The examination is being carried out on the **following application documents**

Claims, Numbers

1-3 filed with entry into the regional phase before the EPO

Drawings, Sheets

1/12-12/12 filed with entry into the regional phase before the EPO

1 Documents

1.1 Reference is made to the following documents; the numbering will be adhered to in the rest of the procedure.

D1 US 9 275 060 B1 (SUPEKAR NITIN [IN]) 1 March 2016 (2016-03-01)

D2 US 10 089 187 B1 (PECORARO ALEX [US] ET AL) 2 October 2018 (2018-10-02)

D3 CN 112 527 567 A (BEIJING BAIDU NETCOM SCI & TECH CO LTD) 19 March 2021 (2021-03-19)

D4 EP 1 921 540 A2 (HITACHI LTD [JP]) 14 May 2008 (2008-05-14)

D5 Anonymous: "Synchronize the Cluster Node Time", , 24 August 2020 (2020-08-24), pages 1-2, XP093192491, Retrieved from the Internet: URL:https://techdocs.broadcom.com/us/en/ca-enterprise-software/intelligent-automation/automic-process-automation/4-3/installing/install-and-configure/orchestrators/synchronize-the-cluster-node-time.html

D6 US 2021/011813 A1 (ZHANG XIAOPING [CN] ET AL) 14 January 2021 (2021-01-14)

2 Article 84 EPC (Conciseness, Clarity)

2.1 Claims 1 and 13 have been drafted as separate independent claims in the same category, which is the method category.

2.1.1 Under Article 84 in combination with Rule 43(2) EPC, an application may contain more than one independent claim in a particular category only if the subject-matter claimed falls within one or more of the exceptional situations set out in paragraph (a), (b) or (c) of Rule 43(2) EPC. This is not the case in the present application, however, for the following reason(s): the subject-matter of claim 13 comprises merely a subset of features of the features of claim 1.

2.1.2 In the further prosecution of the application, failure to file an amended set of claims which complies with Rule 43(2) EPC, or to submit convincing arguments as to why the current set of claims does in fact comply with these provisions, may lead to refusal of the application under Article 97(2) EPC.

2.2 According to claim 5, "the information that is about the plurality of data sets .. and that is entered by a user *and the first moment*" cannot be clearly understood. What does "..and the first moment" mean in the context of information which is entered by a user ?

2.3 According to claim 8, last feature, first and second status information indicate the roles (secondary or primary identity) or the failure status of the primary cluster; and if this status-related precondition is given the control device determines that the secondary client is accessed by an application.

2.3.1 It is not clear how a certain system state, which is described by a particular set of status information, established by each client, allows to determine that one of the clients are accessed by an application.

3 Independent claim 1 (Article 52(1), 56 EPC)

3.1 D1 discloses, references to D1 in **brackets**, features not explicitly/implicitly disclosed in D1 are set ~~strikeout~~, and using the wording of claim 1 of the application filed, printed in italic font:

A data backup method, wherein the method is applied to a data backup system,

[column 1: FIELD OF THE INVENTION:

"Embodiments of the invention relate to the field of data backup, and more particularly to using cluster configuration data from a high availability cluster to set backup policies."]

the data backup system comprises a primary cluster,

[FIG. 1A: High Availability Cluster (105)]

~~*a secondary cluster, and*~~

[FIG. 1A: Backup Data Store (120)]

a control device, and the method comprises:

[FIG. 1A: Backup Agent (135), BACKUP SERVER (115)]

controlling, by the control device based on a first data backup policy,

[FIG. 1A: Backup Policy (150); Backup Server (115)

column 6, lines 7-9:

"Backup agents 135 and/or backup server 115 backup high availability data according to a backup policy 150."]

the primary cluster **[FIG. 1A: (105)]** *or the secondary cluster to back up,* ~~*to the secondary cluster*~~*,*

a plurality of data sets related to a first service that are in the primary cluster and that are at a first moment,

[FIG. 1A: HA Data (145) in Primary Machine (125) and in Backup Data Store (120);

column 1, 47-49:

"The data protection agent or server identifies *highly available data of an application* running on the high availability cluster ";

column 1, lines 53-55:

"..data protection agent or server backs up the highly available data to a storage device at a time specified in the data protection policy";

note: 1)only backing up "HA data" excludes all other kinds of data (sets); 2) service -> of an application running on..]

wherein the first data backup policy comprises information about the plurality of data sets related to the first service and the first moment.

[column 1, lines 53-55:

"and the data protection agent ..backs up the highly available data to a storage device at a time specified in the data protection policy.";

claim 4, lines 21-25:

"Data that is made highly available via the high availability cluster may be identified as important data.

Accordingly, a backup agent or server may set up a data protection policy to backup such highly available data."]

3.2 Thus, the subject-matter of independent claim 1 differs from this known from D1 in that the selected data in the high availability cluster, the primary cluster, is backed up to a secondary (backup) cluster, while D1 teaches backing up the HA Data (145) to a Backup Data Store (120) .

3.3 The objective technical problem to be solved might be formulated as how to enable more quickly restoring a service in case of a (primary cluster's) failure.

3.4 D2 teaches in section BACKGROUND OF THE INVENTION, second paragraph, that a backup cluster of nodes is known and that "the backup cluster of nodes can operate as an independent file system to the primary cluster of nodes". It is apparent that, by providing the same structure for the backup system as for the primary system, data formatting and/or conversion is avoid, and service restoration in case of a failure of the primary cluster is faster.

See also D3, disclosing in FIG. 1: (1012) is a primary cluster and (1013) is a backup (secondary) cluster.

3.5 Therefore, the present application does not meet the requirements of Article 52(1) EPC, because the subject-matter of claim 1 does not involve an inventive step within the meaning of Article 56 EPC.

4 Independent claim 13 (Article 52(1), 56 EPC)

4.1 D3 discloses, references to the English machine translation of D3 in **brackets**, features not explicitly/implicitly disclosed in D3 are set ~~strikeout~~, and using the wording of claim 13 of the application filed, printed in *italic font*:

A data backup method, wherein the method is applied to a data backup system,

[paragraphs [0026]-[0027], paragraph [0034], FIG. 1]

the data backup system comprises a primary cluster,

[FIG. 1 : (1012);

paragraph [0027]: " One of cluster 1012 and cluster 1013 may be a primary cluster.."]

a secondary cluster, and

[FIG. 1 : (1013);

paragraph [0027]: " One of cluster 1012 and cluster 1013 may be a primary cluster, and the other may be a backup cluster"]

a control device, and the method comprises:

[FIG. 1 : (1011);

paragraph [0027]: "The system 101 may include a controller 1011, a cluster 1012, and a cluster 1013"]

obtaining, by the primary cluster, an instruction delivered by the control device, wherein the instruction comprises information about a plurality of data sets related to a first service ~~and a first moment~~; and

[paragraph [0027]:

"The controller 1011 may send control instructions to the cluster 1012 and the cluster 1013 to control the cluster 1012 and the cluster 1013 to perform various operations, such as data synchronization.

In order to ensure the normal provision of services, data can be synchronized between clusters in real time, or data can be backed up according to pre-set rules.";

note: "information about a plurality of data sets" -> "data backed up according to pre-set rules".]

backing up, by the primary cluster to the secondary cluster based on the instruction, the plurality of data sets related to the first service that are in the primary cluster ~~and that are at the first moment.~~

[paragraph [0027]:

"To ensure the normal provision of services, data can be synchronized between clusters in real time, or backed up according to pre-set rules";

paragraph [0034]:

"The backup cluster can synchronize data from the main cluster in real time to ensure that services can be provided at any time."]

4.2 Firstly, it is noted that "information about a plurality of data sets" is so broad that any service related data synchronization based on any rule (or policy in D1), as disclosed in D3, covers "information about a plurality of data sets".

Thus, the subject-matter of claim 3 only differs, if at all, from the teaching of D1 in that the data sets, backed up according to pre-set rules, are at a first moment (established).

4.3 The skilled person would effortlessly consider implementing the service related data synchronization or backup not necessarily instantly, but much more on a regular time basis, e.g. by copying point-in time based snapshots to the backup cluster, thereby arriving at the subject-matter of claim 13. A point-in-time snapshot based backup is a widely known and alternative technique replacing data synchronization or replication as required by the circumstances.

4.4 It follows that the subject-matter of claim 13 also does not involve an inventive step within the meaning of Article 56 EPC.

5 Independent claims 17, 18 (Article 52(1), 56 EPC)

5.1 The subject-matter of independent claims 17, 18 is equal in scope to the subject-matter of independent claim 1 respectively claim 13; the same assessment as for claim 1 and 13 holds, mutatis mutandis.

6 Dependent claims 2-12, 14-16

6.1 sdfasdf

6.2 Claim 2: i) instructing the sending of snapshots of data sets from the primary to the secondary cluster. ii) instructing the replication of snapshots of data sets from the primary to the secondary cluster.

6.2.1 Starting with the teaching of D1, having replaced the Backup Data Store (120) of FIG. 1A in D1 with the backup cluster disclosed in D2 or D3, D1 discloses in column 6, lines 59-67 that " the HA agent 140 on the primary machine 125

periodically takes a snapshot (a point-in-time image) .. including the state of the high availability data 145..the backup agent 135 (or the backup server 115) may backup a copy of the snapshot (or a portion of the snapshot) to backup data store 120."

See also D1, column 10, lines 41-44.

Concerning replication: a widely known alternative technique to the backup technique. Hinted in D1, column 3, lines 19-23 : "..may be a replicated data store of which multiple nodes have a copy" .

See also D3, paragraph [0005]: "For distributed storage systems, a storage replication relationship is often established between two clusters, that is, the data on the primary cluster is copied to the backup cluster through a replication link".

6.3 Claim 3: corresponding comments as for claim 2, i) hold. Snapshot-based backups are comprised in the common technical knowledge of the skilled person.

6.4 Claim 4: i) data synchronization; ii) merely copying (some) data to the backup (cluster/storage).

6.4.1 On i): see D3, paragraph [0027]: ".. such as data synchronization, ...data synchronization between clusters .. according to pre-set rules".

It is noted that in D1, see e.g. FIG. 3, (315), a pre-set rule is explained as a data protection policy *for highly available data (only)*.

6.4.2 On ii): Trivial to apply the backing up of highly available data as disclosed in D1 to highly available user data.

6.5 Claim 5: user (administrator) provides the backup policy determining the selected (highly available data in D1). See D1, column 1, lines 24-40.

6.6 Claim 6: providing a second/further backup policy determining data to be backed up at another/second moment (point-in-time snapshot)..

6.6.1 See D2, column 6, lines 31-34: " For example, *one cloud backup policy could backup a different set of data than a second cloud backup policy*.". See FIG. 3 in D2 specifying a time and a mod(ification) time for a policy 1 or 2. Taking a snapshot is based on a specified point-in-time.

6.7 Claim 7: trivial; data sets are produced and stored by services (as thought in D3) or components or the like. Merely a system design aspect.

6.8 Claim 8, 9: control device, by two dedicated primary and secondary clients, detects status (failure) information concerning the primary respectively backup cluster.

6.8.1 Notwithstanding the Article 84 EPC objection as raised above D3 teaches in paragraph [0034] that the status of the main cluster can be monitored in real time; D3 continues to teach in paragraph [0035] that the status of the primary and the backup cluster can be detected in various ways. Providing the status monitoring/detection in two dedicated clients is again merely a system design aspect which the skilled person would implement in one way or the other without the need to apply inventive skills.

D3 also teaches in paragraph [0041] that the system configuration can be changed when the main cluster fails, by switching to an available backup cluster (which becomes the new main cluster); see paragraph [0055]: "It is understandable that after switching to the backup cluster, the backup cluster can be used as the new primary cluster, and after the failed primary cluster is restored, it can be used as the backup cluster of the new primary cluster. "

Concerning attaching additionally (primary, secondary) identify information to status notification does not require inventive skills; disclosed in D6, paragraph [0122],[0123].

6.9 Claim 10: control device isolated from the primary cluster: see D1, Backup Server (115) outside high availability cluster (105) in FIG. 1A. See D3, FIG. 1 (1011) is isolated from the primary and backup cluster (1012), (1013)

6.10 Claim 11: same clock in control device, primary and secondary cluster.

6.10.1 At least strongly hinted by the teaching of D5, see page 1

6.11 Claim 12, 16:hadoop architecture is a widely known architecture.

6.12 Claim 14: see comments as provided for claim 2, i).

6.13 Claim 15:see comments as provided for claim 4, i).

7 Formal aspects

7.1 When filing amended claims, despite the objections raised, the following should be addressed:

7.2 The independent claims are not in the two-part form in accordance with Rule 43 (1) (b) EPC, which in the present case is appropriate. Accordingly, the features known from the prior art should be put into the preamble (Rule 43 (1) (a) EPC) and the remaining features in the characterising portion.

7.3 The applicant should also indicate in the letter of reply the difference and technical effect of the subject-matter of the new claim vis-à-vis the state of the art (in particular documents D1-D3) by applying the problem-and-solution approach, in order to describe the significance (technical effect) thereof.

7.4 The features of the claims should be provided with reference signs placed in parentheses to increase the intelligibility of the claims (Rule 43 (7) EPC). This applies to both the preamble and characterising portion (see the Guidelines, F-IV, 4.19).

7.5 The description should be amended where appropriate to fulfil the following requirements:

7.5.1 - To meet the requirements of Rule 42 (1) (b) EPC, the documents D1 - D6 should be identified in the description and the relevant background art disclosed therein should be briefly discussed.

7.5.2 - The summary of the invention (Rule 42(1)(c) EPC; Guidelines F-II.4.5) must correspond to the amended set of claims. Where appropriate, statements such as “The invention is set out in the appended set of claims“ or “The invention is as defined in claim X“ may be used instead of repeating the claims verbatim.

7.5.3 - Embodiments which are no longer covered by the claims must be deleted, unless they can reasonably be considered to be useful for highlighting specific aspects of the amended subject-matter. If this is the case, they must be clearly marked as not being part of the present invention (T 1808/06 and Guidelines F-IV, 4.3).

7.5.4 - Any combinations of features which do not fall under the scope of the amended independent claims must be clearly marked as not being part of the present invention.

7.5.5 - Statements such as “The following examples/aspects/embodiments X, Y, Z are not according to the invention and are present for illustration purposes only” may be used at the start of the description or in the list of figures.

7.5.6 - The technical features of the independent claims may not be presented as optional in the description. Where they precede a feature of an independent claim, terms such as “for example“, “may“, “can”, “exemplary“, “optionally“, “preferably“ and the like must be removed.

7.6 Care should be taken during revision, especially of the introductory portion and any statements of problem or advantage, not to add subject-matter which extends beyond the content of the application as originally filed (Article 123 (2) EPC).

7.7 In order to facilitate the examination of the conformity of the amended application with the requirements of Article 123 (2) EPC, the applicant is requested to clearly identify the amendments carried out, irrespective of whether they concern amendments by addition, replacement or deletion, and to indicate the passages of the application as filed on which these amendments are based.

7.8 In addition, the amendments may relate neither to subject-matter that was excluded from the search following an invitation under Rule 62a(1)/63(1) EPC, nor to non-searched subject-matter that does not combine with the originally claimed invention or group of inventions to form a single general inventive concept (Rule 137(5) EPC).