UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte CHRISTOPHER LUMB, ARIF MERCHANT, and GUILLERMO ALVAREZ

Appeal 2008-004591
Application 10/400,232
Technology Center 2100

Decided\(^1\): June 12, 2009


COUR TENAY, Administrative Patent Judge.

DECISION ON APPEAL

\(^1\) The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).
This is a decision on appeal under 35 U.S.C. § 134(a) from the Examiner’s rejection of claims 1-6, 24, and 28.\textsuperscript{2} We have jurisdiction under 35 U.S.C. § 6(b). We reverse.

THE INVENTION

The disclosed invention relates to data storage systems. More particularly, the present invention relates to emulation of the data storage systems. (Spec. 1, ll. 9-10).

Independent claim 1 is illustrative:

1. A method of emulating a data storage system comprising:

   obtaining a performance characterization of a data storage device to be emulated and a specification of a workload, the specification of the workload including a specification of a plurality of data stores for the workload;

   assigning the data stores to an emulation data storage device according to the performance characterization and according to the specification of the workload such that sufficient resources of the emulation data storage device are allocated to the workload to meet the performance characterization of the data storage device to be emulated; and

   operating the emulation data storage device under the workload.

\textsuperscript{2} Claims 19-23 are allowed. Claims 7-18, 25-27, and 29-38 are objected to for being dependent from a rejected base claim.
THE REFERENCES

The Examiner relies upon the following references as evidence in support of the obviousness rejections:

- Guineau  US 5,426,736  June 20, 1995
- Courtright  US 6,157,963  Dec. 5, 2000
- Wilkes, “Persistent Storage for Distributed Applications”, 1998

THE REJECTIONS

1. The Examiner rejected claims 1-5 and 24 under 35 U.S.C. § 103(a), as being unpatentable over Leonhardt in view of Alvarez and Wilkes.

2. The Examiner rejected claims 6 and 28 under 35 U.S.C. § 103(a) as being unpatentable over Leonhardt in view of Alvarez, Wilkes, Courtright, and Guineau.

FINDINGS OF FACT

In our analysis infra, we rely on the following findings of fact (FF) that are supported by a preponderance of the evidence:

1. Leonhardt teaches that virtual data storage devices 30, 32, and 36 provide physical data storage device emulation and also provide for new representations of physical data storage devices that have yet to be assigned or sold. Each virtual data storage device is actually a shared portion of a physical data storage device. (Para. [0031]).
2. Leonhardt teaches the selection (assignment) of data storage devices used for the storage of each received data set. (Para. [0034])

3. The Examiner admits that Leonhardt does not specifically teach the second step. (Ans. 6)

4. Leonhardt does not teach assigning the data storage devices to an emulation storage device.

5. Alvarez is directed to the design of large-scale computer storage systems. (pg. 484, 3rd para.)

6. Alvarez teaches an assignment of storage devices that is based on descriptions of the workload being designed and the capabilities of available storage devices. (p. 484, last para.)

7. Alvarez does not teach or suggest emulation.

8. Wilkes does not teach or suggest emulation.

Appellants’ Contentions

Appellants’ contend that the cited references fail to teach or suggest the limitation of “assigning the data stores to an emulation data storage device according to the performance characterization and according to the specification of the workload such that the sufficient resources of the emulation data storage device are allocated to the workload to meet the performance characterization of the data storage device to be emulated.” (Reply Br. 5.)
ISSUE

Based upon our review of the administrative record, we have determined that the following issue is dispositive in this appeal:

Have Appellants shown the Examiner erred in determining that the cited references teach or suggest “assigning the data stores to an emulation data storage device according to the performance characterization and according to the specification of the workload such that sufficient resources of the emulation data storage device are allocated to the workload to meet the performance characterization of the data storage device to be emulated?”

PRINCIPLES OF LAW

“[T]he examiner bears the initial burden on review of the prior art or on any other ground, of presenting a prima facie case of unpatentability. If that burden is met, the burden of coming forward with evidence or argument shifts to the applicant.” In re Oetiker, 977 F.2d 1443, 1445 (Fed. Cir. 1992).

Therefore, we look to Appellants’ Briefs to show error in the proffered prima facie case.

Obviousness under 35 U.S.C. § 103

In rejecting claims under 35 U.S.C. § 103, “[w]hat matters is the objective reach of the claim. If the claim extends to what is obvious, it is invalid under § 103.” KSR Int’l Co. v. Teleflex, Inc., 550 U. S. 398, 419 (2007). To be nonobvious, an improvement must be “more than the predictable use of prior art elements according to their established functions.” Id. at 417.
ANALYSIS

Claims 1-5 and 24

As noted above, Appellants contend that the cited references fail to teach the second (“assigning”) step of claim 1. We agree for the reasons discussed infra.

The Examiner contends that Leonhardt teaches two of the three steps recited in claim 1, and relies upon Alvarez/Wilkes to teach the “assigning” step that is outlined above. (See claim 1, FF 1-3 and Ans. 14-15). As noted above, Alvarez is directed to storage system design, and does not teach or suggest emulation. (FF 5 and 7.) The Examiner “clarified” his previous position and stated that the teachings “pertaining to emulation data storage devices do not affect the teaching of [Alvarez], as [Alvarez] is used in combination with Leonhardt.” It is our view that in order to present a prima facie case of obviousness, the secondary references, in this case Alvarez/Wilkes, must contain a teaching or a suggestion of emulation in order for the cited combination of references to teach or suggest the “assigning” limitation as recited in claim 1, and to be properly combined with the teachings of Leonhardt. Otherwise, the combination fails to yield assigning the data stores to an “emulation data storage device,” as claimed. Thus, we agree with Appellants that because Alvarez and Wilkes are unrelated to storage device emulation, the cited references fail to teach or suggest the “assigning” step as recited in claim 1. Accordingly, Appellants have shown the Examiner erred in determining that the cited references teach or suggest the “assigning” step.
We further note that independent claim 24 similarly recites “assigning data stores to an emulation data storage device.” Therefore, Appellants have shown the Examiner erred in rejecting claim 24 for the same reasons discussed *supra*, as well as dependent claims 2-5 which stand therewith.

Claims 6 and 28

We next consider the Examiner’s rejection of claims 6 and 28 under 35 U.S.C. § 103(a) as being unpatentable over Leonhardt in view of Alvarez, Wilkes, Courtright and Guineau. Based upon our review of the record before us, we do not find, nor has the Examiner established, that Courtright or Guineau cures the deficiencies of Leonhardt, Alvarez, and Wilkes discussed above. Accordingly, we reverse the Examiner’s rejection of claims 6 and 28.

CONCLUSION

Based on the findings of facts and analysis above, we conclude the following:

Appellants have shown the Examiner erred in determining that the cited references teach or suggest “assigning the data stores to an emulation data storage device according to the performance characterization and according to the specification of the workload such that sufficient resources of the emulation data storage device are allocated to the workload to meet the performance characterization of the data storage device to be emulated.”
DECISION

The decision of the Examiner rejecting of claims 1-6, 24, and 28 under 35 U.S.C. § 103(a) is reversed.

REVERSED

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