

**UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE PATENT TRIAL AND APPEAL BOARD**

**Code200, UAB; Teso LT, UAB;  
Metacluster LT, UAB; and Oxysales,  
UAB,**

**Petitioners,**

**v.**

**Luminati Networks LTD.,**

**Patent Owner.**

**CASE IPR2020-01266  
Patent No. 10,257,319**

**DECLARATION OF DR. MICHAEL J. FREEDMAN**

I, Dr. Michael J. Freedman, declare as follows:

**I. BACKGROUND**

1. My name is Dr. Michael J. Freedman. I have been retained by Code200, UAB, UAB Teso LT, UAB Metacluster LT, and UAB Oxysales (“Petitioners”) in this IPR proceeding. This document provides certain of my opinions regarding the invalidity of U.S. Patent Nos. 10,257,319 (“’319 patent”), and specifically the following claims that I understand are at issue in this IPR proceeding: 1-2, 12, 14-15, 17-19, 21-22, 24-29 (collectively the “Challenged Claims”).

2. For my work as an expert in this matter, I am being compensated for my services at my customary rate of \$875 per hour, plus expenses. My compensation

is in no way contingent or dependent upon my conclusions or the results of my analysis, or upon the outcome of this case.

3. I am a trained computer scientist and engineer. I began programming online services in 1995, and received a Bachelor's degree in 2001 and a Master's degree in 2002 from the Massachusetts Institute of Technology, both in Computer Science and Engineering. I subsequently received a Ph.D. in Computer Science from New York University in 2007. From 2005 through 2007, I spent my doctoral studies as a research scholar at Stanford University. Since 2007, I have been a professor of computer science at Princeton University, initially as an Assistant Professor (2007-2013), then as a tenured Associate Professor (2013-2015), and since 2015 as a Full Professor. Between 2017 and 2020, I have also served as the Director of Graduate Studies for Computer Science at Princeton. I am also currently the co-founder and CTO of Timescale, a startup company building an open-source time-series database. My curriculum vitae is attached as Attachment 1. A list of the cases in which I have testified as an expert at trial or by deposition during the previous four years is attached as Exhibit 2.

4. My research interests and experience primarily focus on Internet services, distributed systems, networking, and security. Since the year 2000, I have published over 85 peer-reviewed journal, conference, and workshop papers on these topics. According to my recent review of Google Scholar, these peer-reviewed

papers have been cited more than 15,000 times. A list of my publications is included in Attachment 1 to this Declaration. Of particular note here, I have published multiple papers concerning peer-to-peer systems (including peer-to-peer discovery, content delivery, caching, and storage systems), multi-hop proxying systems, anonymity systems, web proxies, web caching, content delivery networks (CDNs), HTTP redirection, DNS services, server selection, distributed systems, Internet architecture, client-server protocols, and network communication.

5. At Princeton, I teach graduate courses in computer systems and computer networking, as well as undergraduate courses in distributed systems and networking. These courses have included materials on peer-to-peer (P2P) systems, web caching, and content delivery.

6. I have been on the technical program committee for numerous conferences with peer-reviewed proceedings, including the main academic computer science venues for distributed systems (NSDI—Networked Systems Design and Implementation, OSDI—Operating Systems Design and Implementation, and SOSP—Symposium on Operating Systems Principles), networking (SIGCOMM—ACM Special Interest Group on Data Communications), and security (IEEE Security and Privacy, CCS—ACM Conference on Computer and Communications Security). I have been the technical program chair of multiple conferences, including the ACM Symposium on Cloud Computing (SOCC). I have served as a reviewer for numerous

leading journals, including Communications of the ACM, Transactions on Computer Systems (TOCS), Transactions on Networking (TON), and Journal of Computer Security.

7. I have also served as a consultant and advisor to Netflix, Cloudflare, Blockstack Labs, the Institute for Defense Analyses, Intelligent Automation, and Quova.

8. I am the named inventor on six U.S. patents, including two that deal with methods to detect network middleboxes and proxies (which are applications or systems that interpose on network traffic), including through the behavior of HTTP protocols.

9. I have received numerous national and international awards for my work. Of particular note, I received the 2018 ACM Grace Murray Hopper Award, given to the “outstanding young computer professional of the year, selected on the basis of a single recent major technical or service contribution”, which in my case was cited “for the design and deployment of self-organizing geo-distributed systems”<sup>1</sup> with a particular focus for my work on CoralCDN, a peer-to-peer content delivery network. I was elected as an ACM Fellow in 2019 “for contributions to robust distributed systems for the modern cloud”; the ACM Fellow is “ACM’s most prestigious member grade [which] recognizes the top 1% of ACM members for their

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<sup>1</sup> Ex. 1020.

outstanding accomplishments in computer and information technology.” I was also awarded the Presidential Early Career Award for Scientists and Engineers (PE-CASE) in 2011, given by the White House’s Office of Science and Technology Policy. In receiving this award, I was one of 20 individuals nominated by the National Science Foundation. I have also been awarded National Science Foundation's CAREER Award, the Office of Naval Research’s Young Investigator Award, an Alfred P. Sloan Research Fellowship, membership in the Computer Science Study Group of the U.S. Department of Defense’s Defense Advanced Research Projects Agency (DARPA), the ACM SIGCOMM “Test of Time” Award for work on software-defined networking, the Casper Bowden Award for Outstanding Research in Privacy Enhancing Technologies, and multiple “Best Research Paper”-type awards from leading international conferences and symposia.

10. My research and development has also led to deployed systems and industrial impact in Web and Internet services. I designed, built, and operated an open Web content delivery system, CoralCDN, that had been publicly available between 2004 and 2015, serving millions of unique users per day. DONAR solved locality- and load-aware cost optimizations for server selection, providing DNS- and HTTP-based name resolution for services on the Measurement Lab testbed from 2009-2013, including those powering the Federal Communications Commission’s Consumer Broadband Test. My research on IP geolocation and intelligence for Web

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