

Exhibit 8 (Partially Redacted)

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

NETWORK-1 TECHNOLOGIES, INC.,)	
)	
Plaintiff,)	
)	
v.)	14 Civ. 2396 (PGG)
)	
)	14 Civ. 9558 (PGG)
GOOGLE, LLC and YOUTUBE, LLC,)	
)	
Defendants.)	
_____)	

CONFIDENTIAL

VIDEOTAPED DEPOSITION OF
SEAN WARD
(Third-party witness)

Thursday, October 31, 2019 at 09:10 a.m.
The International Dispute Resolution Centre
70 Fleet Street
London, EC4Y 1EU, United Kingdom

Stenographically reported by: LEAH M. WILLERSDORF
(ACR, MBIVR, QRR2 International Participating
Member NCRA)

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1 looking at every single fingerprint, it would be
2 looking at the fingerprints that were within that
3 small group. Additionally, now, of course, if you're
4 only looking in a small group, there's a risk that
5 you're missing a fingerprint.

6 So in practice it would have to look into
7 multiple buckets, but that was always a bounded search
8 in terms of what neighborhood of buckets it would look
9 into.

10 Q. Just to clarify for the record, when was
11 this bucketing scheme implemented with TRM?

12 MR. LEDAHL: Object to form.

13 THE WITNESS: So the early work towards
14 that was done in July and then into August, and it
15 launched with that in place, because, again, we only
16 had a single server to run this off of. So we had
17 to be efficient.

18 BY MR. DANG:

19 Q. And to clarify, did you mean August of
20 2000?

21 A. Yes.

22 Q. Okay. And it launched with that in place

1 in August of 2000?

2 A. Yes.

3 MR. LEDAHL: Object to form.

4 BY MR. DANG:

5 Q. Okay. And let's dive into a little more
6 detail as to how this bucketing scheme worked.

7 Were there different kinds of buckets in place in the
8 scheme?

9 A. Yes. So buckets were originally done off
10 of three layers of the audio fingerprint.

11 So, in fact, just jumping down to my code base one
12 second --

13 Q. Just to clarify for the record, what are
14 you looking at on your computer?

15 A. I'm looking at the source code archive of
16 TRM-B, which was our commercial product from March
17 of 2001; however, an important point is large
18 attributes of that code base pre-date from early and
19 mid 2000s.

20 Q. Is there a particular file that you are
21 looking at?

22 A. Yes, I'm going into hash.cpp --

1 Q. Okay.

2 A. -- which references the hash functions
3 itself, and the original date of creation of that was
4 in 2000 by Isaac so it was actually in July and August
5 of 2000 that that was originally created.

6 Q. Okay.

7 MR. DANG: It might actually just help,
8 I have -- why don't I just go ahead and mark as
9 Exhibit 2 this document so we can keep things
10 consistent.

11 (Ward Exhibit 2 marked for
12 identification.)

13 MR. DANG: Let the record reflect that
14 I have handed the witness what's been marked as
15 Exhibit 2.

16 BY MR. DANG:

17 Q. Does this document reflect that hash.cpp
18 functioning?

19 A. Yes, it's the b3sig/hash.cpp.

20 Q. Okay.

21 Let's get back, then, to how this
22 bucketing scheme worked in August of 2000?

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