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| IBM Corp-Rochester Drafting Center<br>1701 North Street Building 256-3<br>Department SHCB<br>Endicott, NY 13760 |             |                      | SAYOC, KRISTOFFER L S |                  |
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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* RAHUL GHOSH and AARON J. QUIRK

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Appeal 2019-000358  
Application 14/562,457  
Technology Center 2400

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Before ROBERT E. NAPPI, SCOTT E. BAIN, and MICHAEL T. CYGAN,  
*Administrative Patent Judges.*

CYGAN, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>1</sup> appeals from the Examiner's decision to reject claims 1–4, 13, 15, 16, and 18–20. Appeal Br. 14–17 (Claims App.). We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

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<sup>1</sup> We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as International Business Machines Corporation. Appeal Br. 3.

### CLAIMED SUBJECT MATTER

The claims are directed to a computer program product for reducing workloads of neighboring virtual machine tenants in a cloud environment having shared storage. Abstract. Such workloads may be data intensive and may require frequent writes to large databases, including logging activity. Spec. ¶ 2. A computer may determine the current input/output characteristics of a machine and predict a future workload on a disk system based on trends found in the input/output characteristics. *Id.* ¶¶ 3, 5. The computer, which may be a virtual machine product comprising a cloud shared-storage medium, cloud management infrastructure, and computer usable code stored on the shared storage medium, uses the input/output characteristics to select and offload logs, which are monitored to control a configuration of the disk system. *Id.* at 5. The computer further aggregates portions of the logs and pull portions of the logs from remote locations back into original positions in the virtual machine. *Id.* Independent claim 1 is illustrative, with limitations at issue italicized for emphasis:

1. A computer program product comprising a cloud shared-storage medium and a computer usable code stored on the cloud shared-storage medium, where when executed by a processor, the computer usable code causes a computer to:
  - determine current input/output characteristics of an application enabled on a virtual machine;
  - predict a future workload on a disk system associated with the virtual machine using the input/output characteristics;
  - rank prior log-offloading activity on the disk system using the current input/output characteristics;
  - select and offload logs based on trends found in the input/output characteristics;

monitor the select and offload activity of the logs to control a configuration of the disk system;

aggregate portions of the logs that have been directed to separate file locations to reconcile portions that may have been separated; and

pull the portions of the logs from remote locations and relocate the portions back into original positions in the virtual machine.

Independent claim 13 recites a computer program product having limitations commensurate in scope with claim 1. Dependent claims 2–4, 15, 16, and 18–20 each incorporate the limitations of their respective independent claims. Claims 5–12, 14, and 17 have been cancelled. Final Act. 1.

#### REFERENCES

| Name                          | Reference          | Date                                |
|-------------------------------|--------------------|-------------------------------------|
| Colgrove et al.<br>(Colgrove) | US 2013/0086006 A1 | Apr. 4, 2013                        |
| Nirantar                      | US 2014/0310709 A1 | Oct. 16, 2014                       |
| Gladkikh et al.<br>(Gladkikh) | US 9,128,779 B1    | Sep. 8, 2015<br>Filed Jul. 31, 2014 |

#### REJECTIONS

Claims 1–4, 13, 15, 16, and 18–20 are provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1, 3, 4, and 6–8 of copending Application number 14/839,227. Claims 1, 3, 4, 6, and 8 are rejected as being obvious under 35 U.S.C. § 103 over Nirantar in view of Gladkikh. Claim 7 is rejected as being obvious under 35 U.S.C. § 103 over the combination of Nirantar, Gladkikh, and Colgrove.

## ANALYSIS

### *A. Double Patenting*

The Examiner has provisionally rejected claims 1–4, 13, 15, 16, and 18–20 on the ground of nonstatutory double patenting as being unpatentable over claims 1, 3, 4, and 6–8 of copending U.S. Application number 14/839,227. Final Rej. 5. Appellant has not contended that the Examiner erred in this rejection. Due to its provisional nature, we do not reach the Examiner’s provisional rejection of claims 1–4, 13, 15, 16, and 18–20 on the ground of nonstatutory double patenting. *Ex parte Moncla*, 95 U.S.P.Q.2d 1884 (BPAI 2010) (precedential).

### *B. Obviousness*

Claims 1, 2, 4, 13, 15, 16, 18, and 20 are rejected under 35 U.S.C. § 103 as being obvious over Nirantar in view of Gladkikh. With respect to claim 1, the Examiner has determined that Nirantar teaches or suggests each limitation except for the operational data being input/output characteristics, and for monitoring the select and offload activity of logs to control a configuration of a disk system, aggregating portions of the logs that have been directed to separate file locations to reconcile portions that have been separated, and pulling the portions of the logs from remote locations and relocating those portions back into original positions in the virtual machine. The Examiner finds these limitations to be taught or suggested by Gladkikh. Final Act. 6–8.

Appellant first argues that the combination of Nirantar and Gladkikh does not teach a cloud shared-storage medium having computer-usable code stored thereon that performs the recited features. Appeal Br. 8; Reply Br. 5. The Examiner finds that Nirantar teaches or suggest that feature through a

virtual machine that receives configuration data to establish a copy of a mobile application and execute the copy of the mobile application. Final Act. 2. Appellant characterizes Nirantar as “offloading applications *from* a mobile device *to* a cloud-based virtual machine.” Appeal Br. 11.

We agree with the Examiner’s finding that Nirantar teaches or suggests a cloud shared-storage medium that performs the recited features. Appellant’s characterization of Nirantar as merely offloading applications from a mobile device is not persuasive of error in the Examiner’s finding, because Nirantar teaches the use of a cloud-based server to perform the operations of traffic management, content caching, resource conservation, and facilitating mobile application offloading between mobile devices. Nirantar ¶¶ 32, 37, 41. Accordingly, we are not persuaded by Appellant’s argument that Nirantar fails to teach or suggest a cloud shared-storage medium having computer-usable code stored thereon that performs the recited features.

Appellant next argues that a person of ordinary skill in the art would not have had a reason to combine the references because of the “substantial deficiencies” of Nirantar. Appeal Br. 11. We are not persuaded by Appellant that the Examiner has erred. The test for obviousness is “what the combined teachings of the references would have suggested to those of ordinary skill in the art.” *In re Keller*, 642 F.2d 413, 425 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091 (Fed. Cir. 1986). The Examiner has provided a rationale for combining Nirantar and Gladkikh, i.e., “for the purpose of synchronizing supplemental job information between multiple machines, thereby ensures that the root cause of performance problem of primary and secondary machines is quickly diagnosed.” Final Act. 8 (citing

Gladkikh 12:1–17). The Examiner’s rationale is supported by the record. Gladkikh 12:1–17. Because Appellant has not provided evidence or reasoning to show error in the Examiner’s determination that the combined teachings of Nirantar and Gladkikh would be combined for the Examiner’s stated rationale, we are not persuaded that one of ordinary skill in the art would not have had a reason to combined the references in the manner set forth by the Examiner.

Appellant next argues that Nirantar teaches operational data, but not input/output characteristics. Appeal Br. 11. However, one cannot show nonobviousness by attacking references individually where the rejection is based on combinations of references. *In re Keller*, 642 F.2d 413 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091 (Fed. Cir. 1986). Because Appellant has not addressed the Examiner’s reliance on Gladkikh for the claimed input/output characteristics (Final Act. 7–8), Appellant has not persuasively shown error in the Examiner’s determination that the limitation to input/output characteristics is not taught or suggested by the applied combination of references.

Appellant next argues that the combination of Nirantar and Gladkikh does not teach or disclose aggregating portions of logs to reconcile separated portions, and pulling portions of logs and relocating those portions back into original positions in the virtual machine. Appeal Br. 12; Reply Br. 7. Specifically, Appellant argues that Gladkikh’s action of synchronizing distributed tasks from multiple remote and local data stores does not teach or suggest those limitations. Appeal Br. 12 (citing Gladkikh 2:13–26, 6:38–52), Reply Br. 7.

We are not persuaded. Contrary to Appellant’s argument, the Examiner has not solely relied upon Gladkikh’s teaching of task distribution. Rather, the Examiner also finds Gladkikh teaches distributed logs in a data store, in which the data store exists at separate locations and is synchronized. Ans. 14–15 (citing Gladkikh Fig. 1, 2:13–26, 4:60–67, 5:1–2, 6:38–52). The Examiner’s findings are supported by Gladkikh, which teaches aggregating machine-generated data, such as logs, from sources such as servers, and using distributed tasks to synchronize data from a secondary data store to a primary data store. Gladkikh 3:9–21, 5:1–2, 9:6–13. Accordingly, we are not persuaded of error in the Examiner’s obviousness rejection of claim 1, and we sustain that rejection. Appellant relies upon the same arguments for claims 2, 4, 13, 15, 16, 18, and 20; however, because those claims are rejected under the same grounds, they stand or fall with claim 1, and we consequently sustain the Examiner’s rejection of those claims.

With respect to dependent claims 3 and 19, the Examiner’s rejection relies upon the base combination of Nirantar and Gladkikh, further in view of Colgrove. However, Appellant relies upon the same arguments against the rejection of claims 3 and 19 as for claim 1. Reply Br. 8. Accordingly, for the same reasons as discussed above with respect to Appellant’s arguments against the rejection of claim 1, we are not persuaded of error in the Examiner’s rejection of claims 3 and 19.

#### CONCLUSION

For the above-described reasons, we affirm the Examiner’s obviousness rejections of claims 1–4, 13, 15, 16, and 18–20. We do not reach the Examiner’s provisional nonstatutory rejection of claims 1–4, 13, 15, 16, and 18–20.

DECISION SUMMARY

In summary,

| <b>Claims Rejected</b>      | <b>35 U.S.C. §</b> | <b>References/Basis</b>                                    | <b>Affirmed</b>             | <b>Reversed</b> |
|-----------------------------|--------------------|--|-----------------------------|-----------------|
| 1–4, 13, 15, 16, 18–20      |                    | Provisional Obviousness-type Double Patenting <sup>2</sup> |                             |                 |
| 1, 2, 4, 13, 15, 16, 18, 20 | 103                | Nirantar, Gladkikh   | 1, 2, 4, 13, 15, 16, 18, 20 |                 |
| 3, 19                       | 103                | Nirantar, Gladkikh, Colgrove                               | 3, 19                       |                 |
| <b>Overall Outcome</b>      |                    |  | 1–4, 13, 15, 16, 18–20      |                 |

TIME PERIOD FOR RESPONSE

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. § 1.136(a)(1)(iv).

AFFIRMED

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<sup>2</sup>As explained above, we do not reach this rejection per *Ex parte Moncla*, 95 U.S.P.Q.2d 1884 (BPAI 2010) (precedential).