Internal distribution code:

(A) [-] Publication in OJ
(B) [-] To Chairmen and Members
(C) [-] To Chairmen
(D) [X] No distribution

Datasheet for the decision of 28 June 2023

Case Number: T 0454/21 - 3.5.07

Application Number: 10827558.7

Publication Number: 2494459

IPC: G06F17/30, G06F11/20

Language of the proceedings: EN

Title of invention:
Fixed content storage within a partitioned content platform using namespaces, with replication

Applicant:
Hitachi Vantara LLC

Headword:
Partitioned content platform with replication/HITACHI VANTARA

Relevant legal provisions:
EPC Art. 56, 123(2)
RPBA 2020 Art. 13(2)

Keyword:
Inventive step - main request and auxiliary request I (no)
Amendments - auxiliary request II - allowable (no)
Late-filed auxiliary requests - auxiliary request IIA - not admitted

Decisions cited:
T 1195/09

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 0454/21 - 3.5.07

D E C I S I O N
of Technical Board of Appeal 3.5.07
of 28 June 2023

Appellant: (Applicant)	Hitachi Vantara LLC 2535 Augustine Drive Santa Clara, CA 95054 (US)
Representative:	MERH-IP Matias Erny Reichl Hoffmann Patentanwälte PartG mbB Paul-Heyse-Strasse 29 80336 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 27 January 2021 refusing European patent application No. 10827558.7 pursuant to Article 97(2) EPC**

Composition of the Board:

Chair	J. Geschwind
Members:	R. de Man
	M. Jaedicke

Summary of Facts and Submissions

I. The applicant appealed against the decision of the examining division refusing European patent application No. 10827558.7, which was published as international application WO 2011/053834 A2.

II. The examining division decided that the subject-matter of claim 1 of the main request and of auxiliary requests I to IV, IV-A and V lacked an inventive step over the following document:

D1: US 2009/006888 A1, 1 January 2009.

The examining division also decided that claim 1 of auxiliary requests II, III, IV and IV-A was not clear, and that auxiliary request IV-A did not comply with Article 123(2) EPC.

III. With its statement of grounds of appeal, the appellant maintained the main request and auxiliary requests I and IV-A considered in the decision under appeal as its main request and auxiliary requests I and II, and it filed a new auxiliary request III.

IV. In a communication accompanying the summons to oral proceedings, the board expressed the view that the subject-matter of claim 1 of the main request and of auxiliary requests I and II lacked an inventive step over document D1, that auxiliary requests I and II did not meet the requirements of Article 84 EPC, and that auxiliary request II did not comply with Article 123(2) EPC. The board also indicated that it would be inclined to admit auxiliary request III into the proceedings if

an apparent mistake were corrected and that the objections under Articles 56, 84 and 123(2) EPC applied, *mutatis mutandis*, to auxiliary request III.

The communication further indicated that any written submissions should be at the board's disposal at least one month before the date set for the oral proceedings.

V. With its submissions filed in preparation for the oral proceedings, the appellant replaced auxiliary request III with an auxiliary request IIIA.

VI. During the oral proceedings, which were held as scheduled, the appellant filed an auxiliary request IIA and withdrew auxiliary request IIIA. At the end of the oral proceedings, the Chair announced the board's decision.

VII. The appellant's final requests were 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 one of auxiliary requests I, II and IIA. More auxiliary, the appellant requested remittal of the case to the examining division on the basis of the claims of one of auxiliary requests II and IIA.

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

"A storage method operating across a set of distributed locations, wherein at each location a redundant array of independent nodes are networked together to provide a cluster, comprising:

logically partitioning a first cluster (1800) at a first location into a set of two or more tenants (T1, T2), wherein each of the two or more tenants (T1, T2) has associated therewith one or more respective

namespaces (NS1, NS2; NS3), each namespace comprising a collection of data objects:

configuring a link (1804) between the first cluster (1800) and a second cluster (1802); and

replicating, over the link (1804), information associated with a first tenant (T1) of the two or more tenants (T1, T2);

wherein the information associated with the first tenant (T1) includes one or more associated namespaces (NS1, NS2) and object data associated with those namespaces."

IX. Claim 1 of auxiliary request I differs from claim 1 of the main request in that the following text was added at the end of the claim:

"wherein the first and second cluster are configured to be operated by a respective cluster administrator and wherein the set of two or more tenants (T1, T2) are configured to be operated by a respective tenant administrator, wherein the tenant administrator and the cluster administrator are different people, and wherein the tenant administrator does not have access to hardware that may break the cluster".

X. Claim 1 of auxiliary request II reads as follows:

"A storage method operating across a set of distributed locations, wherein at each location a redundant array of independent nodes are networked together to provide a cluster, comprising:

logically partitioning a first cluster (1800) at a first location into a set of two or more tenants (T1, T2), wherein each of the two or more tenants (T1, T2) has associated therewith one or more respective

namespaces (NS1, NS2; NS3), each namespace comprising a collection of data objects;

configuring a first link (1804) between the first cluster (1800) and a second cluster (1802); and

replicating, over the first link (1804), information associated with a first tenant (T1) of the two or more tenants (T1, T2);

wherein the information associated with the first tenant (T1) includes one or more associated namespaces (NS1, NS2) and object data associated with those namespaces, replicating, over the first link, information associated with the second tenant (T2) without impairing a replication metric associated with replication of the information associated with the first tenant (T1), which replication metric is current bytes per second transfer rate,

wherein the method further includes providing access to the information in the second cluster (1802) on a read-only basis;

wherein the first and second cluster are configured to be operated by a respective cluster administrator and wherein the set of two or more tenants (T1, T2) are configured to be operated by a respective tenant administrator,

wherein the tenant administrator and the cluster administrator are different people, and wherein the tenant administrator does not have access to hardware that may break the cluster,

wherein it is further configured a second link between the first cluster and a third cluster; and the method further comprises

replicating the information associated with the first tenant is performed over each of the first and second links,

wherein the first link has a given replication link characteristic that differs from the characteristic of the second link,

the given replication link characteristic is a quality-of-service (QoS) and the tenants and namespaces are transferred via a respective link of the first and second link such that the replication of tenants and namespaces can be paused without affecting other tenants of the first and second tenant."

XI. Claim 1 of auxiliary request IIA reads as follows:

"A storage method operating across a set of distributed locations, wherein at each location a redundant array of independent nodes are networked together to provide a cluster, comprising:

logically partitioning a first cluster (1800) at a first location into a set of two or more tenants (T1, T2), wherein each of the two or more tenants (T1, T2) has associated therewith one or more respective namespaces (NS1, NS2; NS3), each namespace comprising a collection of data objects;

configuring a first link (1804) between the first cluster (1800) and a second cluster (1802); and

replicating, over the first link (1804), information associated with a first tenant (T1) of the two or more tenants (T1, T2);

wherein the information associated with the first tenant (T1) includes one or more associated namespaces (NS1, NS2) and object data associated with those namespaces,

wherein the first and second cluster are configured to be operated by a respective cluster administrator and wherein the set of two or more tenants (T1, T2) are configured to be operated by a respective tenant administrator,

wherein the tenant administrator and the cluster administrator are different people, and
wherein the tenant administrator does not have access to hardware that may break the cluster,
wherein it is further configured a second link between the first cluster and a third cluster; and the method further comprises
replicating the information associated with the first tenant is performed over each of the first and second links,
wherein the first link has a given replication link characteristic that differs from the characteristic of the second link,
the given replication link characteristic is a quality-of-service (QoS)."

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

Reasons for the Decision

1. The application relates to highly available, reliable and persistent data storage in a distributed computer network.

Main request

2. *The board's interpretation of claim 1*

2.1 Claim 1 is directed to a storage method which operates across a set of distributed locations. At each location, a cluster is provided in the form of a networked "redundant array of independent nodes".

2.2 A first cluster at a first location is logically partitioned into two or more "tenants". Each tenant is associated with one or more "namespaces". Each namespace includes a collection of data objects.

According to the description of the published application on page 10, lines 23 to 25, a namespace is a logical cluster partition having a private file system with respect to other namespaces. According to the description on page 11, line 4, a tenant is "a grouping of namespace(s) and possibly other subtenants".

2.3 A "link" is configured between the first cluster and a second cluster, and information including one or more namespaces and object data associated with a first tenant of the two or more tenants is replicated over the link.

The board understands from the description on page 9, lines 7 and 8, that the term "link" is used to denote an association between a "primary" cluster and a "replica" cluster. In other words, the term link refers primarily to a logical association, not to a specific physical communication link.

3. *Inventive step - Article 56 EPC*

3.1 Document D1 relates to highly available, reliable and persistent data storage in a distributed computer network (see paragraph [0003]).

The document discloses a storage method which operates across a set of distributed locations (claim 1, Figure 4 and paragraph [0051]). At each location, a cluster is provided in the form of a networked

"redundant array of independent nodes" (claim 1 and paragraph [0020]).

Each cluster hosts one or more "namespaces", each namespace holding a collection of data objects in a file system (paragraph [0035]).

A "link", also referred to as "association", is configured between a first cluster and a second cluster, and information including one or more namespaces and their object data is replicated over the link (claim 1, Figures 4 and 5, and paragraphs [0042] and [0052]).

3.2 The appellant argued that document D1 did not disclose that only information associated with a first tenant was replicated. When information was replicated from a first cluster to a second cluster, it was always the complete set of information stored in the first cluster.

The board notes that claim 1 does not state that "only" information associated with a first tenant is replicated. Moreover, paragraph [0042] of document D1 makes clear that a namespace is the smallest unit of data that can be replicated over a link from a source cluster to a target cluster. Paragraph [0052] confirms that "a link enables a source namespace to be replicated to a specified target cluster", i.e. namespaces are the unit of replication.

3.3 Hence, the subject-matter of claim 1 differs from the disclosure of document D1 only in that namespaces are grouped into "tenants".

3.4 In its decision, the examining division argued that, at the level of generality of the claim, tenants were a logical concept not making any technical contribution.

3.5 The appellant argued that the "tenant" concept implied certain access restrictions, e.g. a client having access to a namespace belonging to a first tenant would not have access to the data in namespaces belonging to a second tenant. Moreover, adapting a single tenant storage system to support multiple tenants required substantial changes in the system architecture and logic. For example, a multi-tenant storage system required the provision of a load balancer and shared services.

3.6 The board notes that the description of the application on page 11, line 4, defines a "tenant" simply as a "grouping of namespace(s) and possibly other subtenants", and claim 1 does not give this term a more restricted meaning. Moreover, the claim does not refer to any load balancing or shared services.

3.7 Hence, the board takes the view that the term "tenant" refers to a non-technical, administrative grouping of namespaces and therefore does not contribute to an inventive step. For the sake of argument, the board further notes that even when the term "tenant" is interpreted more restrictively to imply a certain access policy, it remains a non-technical administrative concept; indeed, choosing an access policy that supports a "multi-tenant" business model is not a technical decision (see decision T 1195/09, Reasons 5.3). An implementation of this concept, i.e. the enforcement of the implied access policy, is well within the abilities of the skilled person and

therefore obvious, and technical details of it are anyway not claimed.

3.8 Hence, the subject-matter of claim 1 of the main request lacks an inventive step over document D1 (Article 56 EPC).

Auxiliary request I

4. Claim 1 of auxiliary request I adds to claim 1 of the main request that:
(a) the first and second cluster are configured to be operated by a respective cluster administrator;
(b) the set of two or more tenants are configured to be operated by a respective tenant administrator;
(c) the tenant administrator and the cluster administrator are different people;
(d) the tenant administrator does not have access to hardware that may break the cluster.

5. *Inventive step - Article 56 EPC*

5.1 The only basis for feature (d) in the application as filed is the paragraph on page 22, lines 22 to 25, which explains that, by partitioning the user interface into cluster and tenant-focused pieces, different people can perform cluster and tenant management, which "ensures that the tenant [administrator] does not have access to hardware or other details that may 'break' the cluster". Thus, feature (d) merely reflects a consequence of the decision to provide separate user interfaces for tenant and cluster administrators.

5.2 Features (a) to (c) express the non-technical, administrative concept of assigning the administration of clusters and tenants to separate persons or separate

groups of persons. An implementation of these concepts, for example in the form of separate graphical user interfaces for tenant administrators and cluster administrators, thus giving rise to feature (d), is straightforward and therefore obvious.

5.3 The appellant argued that the features added to claim 1 increased data safety and achieved more efficient replication while avoiding data loss.

However, it cannot be seen why separating the roles of cluster and tenant administrator as specified in features (a) to (d) would increase the efficiency of replication or avoid data loss or achieve any other advantage going beyond the expected non-technical, administrative advantages.

5.4 Hence, the subject-matter of claim 1 of auxiliary request I lacks an inventive step over document D1 (Article 56 EPC).

Auxiliary request II

6. *Added subject-matter*

6.1 Method claim 1 of auxiliary request II includes the following step, which was not present in any of the originally filed independent claims:

> "replicating, over the first link, information associated with the second tenant (T2) without impairing a replication metric associated with replication of the information associated with the first tenant (T1), which replication metric is current bytes per second transfer rate".

6.2 For the part "replicating, over the first link, information associated with the second tenant (T2) without impairing a replication metric associated with replication of the information associated with the first tenant (T1)", the appellant referred to the passage on page 20, lines 16 and 17, which reads:

> "To allow for a new tenant to be added to the replication link without stalling the progress of other tenants, the following replication algorithm is implemented".

For the part "which replication metric is current bytes per second transfer rate", the appellant referred to the passage on page 19, lines 9 to 12, which reads:

> "One or more of these metrics may be available for the replication link: total bytes replicated (ever), total bytes restored (ever), number of operations replicated (ever), number of operations restored (ever), current bytes per second transfer rate, ...".

6.3 The board has some doubt that the cited passage on page 20 provides a basis for "without impairing a replication metric", since "without stalling the progress of other tenants" rather means that the replication for other tenants does not come to a stand still. The additional feature of originally filed dependent claim 7, which reads "replicating over the link information associated with the second tenant without impairing a replication metric associated with replication of information associated with the first tenant", provides a more convincing basis.

6.4 However, neither the passage on page 20 nor the additional feature of dependent claim 7 can be combined with the passage on page 19 to obtain the above-mentioned feature of claim 1. As is clear from the sentence immediately preceding the cited passage on page 19, the listed replication metrics are specifically given as examples of replication metrics which can be displayed in a user interface. No indication is given for any of the replication metrics in this list that they can be the replication metric which is "not impaired". Making this combination in amended claim 1 of auxiliary request II therefore introduces information which was not present in the application as filed.

6.5 Hence, auxiliary request II does not comply with Article 123(2) EPC.

Auxiliary request IIA

7. *Admission into the appeal proceedings*

7.1 Auxiliary request IIA was filed during the oral proceedings, more specifically after the board had invited the appellant to comment orally on the objections under Article 123(2) EPC raised in point 12.1 and 12.2 of its communication and a discussion had taken place on the objection raised in point 12.1. The request was thus filed after the notification of the board's communication and after the date set by the board in that communication for filing written submissions (see point IV. above). Its claim 1 is based on claim 1 of auxiliary request II and removes a number of features objected to under Articles 84 and 123(2) EPC in the board's communication, including the feature mentioned in point 6.1 above.

7.2 The appellant explained that it had realised during the oral proceedings that the board still considered auxiliary request II not to meet the requirements of Article 123(2) EPC. It had not been possible to file auxiliary request IIA earlier because the basis for claim 1 of auxiliary request II had looked quite solid. Moreover, the discussion during the oral proceedings had clarified the added-matter objection raised in point 12.2 of the board's communication.

7.3 When a board's communication raises new clarity and added-matter objections, an appellant is not obliged to respond by filing amended claims if it considers the objections to be invalid. However, not filing amendments at the earliest opportunity, in this case before the date set by the board for filing written submissions, is at the appellant's own risk.

Although it may exceptionally be the case that an objection raised in the board's communication cannot be properly addressed before further explanations or clarifications are obtained from the board, in the present case the appellant addressed the objections in its auxiliary request IIA simply by deleting the objected-to features. It cannot be seen why this could be done only after the discussion which took place during the oral proceedings, the less so given that not all the objected-to and now removed features had yet been discussed when auxiliary request IIA was filed. Moreover, at that point the board had still only invited the appellant to comment on the objection raised in point 12.2 of its communication.

7.4 In view of the above, the board considers that there are no exceptional circumstances justifying, at that

late stage of the appeal proceedings, the admission of auxiliary request IIA, which consequently is not admitted into the appeal proceedings (Article 13(2) RPBA 2020).

8. Since the board has concluded that none of the substantive requests admitted into the appeal proceedings is allowable, there is no basis for allowing the appellant's procedural request for remittal of the case to the examining division for further prosecution. Instead, the appeal is to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chair:

S. Lichtenvort J. Geschwind

Decision electronically authenticated