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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte SAURABH JAIN and NEERAJ S. SHARMA

Appeal 2015-007661
Application 12/961,544¹
Technology Center 2100

Before ALLEN R. MacDONALD, SHARON FENICK, and
MICHAEL J. ENGLE, *Administrative Patent Judges*.

ENGLE, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from a final rejection of claims 8, 9, 11–13, 15, 16, 18–20, 22, 25, and 28–33, which are all of the claims pending in the application. Claims 1–7, 10, 14, 17, 21, 23, 24, 26, and 27 are cancelled. App. Br. 16–20. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM-IN-PART.

Technology

The application relates to redistributing a partitioned database between partitions and storage nodes. Spec. Abstract.

¹ According to Appellants, the real party in interest is International Business Machines Corporation. App. Br. 2.

Illustrative Claims

Claims 28, 32, and 33 are illustrative and reproduced below with the limitations at issue emphasized:

28. A method of data processing in a data processing system including a processor, the method comprising:

storing a partitioned database in a plurality of logical partitions on at least a first data storage node, wherein the plurality of logical partitions includes at least first and second logical partitions;

prior to receipt of an input causing redistribution of the partitioned database, the processor pre-identifying data to be redistributed from the plurality of logical partitions by configuring a subset of the first logical partition as a first virtual partition and configuring a subset of the second logical partition as a second virtual partition, wherein the first virtual partition is restricted to data within the first logical partition and the second virtual partition is restricted to data within the second logical partition;

thereafter, the processor configuring newly formed third and fourth partitions of the partitioned database on a second data storage node; and

in response to the input, the processor redistributing the partitioned database over the first and second data storage nodes by:

moving data within the first virtual partition on the first logical partition to the third partition such that the first virtual partition no longer resides on the first logical partition;

moving data within the second virtual partition on the second logical partition to the fourth partition such that the second virtual partition no longer resides on the second logical partition;

retaining data in the first logical partition that is not within the first virtual partition; and

retaining data in the second logical partition that is not within the second virtual partition.

32. The method of Claim 28, wherein the redistributing includes:
creating a backup including first data within the first virtual partition and second data within the second virtual partition, but excluding data within the first and second logical partitions that are not within the first and second virtual partitions; and
restoring the first data and the second data from the backup to the third and fourth partitions, respectively.

33. The method of Claim 28, wherein:
redistributing the partitioned database includes the processor determining whether a virtual partition identifier assigned to the second virtual partition matches a partition identifier assigned to the fourth partition; and
moving data within the second virtual partition to the fourth partition comprises *moving data within the second virtual partition to the fourth partition only in response to determining that the virtual partition identifier assigned to the second virtual partition matches the partition identifier assigned to the fourth partition.*

Rejections

Claims 8, 9, 15, 16, 22, 25, 28, 29, and 33 stand rejected under 35 U.S.C. § 103(a) as obvious over the combination of *Peloquin et al.* (US 6,574,705 B1; June 3, 2003), *Murray et al.* (US 6,330,653 B1; Dec. 11, 2001), and *Butcher et al.* (US 2011/0208784 A1; Aug. 25, 2011).² Final Act. 3.

Claims 11, 12, 18, 19, 30, and 31 stand rejected under 35 U.S.C. § 103(a) as obvious over the combination of *Peloquin*, *Murray*, *Butcher*, and *Oreland et al.* (US 2010/0235606 A1; Sept. 16, 2010). Final Act. 8.

² Although claim 30 is listed as rejected over *Peloquin*, *Murray*, and *Butcher* (Final Act. 3), the discussion of claim 30 also relies on *Oreland*. *Id.* at 8–9. Accordingly, we treat claim 30 as rejected over those four references.

Claims 13, 20, and 32 stand rejected under 35 U.S.C. § 103(a) as obvious over the combination of Peloquin, Murray, Butcher, and Ecklund (US 4,853,843; Aug. 1, 1989). Final Act. 11.

ISSUES

1. Did the Examiner err in finding the combination of Peloquin, Butcher, and Murray teaches or suggests the limitations recited in claim 28:
 - a. “prior to receipt of an input causing redistribution of the partitioned database, the processor pre-identifying data to be redistributed”;
 - b. “configuring a subset of the [first / second] logical partition as a [first / second] virtual partition”; and
 - c. “moving data within the [first / second] virtual partition . . . such that the [first / second] virtual partition no longer resides on the [first / second] logical partition” while “retaining data in the [first / second] logical partition that is not within the [first / second] virtual partition”?
2. Did the Examiner err in finding Oreland teaches or suggests “updating the partition configuration data structure to indicate that the data moved to the third and fourth partitions do not reside in any virtual partition,” as recited in claim 30?
3. Did the Examiner err in finding Ecklund teaches or suggests “creating a backup including first data within the first virtual partition and second data within the second virtual partition, but excluding data within the first and second logical partitions that are not within the first and second virtual partitions” and “restoring the first data and the second data from the backup to the third and fourth partitions,” as recited in claim 32?
4. Did the Examiner err in finding Murray teaches or suggests “moving data within the second virtual partition to the fourth partition only in response to determining that the virtual partition identifier assigned to the

second virtual partition matches the partition identifier assigned to the fourth partition,” as recited in claim 33?

ANALYSIS

Claim 28

Claim 28 recites “prior to receipt of an input causing redistribution of the partitioned database, the *processor* pre-identifying data to be redistributed.” Appellants contend the cited prior art “simply discloses the well-known ability of a user to identify physical partitions to be included in a logical volume.” App. Br. 6. However, we agree with the Examiner that “software executing the user request” runs on a processor and therefore teaches or suggests this limitation. Ans. 3.

Claim 28 further recites “configuring a *subset* of the [first / second] logical partition as a [first / second] virtual partition.” Appellants contend the Examiner erred because in *Peloquin*, “the logical volume, which is cited by the Examiner as teaching the claimed ‘virtual partition,’ is a *superset* comprised of multiple logical partitions,” rather than the virtual partition being a *subset* of a logical partition. App. Br. 6–7 (underlining omitted, italics added). However, this does not sufficiently address the Examiner’s rejection because “the examiner interprets the volume . . . as a first logical partition and the user selecting [an] individual logical partition on the volume as a subset.” Ans. 3–4 (citing *Peloquin* FIG. 3); Final Act. 4.

We also are not persuaded by Appellants’ conclusory arguments in reply. Reply Br. 3–4; *see In re Lovin*, 652 F.3d 1349, 1357 (Fed. Cir. 2011). For example, Appellants argue that the combined teaching of *Peloquin* and the other prior art references is limited to “a single logical volume,” yet claim 1 of *Peloquin* recites a “*plurality* of storage devices.” Claim 1 of

Peloquin also recites creating “*a* logical volume,” and there is a “general rule that the use of the indefinite articles ‘a’ or ‘an’ means ‘one or more.’”

SanDisk Corp. v. Kingston Tech. Co., 695 F.3d 1348, 1360 (Fed. Cir. 2012). Moreover, “[i]t is well settled that the mere duplication of parts has no patentable significance unless a new and unexpected result is produced, and we are of the opinion that such is not the case here.” *In re Harza*, 274 F.2d 669, 671 (CCPA 1960).

Claim 28 also recites moving data within the partitions “such that the [first / second] virtual partition no longer resides on the [first / second] logical partition” while “retaining data in the [first / second] logical partition that is not within the [first / second] virtual partition.” Appellants contend Murray does not delete the moved partition (App. Br. 9), yet we agree with the Examiner that Murray separately teaches both “moving” and “copying” where the distinction between them is that copying would “leave the data on the source partition.” Ans. 7.

Appellants also contend Butcher and Murray “generally disclose the replication and distribution of a database *along logical partition boundaries*” rather than having different subsets of a logical partition “handled differently.” App. Br. 9–10 (underlining omitted, italics added). However, Appellants also quote Butcher as teaching that “‘moving’ data records . . . involves copying the entire set of data records stored at the first physical database to the second physical database, and then removing the unassociated data records.” Butcher ¶ 34; App. Br. 8 (misattributing quotation as ¶ 33). Thus, Butcher teaches “moving” some records to a new partition (including deleting those records from the old partition) while maintaining the other records on the old partition, i.e., handling them

differently. Butcher also teaches using “virtual partitions” (Butcher ¶ 33), and Appellants have not sufficiently explained why they believe what Butcher expressly calls “virtual partitions” would instead be *logical* partitions. App. Br. 8.

Accordingly, given the record before us, we sustain the Examiner’s rejection of independent claims 8, 15, and 28, and dependent claims 9, 16, and 29. *See* App. Br. 11; 37 C.F.R. § 41.37(c)(1)(iv).

Claim 30

Claim 30 recites “updating the partition configuration data structure to indicate that the data moved to the third and fourth partitions do not reside in any virtual partition.” Appellants contend Oreland teaches that “following redistribution the data remain mapped as they were previously (albeit on a different storage node).” App. Br. 13 (emphasis omitted). However, we agree with the Examiner that Oreland’s “distributed map is updated when data is moved to a new partition which indicates a re-mapping of data [is] no longer in the old partition.” Ans. 11. For example, Figures 2 through 5 of Oreland depict moving a subset of data from the “original partition” in Node 1 to a “new partition” in Node 2. Oreland ¶¶ 35–39. Appellants’ argument assumes the “new partition” is *virtual* rather than *logical*, yet Appellants have not sufficiently explained the basis for such an assumption.

Accordingly, we sustain the Examiner’s rejection of claim 30, and claims 11, 12, 18, 19, and 31, which Appellants argue are patentable for similar reasons. *See* App. Br. 12–13; 37 C.F.R. § 41.37(c)(1)(iv).

Claim 32

Claim 32 recites “creating a backup including first data within the first virtual partition and second data within the second virtual partition, but

excluding data within the first and second logical partitions that are not within the first and second virtual partitions” and “restoring the first data and the second data from the backup to the third and fourth partitions, respectively.” We agree with Appellants that the prior art cited by the Examiner “disclose[s] the general concept of backup up or restoring a partitioned database, but fail[s] to disclose creation of a partial backup . . . and then restoring the partial backup to different logical partitions to redistribute the database.” Reply Br. 10; App. Br. 14.

Accordingly, we do not sustain the Examiner’s rejection of claim 32, and claims 13 and 20, which recite commensurate limitations.

Claim 33

Claim 33 recites “moving data within the second virtual partition to the fourth partition only in response to determining that the virtual partition identifier assigned to the second virtual partition matches the partition identifier assigned to the fourth partition.” The Examiner “interprets the user as doing the determining” because “[t]he user has the ability to determine if a driver letter/label (e.g., partition identifier) matches a second identifier of a second partition by looking at the user interface.” Ans. 9. Although we agree with the Examiner that the user has the *ability* to do the determining, we agree with Appellants that Murray does not teach or suggest a situation in which a user does so. App. Br. 11–12; Reply Br. 8–9.

Accordingly, we do not sustain the Examiner’s rejection of claim 33, and claims 22 and 25, which recite commensurate limitations.

DECISION

For the reasons above, we affirm the Examiner’s decision rejecting claims 8, 9, 11, 12, 15, 16, 18, 19, 28, 29, 30, and 31.

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We reverse the Examiner's decision rejecting claims 13, 20, 22, 25, 32, and 33.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 41.50(f).

AFFIRMED-IN-PART