Datasheet for the decision of 25 April 2019

Case Number: T 1180/13 - 3.5.05
Application Number: 02258808.1
Publication Number: 1324185
IPC: G06F3/06
Language of the proceedings: EN

Title of invention:
System and method for partitioning a storage area network associated data library employing element addresses

Applicant:
Hewlett Packard Enterprise Development LP

Headword:
Partitioned data library III/HEWLETT PACKARD

Relevant legal provisions:
EPC Art. 56, 84, 123(2)

Keyword:
Amendments - added subject-matter - main request (yes)
Claims - clarity - main request (no)
Inventive step - first auxiliary request (no)
Case Number: T 1180/13 - 3.5.05

DECISION
of Technical Board of Appeal 3.5.05
of 25 April 2019

Appellant: Hewlett Packard Enterprise Development LP
(Applicant)
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Decision under appeal: Decision of the Examining Division of the European Patent Office posted on 10 December 2012 refusing European patent application No. 02258808.1 pursuant to Article 97(2) EPC

Composition of the Board:
Chairwoman A. Ritzka
Members: R. de Man
F. Blumer
Summary of Facts and Submissions

I. The applicant (appellant) appealed against the decision of the examining division refusing European patent application No. 02258808.1.

II. The decision cited the following documents:

D1: EP 0 859 308 A, 19 August 1998;
D2: US 6 328 766 B1, 11 December 2001;
D3: US 6 044 442 A, 28 March 2000; and

The examining division decided that the main request did not comply with Article 123(2) EPC and that the subject-matter of all claims 1 to 10 of the main request lacked inventive step in view of document D4 and the common general knowledge as exemplified by documents D2 and D3. The first auxiliary request did not comply with Articles 123(2) and 84 EPC, and the subject-matter of all its claims 1 to 8 lacked inventive step in view of the same documents.

III. In its statement of grounds of appeal, the appellant amended the main request and the first auxiliary request.

IV. In a communication accompanying the summons to oral proceedings, the board expressed, inter alia, the preliminary opinion that the main request did not comply with Articles 123(2) and 84 EPC and that the subject-matter of claim 1 of the first auxiliary request lacked inventive step.
V. In a letter dated 28 January 2019, the appellant informed the board that it would not attend the oral proceedings.

VI. Oral proceedings were held on 25 April 2019 in the appellant's absence. At the end of the oral proceedings, the chair announced the board's decision.

VII. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the claims of the main request or, in the alternative, of the first auxiliary request.

VIII. Claim 1 of the main request reads as follows:

"A data library (200) adapted to be attached to a storage area network (100), said library characterised by a plurality of secured partitions (215-217) that each comprises at least one data transfer element (201-204) and at least one data storage element slot (205), said data transfer elements and data storage element slots being assigned respective internally unique element addresses (221); at least one media transport element (220) shared by said partitions to move media between said slots and said data transfer elements, said at least one media transport element being assigned an internally unique element address (221); and a library controller (213) configured to secure said partitions by restricting movement of said media to and from said data storage element slots to data storage element slots assigned to a same of said partitions by 1) assigning a different logical unit designation (LUN1, LUN2, LUN3) to each of said partitions and respective external element addresses (222) to said at least one media transport element, each said data
transfer element and each said data storage element slot and 2) mapping said internally unique element addresses (221) to said external element addresses (222), wherein the respective external element addresses (222) assigned to the at least one data transport element (220), the at least one data transfer element and the at least one data storage element start from a same external element address for each partition."

IX. Claim 1 of the first auxiliary request reads as follows:

"A data library (200) adapted to be attached to a storage area network (100), said library characterised by a plurality of partitions (215-217) that each comprises at least one data transfer element (201-204) and at least one data storage element slot (205), said data transfer elements and data storage element slots each being assigned an internally unique element address (221); at least one media transport element (220) shared by said partitions to move media between said slots and said data transfer elements, said at least one media transport element being assigned an internally unique element address (221); and a library controller (213) that assigns a different logical unit designation (LUN1, LUN2, LUN3) to each of said partitions and that assigns external element addresses (222) to said at least one transport, each said data transfer element and each said slot and that maps said internally unique element addresses to said external addresses, said controller restricting movement of media to and from said slots to slots assigned to a same of said partitions, and
wherein each of said partitions comprises at least one of said data transfer elements and at least one of said slots and the number of data transfer elements, the number of slots and the said external element addresses assigned thereto in a partition correspond to the respective numbers of data transfer elements and slots and element addresses of an existing data library model of a plurality of existing library models whereby said partitions present externally as a said existing library model to permit external software configured to recognise a said existing library model to recognise the said library model a partition presents as."

X. The appellant's arguments, where relevant to the decision, are discussed in detail below.

**Reasons for the Decision**

1. The appeal complies with the provisions referred to in Rule 101 EPC and is therefore admissible.

2. *The application*

The application relates to a partitioned data library that is to be attached to a data storage area network. To allow existing software to access the partitions without first being reconfigured, the partitions are set up to emulate existing data libraries for which the software has already been configured (see paragraph [0011] of the application as filed).
Main request

3. Added subject-matter and clarity

3.1 According to claim 1 of the main request, the library controller is configured to "secure" partitions "by restricting movement of said media to and from said data storage element slots to data storage element slots assigned to a same of said partitions".

The only passages in the application as filed referring to "restricting movement" of media are original claims 1, 2, 8 and 9 and paragraph [0007] (which corresponds to original claim 1). None of these passages refers to "restricting movement" of media as a way of "securing" partitions.

The only passages in the application as filed discussing how partitions are "secured" are paragraph [0005] (referring to the use of network switches to secure partitions in existing systems) and paragraph [0021]. The latter passage explains that, in an FC SAN environment, partitions can be secured without the use of external switches by allowing access to a partition only by specified hosts, keyed on "host world wide names (WWN)".

Hence, there is no disclosure in the application as filed of securing partitions by restricting movement of media between slots assigned to the same partition (Article 123(2) EPC).

Moreover, claim 1 uses the term "secured partition" in a different sense from how it is used in the description, which results in a lack of clarity (Article 84 and Rule 49(11) EPC).
3.2 According to claim 1, restricting movement of media between data storage element slots to slots of the same partition is achieved by "1) assigning a different logical unit designation to each of said partitions and respective external element addresses to said at least one media transport element, each said data transfer element and each said data storage element slot and 2) mapping said internally unique element addresses to said external element addresses".

However, none of the passages in the application as filed referring to "restricting movement" of media (i.e. original claims 1, 2, 8, and 9 and paragraph [0007]; see point 3.1 above) discloses that this is linked to the internal and external element addresses in any way.

These claim features therefore extend beyond the content of the application as filed (Article 123(2) EPC).

Moreover, it is unclear how the claimed mapping of internally unique element addresses to external element addresses could result in the claimed restricting of movement of media between data storage element slots (Article 84 EPC).

First auxiliary request

4. The invention as defined by claim 1

4.1 Claim 1 of the first auxiliary request is directed to a data library adapted to be attached to a storage area network. The library contains a number of partitions, each partition including at least one data transfer
element and at least one data storage element slot. The partitions share at least one media transport element for moving media between slots and data transfer elements. The library includes a library controller that restricts movement of media between slots to slots assigned to the same partition.

4.2 Each of the data transfer elements, data storage element slots and media transport elements is assigned an "internally unique element address".

The library controller assigns a different "logical unit designation" to each partition and an "external element address" to each of the data transfer elements, data storage element slots and media transport elements.

4.3 For each partition, the number of data transfer elements, the number of slots and the assigned external addresses correspond to the numbers of data transfer elements and slots and to the element addresses of an existing data library model from a plurality of existing library models. The claim adds that this allows external software configured to access a data library of the existing data library model to access the data library.

4.4 The board notes that SCSI-compliant data libraries accept the "move medium" command for moving media between data transfer and data storage elements of the library, which are specified by means of "element addresses". The "internal" element addresses of the claim refer to the actual addresses of the elements of the physical data library. The "external" element addresses refer to the element addresses of the data library being emulated. Emulation of the "move medium"
command is therefore achieved by mapping the external addresses specified in a "move medium" command received from external software to the corresponding internal element addresses (see paragraph [0029] of the application as filed).

5. Inventive step

5.1 Document D4 discloses a data library system, which is schematically shown in Figures 1 to 3. The system comprises a server machine 12 communicating through a SCSI bus with data library 14. The data library includes a library unit 16 (paragraph [0009]), which has a recording medium storage section 30 and a recording medium reproduction section 32 (paragraph [0011]). The recording medium storage section 30 contains 600 storage element slots ("pallets") 34 and is divided into three storage stations 30₀, 30₁ and 30₂, respectively containing 300 slots for CD-ROMs, 150 slots for DVD-RAMs and 150 slots for DVD-ROMs (paragraph [0012]). The recording medium section 32 is divided into three reproduction stations 32₀, 32₁ and 32₂ corresponding to the three types of recording media (CD-ROMs, DVD-RAMs and DVD-ROMs), each station including one or more data transfer elements ("drives") (paragraph [0013]). The library unit further includes a media transport element ("recording medium transfer section") for the transfer of recording media between slots (paragraph [0010]).

5.2 The three reproduction stations 32₀, 32₁ and 32₂ with their respective storage stations 30₀, 30₁ and 30₂ form partitions or "virtual units" 36₀, 36₁ and 36₂ (paragraph [0014]). The library unit 16 includes a library controller 40, which is logically divided into three controls 40₀, 40₁ and 40₂ with logical unit
numbers LUN0, LUN1 and LUN2 corresponding to the partitions 36_0, 36_1 and 36_2 (paragraph [0016]).

5.3 The library controller restricts movement of CD-ROMs between slots to slots of storage station 30_0 (paragraphs [0019] and [0020]). Likewise, movement of DVD-RAMs and DVD-ROMs between slots is restricted to slots of their respective storage stations 30_1 and 30_2 (paragraph [0020]).

5.4 The library unit is presented to the server machine 12 as three library units corresponding to the partitions 36_0, 36_1 and 36_2 (paragraph [0018]).

5.5 Since the data library 14 can be accessed via the SCSI protocol, it is "adapted to be attached to a storage area network", for example via a SCSI/FC bridge. Paragraph [0024] in fact discloses that the data library 14 and the server machine 12 may be connected via a fibre-channel network.

5.6 The data library of claim 1 therefore differs from the data library disclosed in document D4 in that

- internally unique element addresses are assigned to the data transfer elements, the data storage element slots and the media transport elements;
- external element addresses are assigned to the data transfer elements and the data storage element slots;
- the library controller maps the internally unique element addresses to the external addresses; and
- for each partition, the number of data transfer elements, the number of data storage element slots and the external addresses correspond to the respective numbers and element addresses of an
existing data library model from a plurality of existing library models.

5.7 These features have the effect that a computer configured to access a data library of the existing data library model need not be reconfigured to access the claimed data library.

The problem to be solved may therefore be formulated as how to modify the data library of document D4 so as to allow a computer to access the data library without reconfiguration.

5.8 The skilled person, starting from document D4 and faced with this problem, would consult document D2, which discloses a data library that has a virtual configuration different from its physical configuration and is presented to host computer systems as a conventional data library with a physical configuration identical to the virtual configuration (see abstract). Document D2 explains that this avoids "complicating the set-up, maintenance, or creation of application software utilizing the library" (column 9, lines 30 to 40).

To achieve this goal, the library's response to host commands must be altered (column 9, lines 44 to 49). In particular, to correctly deal with a SCSI move medium command as shown in Figure 10, the library's controller has to "remap source and destination addresses from the virtual configuration seen by the host to the appropriate physical resources allocated to that host" (column 9, lines 58 to 62; column 7, lines 10 to 25).
In other words, the library controller maps external element addresses corresponding to the configuration of the "conventional data library" to the internally unique addresses corresponding to the actual physical configuration of the data library (and vice versa). And it is self-evident that for the virtual configuration to correspond to the physical configuration of a conventional data library, the virtual configuration needs to define the same number of data transfer elements and data storage element slots.

Hence, document D2 discloses a SCSI-based solution to the problem posed which is applicable to the SCSI-based data library of document D4 and corresponds to the solution proposed in claim 1. The skilled person would therefore apply the teaching of document D2 to the data library of document D4 and thereby arrive at the subject-matter of claim 1 without the exercise of inventive skill.

5.9 Hence, the subject-matter of claim 1 lacks inventive step (Article 56 EPC).

Conclusion

6. Since neither of the requests on file is allowable, the appeal is to be dismissed.
Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: 

The Chairwoman:

K. Götz-Wein 

A. Ritzka 

Decision electronically authenticated