

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
9 February 2006 (09.02.2006)

PCT

(10) International Publication Number
WO 2006/013559 A3

(51) International Patent Classification:
G06F 15/16 (2006.01)

[IL/US]; 1 Technology drive, Building C515, IRVINE, CA 92618 (US).

(21) International Application Number:
PCT/IL2005/000822

(74) Agent: LOWY, Avi; P.O.Box 6202, 10A Elhanan Street, 31061 Haifa (IL).

(22) International Filing Date: 2 August 2005 (02.08.2005)

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
163314 2 August 2004 (02.08.2004) IL

(71) Applicant (for all designated States except US): STORE-AGE NETWORKING TECHNOLOGIES LTD.
[IL/IL]; P.O. Box 1640, 63 Bar Yehuda Road, 36651 NESHER 36651 (IL).

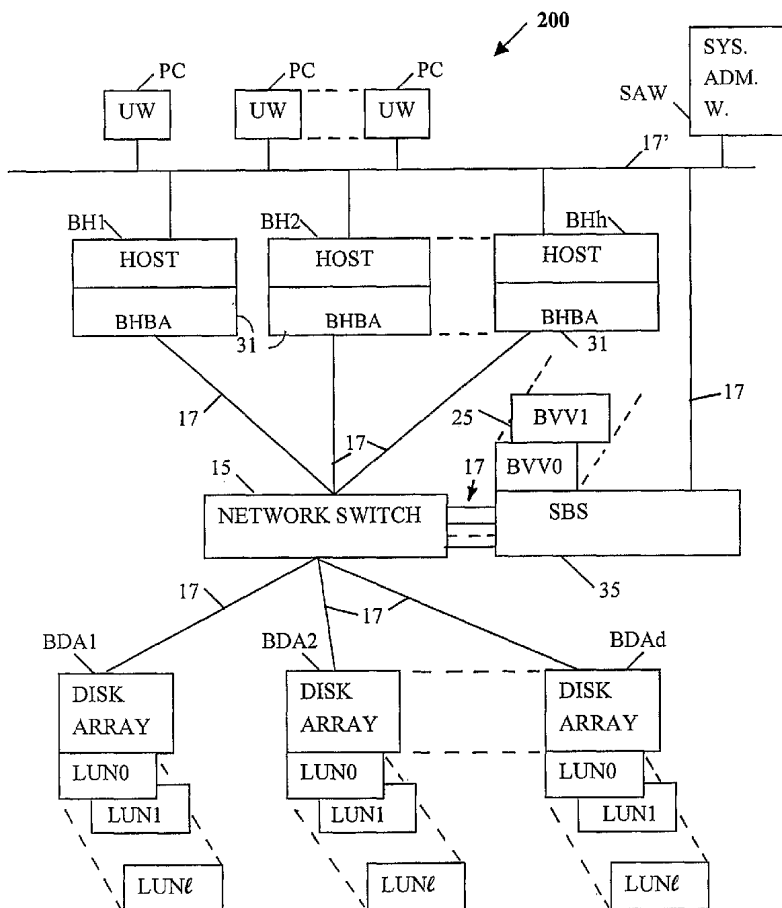
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,

(72) Inventor; and

(75) Inventor/Applicant (for US only): NAHUM, Nelson

[Continued on next page]

(54) Title: STORAGE AREA NETWORK BOOT SERVER AND METHOD



(57) Abstract: A SAN Boot Server (SBS) (35) and a method operative in association with a host boot SAN (BSAN) (200) having hosts (BH) and devices (DAB) coupled via network links (17) to a network switch (15). The SBS stores a mapping of virtual volumes (25), each with one boot image. The SBS is coupled to the network switch (15) and to the user network. The hosts have access to a virtual boot image when turned on, and each boot image directs each host to a storage device storing a booting program for booting the host. The hosts do not require, but may have an internal disk (21). The SBS is flagged for detection and differentiation, and each host has a modified HBA (BHBA) configured for fast discovery of a flagged SBS. There are groups of hosts having members, and when booting, each host accesses a specific boot image, which has a common portion and a host-specific portion, and each member shares the common portion.

WO 2006/013559 A3



FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT,
RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA,
GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(88) Date of publication of the international search report:
7 May 2009

Published:

— *with international search report*

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IL05/00822

A. CLASSIFICATION OF SUBJECT MATTER
 IPC: **G06F 15/16**(2006.01)

 USPC: 709/203
 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)
 U.S. : 709/203

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)
 Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6,597,956 B1 (Aziz et al.) 22 July 2003 (22.07.2003), column 5 lines 5-45.	1, 16, 19, 33
A	US 6,389,432 B1 (POTHAPRAGADA et al) 14 May 2002 (14.05.2002), column 4, lines 1-24.	1, 16, 19, 33
A	US 2004/0111559 A1 (HEIL) 10 June 2004 (10.06.2004), page 1, section [0008].	1, 16, 19, 33
---		-----
Y		9, 27
T	US 7,162,509 B2 (BROWN et al.) 9 January 2007 (09.01.2007), column 13, lines 45-60.	1, 16, 19, 33
T	US 2004/0215749 A1 (TSAO et al.) 28 October 2004 (28.10.2004), page 1, sections [0004-0012].	1, 16, 19, 33

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

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent published on or after the international filing date	"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
"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)	"&"	document member of the same patent family
"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		

Date of the actual completion of the international search
11 May 2008 (11.05.2008)

Date of mailing of the international search report
26 JUN 2008

Name and mailing address of the ISA/US
 Mail Stop PCT, Attn: ISA/US
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 Facsimile No. (571) 273-3201

Authorized officer
 John Follansbee
 Telephone No. (866)217-9197

Continuation of B. FIELDS SEARCHED Item 3:
EAST Search
Search Terms: SAN, boot, virtual