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**Datasheet for the decision
of 27 August 2019**

Case Number: T 0122/14 - 3.5.05

Application Number: 05027918.1

Publication Number: 1674981

IPC: G06F3/06

Language of the proceedings: EN

Title of invention:
SAS storage virtualization controller, subsystem and system
using the same, and method therefor

Applicant:
Infortrend Technology, Inc.

Headword:
Storage virtualization controller/INFORTREND

Relevant legal provisions:
EPC Art. 123(2)
RPBA Art. 13(1)

Keyword:
Amendments - added subject-matter (yes)
Late-filed auxiliary requests - admitted (no) - request
clearly allowable (no) - diverging versions of claims

Decisions cited:

Catchword:

Case Number: **T 0122/14 - 3.5.05**

D E C I S I O N
of Technical Board of Appeal 3.5.05
of 27 August 2019

Appellant: (Applicant)	Infortrend Technology, Inc. 6F, 7F, 8F 102 Chung-Shan Road Sec.3 Chung-Ho City Taipei Hsien (TW)
Representative:	Becker Kurig Straus Patentanwälte Bavariastrasse 7 80336 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 9 July 2013 refusing European patent application No. 05027918.1 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chair	P. Cretaine
Members:	E. Konak
	D. Prietzel-Funk

Summary of Facts and Submissions

I.   The appeal is against the decision of the examining
        division to refuse the present application for lack of
        an inventive step (Article 56 EPC).

II.   With its statement setting out the grounds of appeal,
        the appellant filed claims 1 to 28 of a main request
        and claims 1 to 25 of an auxiliary request. The
        appellant requested that the decision under appeal be
        set aside and a patent be granted on the basis of these
        requests. It requested oral proceedings as a further
        auxiliary measure.

III.   In its preliminary opinion given in the annex to the
        summons to oral proceedings, the board raised
        objections under Articles 123(2) and 56 EPC.

IV.   In reply to the summons to oral proceedings, the
        appellant re-filed the requests on file and filed
        claims 1 to 28 of second to fifth auxiliary requests.

V.   Oral proceedings were held before the board.

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

        "An external storage virtualization controller (200),
        comprising:
        a central processing circuitry (240) for performing IO
        operations in response to IO requests from a host
        entity (10);
        at least one IO device interconnect controller (220,
        300) coupled to said central processing circuitry
        (240);

at least one host-side IO device interconnect port
provided in said at least one IO device interconnect
controller for coupling to said host entity (10); and
at least one SAS device-side IO device interconnect
port (600) provided in a said at least one IO device
interconnect controller (220, 300) for coupling to and
performing point-to-point serial-signal transmission
with a set of at least one physical storage device,
PSD,(420);
wherein said external storage virtualization controller
(200) is capable of accommodating said set of at least
one physical storage device (420) of different serial
protocols through a SAS device-side IO device
interconnect port;
wherein the IO requests are parsed to determine what
operation is to be performed and on which sections of a
virtualized LMU the operation is to be performed; and
wherein when the operation comprises some combination
of a(n) internally-emulated, asynchronous, and
synchronous device sub-operation, then the external
storage virtualization controller (200) executes the
associated sub-operations including transferring any
associated data to/from the host entity (10) in
response."

VII.   Claim 1 of the first auxiliary request differs from
        claim 1 of the main request in that the last two
        paragraphs (starting with "wherein the IO requests are
        parsed") were replaced with the following text:

        "wherein said storage visualization controller (200)
        comprises at least two host-side IO device interconnect
        ports each for coupling to a host-side IO device
        interconnect and said storage visualization controller
        (200) is configured to present redundantly a logical

media unit on two of said at least two host-side IO device interconnect ports."

VIII.   Claim 1 of the second auxiliary request differs from claim 1 of the main request in that the last three paragraphs (starting with "wherein said external storage virtualization controller") were replaced with the following text:

"wherein said external storage virtualization controller (200) is capable of accommodating said set of at least one physical storage device (420) of SATA and/or SAS protocols through a SAS device-side IO device interconnect port; and
wherein when one of the IO requests from the host entity is received by said external storage virtualization controller, an IO complete report that the one of the I/O requests is successfully complete is first issued to the host entity by said external storage virtualization controller before said external storage virtualization controller actually completes said one IO request."

IX.   Claim 1 of the third auxiliary request differs from claim 1 of the second auxiliary request in that the following text was added before the text starting with "an IO complete report":

"and when the one of the IO requests is a write back request,"

X.   Claim 1 of the fourth auxiliary request differs from claim 1 of the second auxiliary request in that the text "comprised in a storage virtualization subsystem" was added after the text "An external storage virtualization controller (200) and the last paragraph

(starting with "wherein when one of the IO requests")
was replaced with the following text:

"wherein the storage virtualization subsystem comprises
an enclosure management services mechanism that is
implemented using an intelligent circuitry which runs a
software program for managing and monitoring devices
belonging to the storage virtualization subsystem."

XI.   Claim 1 of the fifth auxiliary request differs from
       claim 1 of the fourth auxiliary request in that the
       following text was added to the end:

       ", wherein an I2C interconnect is provided as a
       communication medium between the external storage
       virtualization controller and the enclosure management
       services mechanism."

Reasons for the Decision

1.   Main request and first auxiliary request

1.1   Claim 1 of both the main request and the first
       auxiliary request has the feature that the "external
       storage virtualization controller is capable of
       accommodating said set of at least one physical storage
       device of different serial protocols through a SAS
       device-side IO device interconnect port". When the
       appellant introduced this feature into the claims
       during the examination proceedings, it gave figure 8A
       and page 11, last paragraph of the application as its
       basis (see the letter of 27 May 2009, page 2, first
       paragraph). In its preliminary opinion, the board
       objected that the application as originally filed did
       not support the generalisation of the teaching of these
       passages, which mentioned only SATA and SAS protocols,

to "different serial protocols". At the oral
proceedings, the appellant argued that page 11, last
sentence, which reads "the DASD array 400 comprises a
plurality of DASD 420, such as hard disk drive (HDD),
which comprises either SAS DASDs 420A or SATA DASDs
420s or both", gave SATA and SAS protocols only as
examples, as would be apparent from the use of "such
as". This argument does not convince the board since it
is clear that the "such as" in the cited sentence
refers not to SAS and SATA protocols but to "hard disk
drive".

1.2   Therefore, claim 1 of both the main request and the
         first auxiliary request contains subject-matter which
         extends beyond the content of the application as
         originally filed (Article 123(2) EPC).

2.   Second to fifth auxiliary requests

2.1   The second to fifth auxiliary requests were filed after
         the appellant had filed its statement setting out the
         grounds of appeal and hence may be admitted into the
         appeal proceedings only at the board's discretion
         (Article 13(1) RPBA).

2.2   It is established case law of the boards of appeal that
         the admissibility of amendments depends, among other
         things, on whether the amended claims converge with or
         diverge from the subject-matter previously claimed,
         i.e. whether they develop and increasingly limit the
         subject-matter of the independent claim of the main
         request in the same technical direction and/or in the
         direction of a single inventive idea, or whether they
         entail different lines of development (See "Case Law of
         the Boards of Appeal of the European Patent Office",
         Eighth Edition, 2016, IV.E.4.4.4).

2.3   In the present case, whereas the supposedly inventive
       idea pursued by the appellant in claim 1 of the main
       request was the capability of the storage
       virtualization controller to accommodate physical
       storage devices of different serial protocols, the
       features added to claim 1 of the second and third
       auxiliary requests are related to an IO complete report
       issued by the storage virtualization controller to the
       host, and the features added to claim 1 of the fourth
       and fifth auxiliary requests are related to enclosure
       management services. As the appellant also admitted at
       the oral proceedings, there is no technical
       relationship between these features.

2.4   Regardless, the appellant argued that the added
       features were all features of the same storage
       virtualization controller and narrowed the scope of
       protection sought in comparison with the main request,
       so these auxiliary requests should be seen as a further
       refinement and thus as a convergent development of the
       main request. If the appellant's argument were to be
       accepted, adding any further feature to a claim would
       constitute a convergent development. However, the
       correct criterion for judging whether an amendment
       constitutes a convergent development of the requests on
       file is, as stated above, whether the newly added
       features develop and limit the subject-matter of
       previous requests in the same technical direction. This
       is not the case for the second to fifth auxiliary
       requests.

2.5   For these reasons, the board exercises its discretion
       under Article 13(1) RPBA and does not admit the second
       to fifth auxiliary requests into the proceedings.

3.   As there is no allowable request on file, the appeal is
        not allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chair:

K. Götz-Wein   P. Cretaine

Decision electronically authenticated