

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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SANDVINE CORPORATION and SANDVINE INCORPORATED ULC,  
Petitioner,

v.

PACKET INTELLIGENCE, LLC,  
Patent Owner.

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Case IPR2017-00450  
Patent 6,771,646 B1

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Before ELENI MANTIS MERCADER, JUSTIN T. ARBES, and  
WILLIAM M. FINK, *Administrative Patent Judges*.

ARBES, *Administrative Patent Judge*.

DECISION  
Denying Institution of *Inter Partes* Review  
*37 C.F.R. § 42.108*

Sandvine Corporation and Sandvine Incorporated ULC (collectively, “Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting *inter partes* review of claims 1–3 and 7–20 of U.S. Patent No. 6,771,646 B1 (Ex. 1001, “the ’646 patent”) pursuant to 35 U.S.C. § 311(a). Patent Owner Packet Intelligence, LLC filed a Preliminary Response (Paper 6, “Prelim. Resp.”) pursuant to 35 U.S.C. § 313. Pursuant to 35 U.S.C. § 314(a), the Director may not authorize an *inter partes* review unless the information in the petition and preliminary response “shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” For the reasons that follow, we have decided not to institute an *inter partes* review.

## I. BACKGROUND

### A. The ’646 Patent<sup>1</sup>

The ’646 patent discloses a network activity monitor with a cache subsystem. Ex. 1001, col. 1, l. 42–col. 3, l. 14. The ’646 patent explains that there was a need in the art for “a real-time network monitor that can provide details as to the application programs being used.” *Id.* at col. 1, ll. 42–47. The disclosed monitor receives packets passing in either direction through its connection point on the network and “elucidate[s] what application programs are associated with each packet” by extracting information from the packet, using selected parts of the extracted information to “build[] a signature for identifying the conversational flow of

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<sup>1</sup> Petitioner challenges patents related to the ’646 patent in Cases IPR2017-00451, IPR2017-00629, IPR2017-00630, IPR2017-00769, IPR2017-00862, and IPR2017-00863.

the packet,” and performing a lookup of “a database of flow records for previously encountered conversational flows to determine whether [the] signature is from an existing flow.” *Id.* at col. 1, l. 66–col. 2, l. 28, col. 4, l. 61–col. 5, l. 8, Fig. 1. The ’646 patent states that due to the high speed at which packets enter the system, it is advantageous to use a cache system for the memory containing the flow database. *Id.* at col. 2, ll. 37–62. “One desirable property of such a cache system is a least recently used (LRU) replacement policy that replaces the LRU flow-entry when a cache replacement is needed.” *Id.* at col. 2, ll. 53–56. “Replacing least recently used flow-entries is preferred because it is likely that a packet following a recent packet will belong to the same flow.” *Id.* at col. 2, ll. 56–58.

Figure 3 of the ’646 patent is reproduced below.

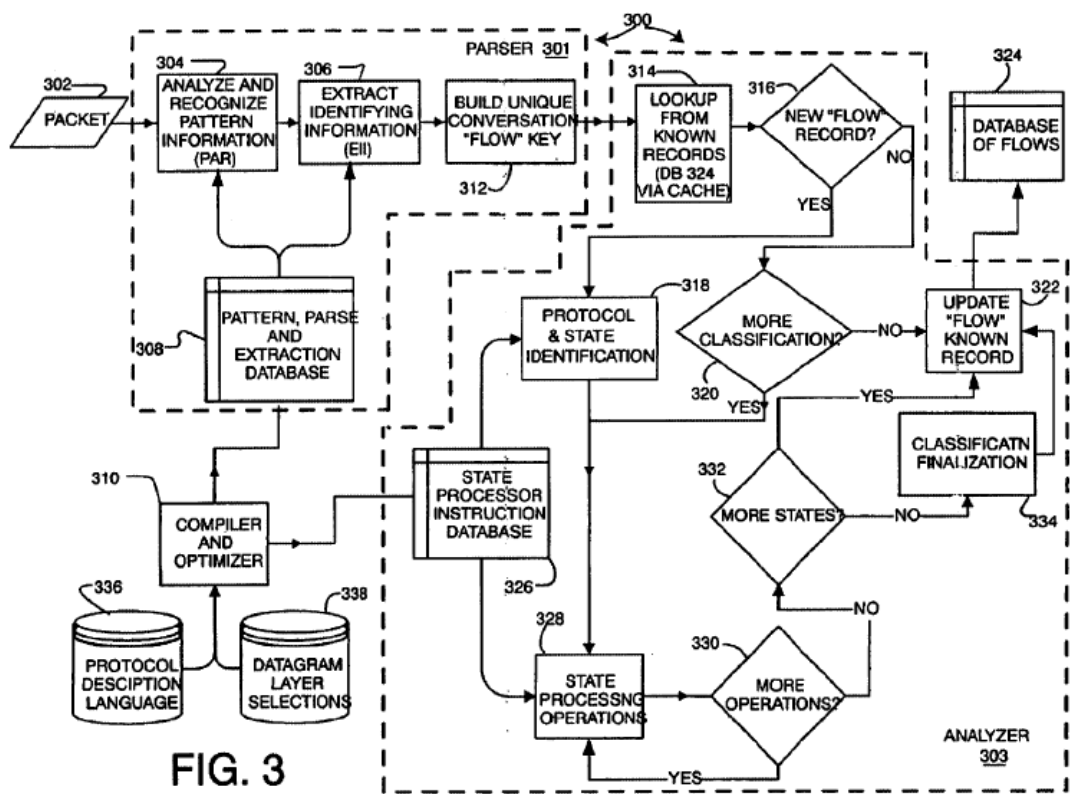


FIG. 3

Figure 3 depicts various components of network packet monitor 300, including parser subsystem 301, analyzer subsystem 303, and database of known flows 324. *Id.* at col. 7, ll. 36–58. Parser subsystem 300 “parses the packet and determines the protocol types and associated headers for each protocol layer that exists in the packet 302,” “extracts characteristic portions (signature information) from the packet 302,” and builds the “unique flow signature (also called a ‘key’) for this flow.” *Id.* at col. 8, l. 5–col. 9, l. 28, col. 27, l. 66–col. 29, l. 61 (describing an example of how the disclosed monitor builds signatures and flow states in the context of a Sun Remote Procedure Call (RPC), where, after all of the required processing, “KEY-2 may . . . be used to recognize packets that are in any way associated with the application ‘a<sup>2</sup>’”), Fig. 2.

Analyzer system 303 then determines whether the packet has a matching flow-entry in database of flows 324 (looking in the cache first), and processes the packet accordingly, including, for example, determining whether the packet belongs to an existing conversational flow or a new (i.e., not previously encountered) flow and, in the case of the latter, performing state processing to determine whether the conversational flow has been “fully characterized” and should be finalized. *Id.* at col. 9, l. 45–col. 12, l. 34, col. 19, l. 46–col. 20, l. 2, col. 30, l. 13–col. 36, l. 28, Fig. 11. The ’646 patent discloses that

[f]uture packets that are part of the same conversational flow have their state analysis continued from a previously achieved state. When enough packets related to an application of interest have been processed, a final recognition state is ultimately reached, i.e., a set of states has been traversed by state analysis to completely characterize the conversational flow. The signature for that final state enables each new incoming packet

of the same conversational flow to be individually recognized in real time.

In this manner, one of the great advantages of the present invention is realized. Once a particular set of state transitions has been traversed for the first time and ends in a final state, a short-cut recognition pattern—a signature—can be generated that will key on every new incoming packet that relates to the conversational flow. Checking a signature involves a simple operation, allowing high packet rates to be successfully monitored on the network.

*Id.* at col. 11, l. 67–col. 12, l. 17.

### *B. Illustrative Claim*

Claim 1 of the '646 patent<sup>2</sup> recites:

1. A packet monitor for examining packets passing through a connection point on a computer network, each packet conforming to one or more protocols, the monitor comprising:

(a) a packet acquisition device coupled to the connection point and configured to receive packets passing through the connection point;

(b) a memory for storing a database comprising flow-entries for previously encountered conversational flows to which a received packet may belong, a conversational flow being an exchange of one or more packets in any direction as a result of an activity corresponding to the flow;

(c) a cache subsystem coupled to the flow-entry database memory providing for fast access of flow-entries from the flow-entry database;

(d) a lookup engine coupled to the packet acquisition device and to the cache subsystem and configured to lookup whether a received packet belongs to a flow-entry in the

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<sup>2</sup> Claims 1, 6, 7, 12, and 13 of the '646 patent were corrected in Certificates of Correction dated September 21, 2004, November 16, 2004, and October 15, 2013.

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