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16 UNITED STATES DISTRICT COURT
17 FOR THE NORTHERN DISTRICT OF CALIFORNIA
18 SAN JOSE DIVISION

19 EMBLAZE LTD.,
20 Plaintiff;
21 v.
22 APPLE INC., a California Corporation,
23 Defendant.

CASE NO. 11-CV-01079 PSG

**DECLARATION OF DR. NATHANIEL
POLISH, PH. D., IN SUPPORT OF
DEFENDANT APPLE INC.'S MOTION FOR
SUMMARY JUDGMENT OF NON-
INFRINGEMENT**

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1 I, Nathaniel Polish, Ph. D., hereby declare:

2 1. I have been asked to provide this declaration regarding Defendant Apple Inc.'s Motion for
3 Summary Judgment of Non-Infringement ("Apple's Motion") in the above-captioned case. I have
4 personal knowledge of the facts stated herein.

5 2. My analysis and opinions detailed in this declaration are consistent with my December 20,
6 2013 Expert Report regarding non-infringement. I understand that Apple has been accused of
7 infringing U.S. Patent No. 6,389,473 ("473 patent"). My report includes my opinion rebutting the
8 infringement analysis provided by Dr. Vijay Madiseti, who provided an expert report on
9 infringement on behalf of Emblaze on November 8, 2013.

10 3. I understand that my report and exhibits were all provided to Emblaze's counsel on
11 December 20, 2013. I was also deposed regarding my opinions on January 30, 2014, in New York,
12 New York. If asked, I could and would provide my report and accompanying exhibits to the Court,
13 but for purposes of Apple's Motion I have been asked to provide sworn testimony (consistent with
14 my opinion on the same issues in the report) regarding certain issues addressed in Apple's Motion.

15 4. I reviewed the report and exhibits provided by Dr. Madiseti, as well as his deposition
16 testimony, including test data regarding certain streams allegedly affiliated with MLB, the NFL,
17 ESPN, ABC, CBS/PGA, and Apple ("the Accused Streams"). I have also done some of my own
18 testing with respect to the Accused Streams.

19 **Predetermined Data Size Limitation:**

20 5. I understand that every claim that Apple has been accused of infringing includes the
21 limitation "each slice having a predetermined data size associated therewith" and that the Court
22 construed this claim to mean "Each slice having a data size, which may be established by setting a
23 time duration of the slice, assigned in advance of the stream being divided."

24 6. Per the claim term and the Court's construction, it is my opinion that a person of ordinary
25 skill in the art (at any time, including as of March 24, 1998) ("ordinary artisan") would have
26 understood that setting a time duration may result in a data size assigned in advance but that the
27 "may" condition will only result in a predetermined data size assigned in advance if the data rate has
28

1 a constant value. If the data rate of the stream varies from slice to slice and such variability is not
2 knowable or predictable in advance, setting the time duration is not establishing a data size assigned
3 in advance.

4 7. The “data rate” of a stream cannot be assumed to be a constant value particularly in the case
5 of a compressed video stream. An ordinary artisan would understand that, with respect to an
6 uncompressed stream (e.g. a broadcast television feed), setting a time duration could result in slices
7 having data sizes assigned in advance because an uncompressed stream generally has a constant
8 data rate. In addition, some audio compression schemes such as the GSM 6.10 compression
9 specifically described in the ’473 patent have a constant data rate, as explained in the patent and as
10 is known to a skilled artisan. However, encoded (i.e. compressed) video streams generally do not
11 have a constant data rate and thus setting the time duration does not result in slices having a data
12 size assigned in advance.

13 8. Essentially all video encoders use principles of human perception in deciding what to encode
14 and with what detail. As a result, scenes with details that humans do not perceive very well are
15 coded with fewer bits than scenes with many details that humans can perceive. Also, essentially all
16 video encoders only encode the frame-to-frame differences. Thus, time periods where the video
17 does not change much from frame to frame will be encoded with fewer bits than time periods with
18 rapidly changing frames. So any given time period will vary substantially in the number of bits
19 used relative to other time periods. Thus, in the case of most encoded video outputs, the data size
20 cannot be assigned in advance of the stream being sliced.

21 9. The testing relied upon by Dr. Madisetti to show that the accused streams are divided into
22 slices having a data size assigned in advance of the stream being divided¹ does not support that
23

24 ¹ *E.g.*, Data produced by Dr. Madisetti at VKM000377-VKM386 including exhibits 12-14 to the
25 Declaration of Douglas Wieder in Support of Apple’s Motion for Summary Judgment of Non-
26 Infringement of U.S. Patent No. 6,389,473 as to All Accused Streams and excerpts of that data
27 referenced in exhibit 2 (Dr. Madisetti’s infringement expert report) to the Declaration of Stephen
28 Ullmer in Support of Apple’s Motion for Summary Judgment of Non-Infringement of U.S. Patent
No. 6,389,473 as to Specific Content Providers (“Specific Providers Ullmer Decl.”) at ¶¶ 122, 202-
03, 214, 215.

1 conclusion because the data sizes vary without a predictable pattern. Further, contrary to what Dr.
2 Madisetti has said, my opinion is that an ordinary artisan would not consider “generally equal” to be
3 a substitute for a claim term requiring “a data size ... assigned in advance.”

4 **Upload Rate Generally Equal To Data Rate Of The Stream Limitation:**

5 10. I understand that every claim that Apple has been accused of infringing includes the
6 limitation “uploading the sequence to a server at an upload rate generally equal to the data rate of
7 the stream” (Claim 1 and its dependents) or “which uploads the sequence to a server at an upload
8 rate generally equal to the data rate” (Claim 25 and its dependents) and that the Court construed
9 these limitations to mean “[t]ransmitting the files from the transmitting computer to the server at an
10 upload rate generally equal to the data rate of the stream.”

11 11. In my opinion, an ordinary artisan would not have understood the “upload rate” to refer to a
12 rate that includes the time during which no uploading occurs. None of the examples in the patent
13 support this view, nor would an ordinary artisan refer to an upload (or “transmitting” as per the
14 Court’s construction) that takes 3 seconds for a file containing 10 seconds of media as having taken
15 10 seconds to upload or transmit. I described specific examples from the patent in my report and in
16 several exhibits, including the patent’s description (e.g. ’473 patent at 11:60-61, 12:59-13:23) of an
17 upload time variable referred to as “ T_{SL} ” the time in which a files is actually being uploaded. The
18 patent also places significant emphasis on maintaining a generally equal relationship between the
19 data rate of the stream and the upload rate (in fact, this is a limitation for all of the claims), including
20 describing adjusting the compression level to “adjust the data streaming rate to the available
21 bandwidth.” (’473 patent at 7:45-49).

22 12. An ordinary artisan reading these descriptions, the rest of the specification, and the claims
23 would have understood that the “upload rate” is not an inherent quality of live streaming (or, put
24 another way, the upload rate is not “necessarily equal” to the data rate of the stream for live
25 streaming) but that some kind of generally equal relationship must be maintained between the two to
26 meet the claims of the patent. Otherwise, there would be no recognition that the two variables are
27 not aligned (i.e., that the actual transmitting occurs much faster than the data rate) and that the
28

1 compression rate should be adjusted in view of the teachings of the '473 patent to take advantage of
2 the additional bandwidth.

3 **Dr. Madisetti's Testimony that Encoder-Plus-Akamai Architecture Is "A"**
4 **Transmitting Computer:**

5 13. I understand that every claim that Apple has been accused of infringing requires a
6 "transmitting computer" (e.g. in Claim 1: "A method for real-time broadcasting from a transmitting
7 computer to one or more client computers over a network" and in Claim 25: "Apparatus . . .
8 comprising: a transmitting computer").

9 14. I also reviewed Dr. Madisetti's testimony where he was asked questions about the Akamai
10 RTMP Architecture during his deposition. (*E.g.*, Ex. 8 to the Specific Providers Ullmer Decl. at
11 368:21-377:11). In answering those questions, he identified that the claimed transmitting computer
12 could be either a combination of the Encoder, Entrypoint, RtmpCore, and Archiver, or that same
13 combination plus the NetStorage, as he described in his deposition. (*See, e.g., id.*; Ex. 9 to the
14 Specific Providers Ullmer Decl. at 5 (depicting Akamai's RTMP Architecture)).

15 15. In my opinion, an ordinary artisan would not have understood the transmitting computer
16 described in the '473 patent to include the kind of specialized encoder and server architecture
17 required to implement the Akamai RTMP Architecture. As I opined in my report in considerable
18 detail, the patent describes expressly its goals of eliminating the need for dedicated broadcast
19 encoders and hardware, using networks with common, existing server network infrastructure such as
20 those offered by ISPs, and using conventional personal computers to provide streaming multimedia.
21 ('473 patent at 1:50-67, 6:37-43, 6:62-63). These goals, especially in view of the other disclosures
22 and claims in the patent, would indicate to an ordinary artisan that the transmitting computer itself
23 cannot include the type of specialized server infrastructure that make up the Akamai RTMP
24 Architecture.

25 **Testing data associated with HLS streams:**

26 16. As I discussed in my report and accompanying exhibits, I performed substantial testing of
27 HLS streams and produced the results in my report. These tests included testing of some of the
28 Accused Streams identified in Dr. Madisetti's report. For these tests, I measured the latency

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