

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
20 March 2003 (20.03.2003)

PCT

(10) International Publication Number
WO 03/023597 A2

(51) International Patent Classification⁷: **G06F 3/06**

(21) International Application Number: PCT/GB02/03743

(22) International Filing Date: 14 August 2002 (14.08.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/948,627 10 September 2001 (10.09.2001) US
09/948,656 10 September 2001 (10.09.2001) US

(71) Applicant: **INTERNATIONAL BUSINESS MACHINES CORPORATION** [US/US]; New Orchard Road, Armonk, NY 10504 (US).

(71) Applicant (for MG only): **IBM UNITED KINGDOM LIMITED** [GB/GB]; PO Box 41, North Harbour, Portsmouth, Hampshire PO6 3AU (GB).

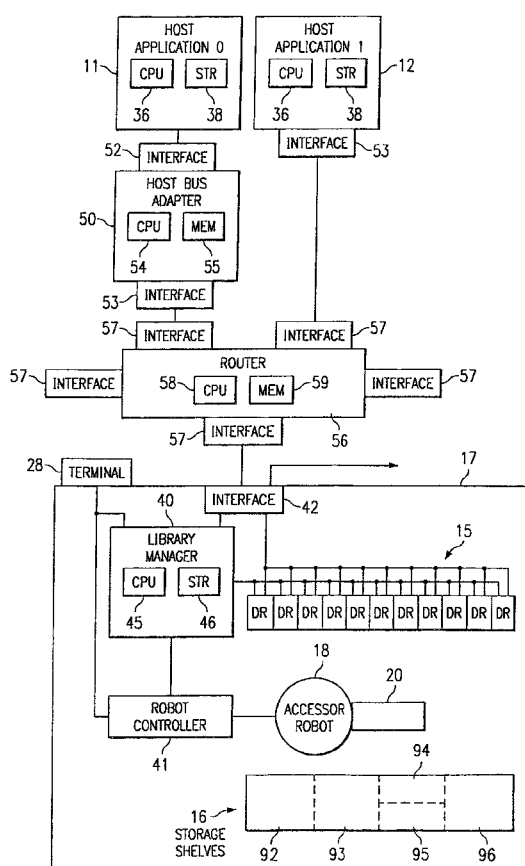
(72) Inventors: **BASHAM, Robert, Beverley**; 20201 SW Tremont Way, Aloha, OR 97007 (US). **DAHMAN, Kirby, Grant**; 3614 E. Kingler Spring Place, Tucson, AZ 85718 (US). **DAY III, Kenneth, Fairclough**; 730 N Lazy J Way, Tucson, AZ 85748 (US). **JESIONOWSKI, Leonard, George**; 12518 E Barbary Coast Road, Tucson, AZ 85749 (US).

(74) Agent: **WALDNER, Philip**; IBM United Kingdom Limited, Intellectual Property Law, Hursley Park, Winchester, Hampshire SO21 2JN (GB).

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

[Continued on next page]

(54) Title: DATA STORAGE DRIVES IN AN AUTOMATED DATA STORAGE LIBRARY



(57) Abstract: Data storage drives of an automated data storage library are allocated to received requests. A drive resource provider, upon receiving a request for a drive when all of the drives of the pool are allocated, holds any mount of a portable data storage cartridge relative to the request, releasing the hold when a drive is allocated. Spare drives are provided, outside of the pool. A spare drive may be allocated in response to the request, and a message is posted indicating use of the spare data storage drive. The posted message may comprise a notification that action may be taken to permanently transfer a spare data storage drive to the pool. Furthermore drive image providers of a virtualization system for an automated data storage library provide an image of a fixed plurality of virtual data storage drives with fixed identifications to a host application. A drive resource provider, at any one time, assigns any number "m" of a pool of "n" drives to the drive image providers, and "n" - "m" of the pool are freed and available for assignment. The drive resource provider responds to a triggering event requesting a drive, and dedicates one of the "n" - "m" drives of the pool to the virtual drive. The drive image provider characterizes and directs communication between the host and the dedicated drive as a fixed virtual drive; and prior to the dedication of a drive, characterizes the virtual drive to the requesting host application as "not ready".



(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report

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.