

**United States Court of Appeals
for the Federal Circuit**

REALTIME DATA, LLC, DBA IXO,
Appellant

v.

**ANDREI IANCU, UNDER SECRETARY OF
COMMERCE FOR INTELLECTUAL PROPERTY
AND DIRECTOR OF THE UNITED STATES
PATENT AND TRADEMARK OFFICE,**
Intervenor

18-1154

Appeal from the United States Patent and Trademark
Office, Patent Trial and Appeal Board in No. IPR2016-
00783

JUDGMENT

THIS CAUSE having been considered, it is

ORDERED AND ADJUDGED:

AFFIRMED

ENTERED BY ORDER OF THE COURT

January 10, 2019

/s/ Peter R. Marksteiner

Peter R. Marksteiner
Clerk of Court

**United States Court of Appeals
for the Federal Circuit**

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Appellant

v.

**ANDREI IANCU, UNDER SECRETARY OF
COMMERCE FOR INTELLECTUAL PROPERTY
AND DIRECTOR OF THE UNITED STATES
PATENT AND TRADEMARK OFFICE,**
Intervenor

2018-1154

Appeal from the United States Patent and Trademark
Office, Patent Trial and Appeal Board in No. IPR2016-
00783.

Decided: January 10, 2019

KAYVAN B. NOROOZI, Noroozi PC, Santa Monica, CA,
argued for appellant.

SARAH E. CRAVEN, Office of the Solicitor, United
States Patent and Trademark Office, Alexandria, VA,
argued for intervenor. Also represented by THOMAS W.
KRAUSE, JOSEPH MATAL, FARHEENA YASMEEN RASHEED.

Before DYK, TARANTO, and STOLL, *Circuit Judges*.

STOLL, *Circuit Judge*.

Hewlett Packard Enterprise Co., HP Enterprise Services, LLC, and Teradata Operations, Inc. (collectively, “HP”) sought inter partes review of claims 1–4, 8, 14–17, 21, and 28 of U.S. Patent No. 6,597,812 (the ’812 patent) before the U.S. Patent and Trademark Office’s Patent Trial and Appeal Board. The Board instituted review and, in its final written decision, found that all of the challenged claims would have been obvious over the prior art. Realtime Data, LLC, owner of the ’812 patent, appeals the Board’s decision. We affirm.

BACKGROUND

I

The ’812 patent discloses “[s]ystems and methods for providing lossless data compression and decompression . . . [that] exploit various characteristics of run-length encoding, parametric dictionary encoding, and bit packing.” ’812 patent Abstract. Run-length encoding is a form of lossless data compression where a “run” of characters is replaced with an identifier for each individual character and the number of times it is repeated. For example, using run-length encoding, the input string AAABBBBBBCCCCAA could be represented as 3A6B4C2A, which contains seven fewer characters.

Dictionary encoding is a form of lossless data compression that assigns a code word to a particular data string, maps that code word to an index, and replaces every matching data string with the corresponding code word. For example, the same input string described above could be assigned the code word “EASY123,” which contains eight fewer characters. This assignment would be mapped into an index, or dictionary, so that every time the input string AAABBBBBBCCCCAA appeared, it would be replaced with EASY123.

Claim 1, which combines run-length and dictionary encoding techniques, is illustrative of the challenged claims:

1. A method for compressing input data comprising a plurality of data blocks, the method comprising the steps of:

detecting if the input data comprises a run-length sequence of data blocks;

outputting an encoded run-length sequence, if a run-length sequence of data blocks is detected;

maintaining a dictionary comprising a plurality of code words, wherein each code word in the dictionary is associated with a unique data block string;

building a data block string from at least one data block in the input data that is not part of a run-length sequence;

searching for a code word in the dictionary having a unique data block string associated therewith that matches the built data block string; and

outputting the code word representing the built data block string.

Id. at col. 16 l. 53–col. 17 l. 2.

Claim 4 is relevant to the claim construction dispute raised by Realtime on appeal. The claim further limits the “maintaining a dictionary” step and reads as follows:

4. The method of claim 1, wherein the step of maintaining a dictionary comprises the steps of:

dynamically generating a new code word corresponding to a built data block string,

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