KR, SE.

Published:
— with international search report

(88) Date of publication of the international search report:
19 September 2002

[Continued on next page]

(54) Title: APPARATUS AND METHOD FOR PERFORMING BACKUP FROM PRIMARY STORAGE DEVICES TO ONE SECONDARY STORAGE DEVICE OVER A NETWORK



(57) Abstract: Method and apparatus are disclosed for a computer system including host computers and storage elements. The host computers may be configured into a host domain and the storage elements configured into a storage domain. The storage domain includes a plurality of primary storage devices and a secondary storage device. The secondary storage device may be coupled to a plurality of the primary storage devices through a network. In another embodiment, the secondary storage device may send and receive information from a heterogeneous set of host computers. In another embodiment, connections for transfer of data onto the secondary storage element are created automatically.



WO 00/041093 A3



(15) Information about Correction:

Previous Correction:

see PCT Gazette No. 36/2001 of 7 September 2001, Section II

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 99/29499

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 G06F11/14		
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)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y A	US 5 673 381 A (DALY ROBERT ET AL) 30 September 1997 (1997-09-30) abstract column 1, line 25 -column 3, line 25 column 4, line 66 -column 6, line 24; figures 1,2 column 7, line 55 -column 8, line 21 claims 22-25,27-29 --- -/--	1,6-8, 10,11, 16-25 9,13 4,5,14, 15
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C.		
<input checked="" type="checkbox"/> 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 27 April 2000		Date of mailing of the international search report 15/05/2000
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Authorized officer Polzer, A

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 99/29499

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	US 5 751 997 A (TITUS DIANE J ET AL) 12 May 1998 (1998-05-12) abstract column 2, line 51 - line 65 column 4, line 45 -column 5, line 2; figure 1 column 14, line 33 - line 59 claims 1-3,6-8,11-13 ---	11, 16-22,24 1
X A	US 5 649 196 A (BERLIN JAY HARRIS ET AL) 15 July 1997 (1997-07-15) abstract column 3, line 6 - line 30; figure 1 ---	1,7,8 11,19
X A	US 5 813 017 A (MORRIS ROBERT J T) 22 September 1998 (1998-09-22) abstract column 4, line 62 -column 5, line 35 column 8, line 43 -column 9, line 12; figure 2 claims 1,6-12 ---	11, 16-20, 22,24 1,2,6,7, 10
X	US 5 852 713 A (SHANNON JOHN P) 22 December 1998 (1998-12-22) abstract column 2, line 60 -column 3, line 18 column 4, line 54 -column 6, line 17; figures 1,2 claims 1,5-7,12 ---	1,3,6-8, 11,12, 16,17, 19,20,23
Y	US 5 535 381 A (KOPPER DAVID J) 9 July 1996 (1996-07-09) column 2, line 10 - line 23 column 2, line 46 -column 3, line 54; figures 1,2 column 4, line 46 -column 6, line 39; figures 4,5 claims 1,4 --- -/--	9,13

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 99/29499

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	<p>EP 0 910 019 A (INT COMPUTERS LTD) 21 April 1999 (1999-04-21)</p> <p>abstract paragraph '0010! - paragraph '0013!; figure 1 paragraph '0015! - paragraph '0017!; figure 2 paragraph '0019! - paragraph '0021! claims 1,2,7,8,10</p> <p>---</p>	<p>1,2,4-8, 10,11, 14-25</p>
A	<p>CHERVENAK A L ET AL: "PROTECTING FILE SYSTEMS: A SURVEY OF BACKUP TECHNIQUES" PROCEEDINGS OF THE FIFTEENTH IEEE SYMPOSIUM ON MASS STORAGE SYSTEMS, 'Online! 23 March 1998 (1998-03-23), pages 17-31, XP002136562 Retrieved from the Internet: <URL:http://esdis-it.gsfc.nasa.gov/msst/co nf1998.html> 'retrieved on 2000-04-27! abstract page 18, line 33 -page 21, line 6 page 22, line 38 -page 28, line 7; table 1</p> <p>-----</p>	<p>1,11,19</p>

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 99/29499

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5673381	A	30-09-1997	NONE	
US 5751997	A	12-05-1998	AT 153149 T AU 6092894 A CA 2153769 A DE 69403192 D DE 69403192 T EP 0680634 A JP 8506200 T WO 9417474 A	15-05-1997 15-08-1994 04-08-1994 19-06-1997 04-12-1997 08-11-1995 02-07-1996 04-08-1994
US 5649196	A	15-07-1997	AT 172309 T AU 682523 B AU 7218994 A DE 69413977 D DE 69413977 T EP 0706686 A WO 9501599 A	15-10-1998 09-10-1997 24-01-1995 19-11-1998 18-03-1999 17-04-1996 12-01-1995
US 5813017	A	22-09-1998	US 5574906 A	12-11-1996
US 5852713	A	22-12-1998	US 5799147 A	25-08-1998
US 5535381	A	09-07-1996	NONE	
EP 0910019	A	21-04-1999	NONE	