UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/145,433	06/03/2005	W. Anthony Mason	050198	3596

26285 7590 01/29/2013

K&L GATES LLP
210 SIXTH AVENUE
PITTSBURGH, PA 15222-2613

EXAMINER	
UDDIN, MOHAMMED R	
ART UNIT	**PAPER NUMBER**
2167	

NOTIFICATION DATE	DELIVERY MODE
01/29/2013	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

pidocketing@klgates.com
patents@klgates.com
trademarks@klgates.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte W. ANTHONY MASON, PETER G. VISCAROLA, MARK J. CARIDDI, and SCOTT J. NOONE

Appeal 2011-000298
Application 11/145,433
Technology Center 2100

Before MAHSHID D. SAADAT, JASON V. MORGAN, and JOHNNY A. KUMAR, *Administrative Patent Judges*.

MORGAN, *Administrative Patent Judge*.

DECISION ON APPEAL[1]

[1] An oral hearing for this appeal was held January 17, 2013.

STATEMENT OF THE CASE

Introduction

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 1 – 3 and 5 – 26. Claim 4 has been cancelled. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

Invention

The invention relates to methods for organizing data that may comprise receiving a write request comprising a data unit, organizing the data into a sub-file, incorporating the sub-file into a data file according to a log-structured organization system, and writing the data file to a data storage according to a second organization system. *See* Abstract.

Exemplary Claims (Emphases Added)

1. A method for organizing data, the method comprising:

> a data transformation module receiving a write request comprising a data unit, wherein the data transformation module is executed by a computing device and logically positioned between an operating system of the computing device and an electronic data storage, and wherein the write request originates from an application executed by the computing device and is received by the data transformation module from the operating system;
>
> with the data transformation module, *organizing the data unit into a sub-file*;
>
> with the data transformation module, *logically positioning the sub-file into a data file according to a log-structured file system implemented within the data file*; and
>
> *writing the data file to the electronic data storage, wherein the data file is logically positioned on the electronic data storage according to a second file system*.

> 5. The method of claim 1, further comprising *maintaining a previous version of the data unit*.
>
> 10. The method of claim 1, wherein *the write request comprises an additional data unit and wherein the data unit and the additional data unit are organized into the sub-file*.

Rejection

The Examiner rejects claims 1 – 3 and 5 – 26 under 35 U.S.C. § 103(a) as being unpatentable over Bhatti (US 2005/0114356 A1; May 26, 2005), Hillberg (US 7,523,221 B2; Apr. 21, 2009; filed May 17, 2003), and Ledain (US 5,996,054; Nov. 30, 1999). Ans. 3 – 17.

ISSUES

1. Did the Examiner err in finding that the combination of Bhatti, Hillberg, and Ledain teaches or suggests (1) "organizing the data unit into a sub-file," (2) "logically positioning the sub-file into a data file according to a log-structured file system implemented within the data file," and (3) "writing the data file to the electronic data storage, wherein the data file is logically positioned on the electronic data storage according to a second file system," as recited in claim 1?

2. Did the Examiner err in finding that the combination of Bhatti, Hillberg, and Ledain teaches or suggests "maintaining a previous version of the data unit," as recited in claim 5?

3. Did the Examiner err in finding that the combination of Bhatti, Hillberg, and Ledain teaches or suggests "wherein the write request comprises an additional data unit and wherein the data unit and the additional data unit are organized into the sub-file," as recited in claim 10?

ANALYSIS

Claims 1 – 3, 6 – 9, 12 – 14, 16, and 19 – 26

Claim 1 is directed to a method for organizing data, the method comprising:

> organizing the data unit into a sub-file . . . logically positioning the sub-file into a data file according to a log-structured file system implemented within the data file; and writing the data file to the electronic data storage, wherein the data file is logically positioned on the electronic data storage according to a second file system.

The Examiner finds that Bhatti, which is directed to organizing data objects in a storage device, teaches or suggests organizing a data unit into a sub-file and writing the data file to an electronic storage, logically positioning the data file according to a second file system. *See* Ans. 4 (citing, e.g., Bhatti ¶¶ [0016], [0018], and [0024]). The Examiner further relies on Ledain, which is directed to efficient virtualized mapping space for a log device data storage system, to teach or suggest logically positioning the sub-file into the data file according to a log-structured file system implemented within the data file. *See* Ans. 5 (citing Ledain Abstract).

Appellants argue that Bhatti fails to teach or suggest "organizing the data unit into a sub-file" because "[i]f the attributes of Bhatti are, as the Office asserts, equivalent to the claimed sub-file, then Bhatti is completely silent regarding any feature that could be the equivalent of the claimed 'data unit.'" App. Br. 14. Specifically, Appellants contend that attributes in Bhatti are not organized *into* the data object, but merely *associated with* the data object. *See* App. Br. 15.

The Examiner correctly finds that Bhatti discloses the transformation of files into data objects and the organization of the data objects into object hierarchies. *See* Ans. 17 – 18 (citing, e.g., Bhatti fig. 6). Attributes (i.e., descriptive information) can be associated with each data object. *See* Ans. 4 (citing Bhatti ¶ [0016]). Read requests can include fields 364 to enable access to attributes associated with the data objects of an object hierarchy. *See* Bhatti ¶ [0043] and fig. 8. The Specification broadly discloses that a "sub-file" refers to an organizational unit of data organized within a data file. *See* Spec. ¶ [0012]. Because both the data object and the attributes associated with the data object can be requested, a data object and its associated attributes constitute an organizational unit of data organized within an object hierarchy. The Specification broadly describes a "data file" as referring to an organizational unit of data, making the object hierarchies data files as broadly defined by the Specification. *See* Spec. ¶ [0012]. Therefore, each data object and its associated attributes is a sub-file—an organizational unit of data organized within an object hierarchy (i.e., organized within a data file).

Furthermore, the Examiner correctly notes that the Specification broadly discloses the term "data unit" as referring to a group of related data. *See* Ans. 18 (citing Spec. ¶ [0012]). Bhatti's data objects, even without associated attributes, can comprise groups of related data, such as headers and payloads. *See* Bhatti fig. 4. Thus, Bhatti teaches or suggests organizing the data unit (e.g., attributes, headers, or payloads) into a sub-file (i.e., an organizational unit of data within an object hierarchy). Therefore, we agree with the Examiner that Bhatti teaches or suggests "organizing the data unit into a sub-file," as recited in claim 1.

Appellants argue that Bhatti fails to teach or suggest "writing the data file to the electronic data storage, wherein the data file is logically positioned on the electronic data storage according to a second file system" because Bhatti implements only a single file system on storage system 102. *See* App. Br. 15 – 16. As discussed above, Bhatti organizes data objects into object hierarchies. *See* Ans. 17 – 18 (citing, e.g., Bhatti fig. 6). The Examiner correctly finds that Bhatti discloses that each object hierarchy is stored on a storage medium 110 in accordance with a range of logical block addresses stored in an object-hierarchy identifier logical block address (OHID-LBA) table that identifies the storage locations for the object hierarchy. *See* Ans. 4 (citing Bhatti ¶ [0024]); *see also* Bhatti fig. 1. We agree with the Examiner that this positioning of an object hierarchy (i.e., a data file written to electronic data storage) is done in accordance with a second file system (i.e., the file system organized by the OHID-LBA table). Therefore, we agree with the Examiner that Bhatti teaches or suggests "writing the data file to the electronic data storage, wherein the data file is logically positioned on the electronic data storage according to a second file system," as recited in claim 1.

Appellants also argue that Ledain does not teach or suggest "logically positioning the sub-file into a data file according to a log-structured file system implemented within the data file" because "[t]he log-structured file system of Ledain . . . is implemented on Ledain's log device and not, 'within the data file.'" App. Br. 16. Specifically, Appellants argue that Ledain's "file systems are not implemented in the claimed nested fashion. However, the Examiner correctly finds that Ledain teaches the use of a log-structured file system as part of a data storage system. *See* Ans. 5 (citing Ledain Abstr.). As

discussed above, the Examiner correctly finds that Bhatti teaches or suggests organizing a data object into an object hierarchy, a first file system, which is stored electronically in accordance with a second file system. *See* Ans. 17 – 18 (citing, e.g., Bhatti fig. 6). The modification of Bhatti to use a log-structured file system, as taught by Ledain, within an object hierarchy merely represents the combination of familiar elements to yield predictable results. *See KSR Int'l, Co. v. Teleflex, Inc.*, 550 U.S. 398, 416 (2007). Therefore, we agree with the Examiner the combination of Bhatti and Ledain teaches or suggests "logically positioning the sub-file into a data file according to a log-structured file system implemented within the data file," as recited in claim 1.

Accordingly, we sustain the Examiner's 35 U.S.C. § 103(a) rejection of claim 1, and of claims 2, 3, 6 – 9, 12 – 14, 16, and 19 – 26, which are not argued separately with sufficient specificity. *See* App. Br. 17 – 18.

Claims 5 and 15

Claim 5 depends on claim 1 and further recites "maintaining a previous version of the data unit." The Examiner finds that both Bhatti and Ledain teach or suggest this additional recitation. *See* Ans. 6 (citing Bhatti ¶ [0026]) and 20 (citing Ledain col. 24, ll. 30 – 35).

Appellants argue that Bhatti merely teaches maintaining data characteristics, rather than maintaining a previous version of data. *See* App. Br. 19. However, Ledain teaches performing data block invalidations and updates without requiring a previously written data segment to be updated. *See* Ledain col. 24, ll. 28 – 32. As such, when the previously written data segment does not have to be updated, the previous version of the data is

preserved. Therefore, we agree with the Examiner that the combination of Bhatti and Ledain teaches or suggests "maintaining a previous version of the data unit," as recited in claim 5.

Accordingly, we sustain the Examiner's 35 U.S.C. § 103(a) rejection of claim 5, and of claim 15, which is not argued separately. *See* App. Br. 19.

Claims 10, 11, 17, and 18

Claim 10 depends on claim 1 and further recites "wherein the write request comprises an additional data unit and wherein the data unit and the additional data unit are organized into the sub-file." The Examiner finds that Bhatti's write request, by including fields to access attributes and functions associated with the data objects, teaches or suggests the additional data units. *See* Ans. 9 (citing, e.g. Bhatti ¶ [0041]).

Appellants argue that Bhatti fails to teach or suggest "incorporating multiple data units into a single file . . . . [T]he attributes and functions of Bhatti are not **within** anything." App. Br. 20. However, as discussed above, the data objects, along with associated attributes, constitute an organization of data within an object hierarchy (i.e., a data file) and thus constitute a sub-file. As further discussed above, Bhatti's data objects themselves, even without their associated attributes, comprise multiple groups of related data, such as headers and payloads. *See* Bhatti fig. 4. Thus, Bhatti discloses organizing an additional data unit (e.g., either attributes or additional groups of related data) into a sub-file. Therefore, we agree with the Examiner that Bhatti teaches or suggests "wherein the write request comprises an additional data unit and wherein the data unit and the additional data unit are organized into the sub-file," as recited in claim 10.

Accordingly, we sustain the Examiner's 35 U.S.C. § 103(a) rejection of claim 10, and claims 11, 17, and 18, which are not argued separately. *See* App. Br. 19 – 21.

DECISION

We affirm the Examiner's decision to reject claims 1 – 3 and 5 – 26.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

ELD