UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS, CO., LTD., and

SAMSUNG ELECTRONICS AMERICA, INC.,
Petitioners,

v.

ANCORA TECHNOLOGIES, INC.
Patent Owner.

IPR2021-00583

DECLARATION OF EREZ ZADOK IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 6,411,941

I. Engagement

1. I have been retained by Petitioners Samsung Electronics, Co., Ltd. and Samsung Electronics America, Inc. ("Samsung") to provide this declaration concerning the technical subject matter relevant to a petition for *inter partes* review of U.S. Patent No. 6,411,941 ("'941 patent").

2. Specifically, I was asked to review the declaration of Dr. Andrew Wolfe that was submitted by the petitioners in IPR2020-01609 as Exhibit 1003 and form an opinion of whether I agreed with the facts, analysis, and conclusions in that declaration.

II. Background and Qualifications

3. I am a Professor in the Computer Science Department at Stony Brook University (part of the State University of New York ("SUNY") system). I direct the File-systems and Storage Lab (FSL) at Stony Brook's Computer Science Department. My research interests include file systems and storage systems, operating systems, information technology and system administration, security and information assurance, networking and distributed systems, energy efficiency, performance and benchmarking, compilers, applied machine learning, and software engineering.

4. I studied at a professional high school in Israel, focusing on electrical engineering ("EE"), and graduated in 1982. I spent one more year at the high school's college division, receiving a special Certified Technician's degree in EE. During that time, I used and programmed PROM, EPROM, and EEPROM devices. I then went on to serve in the Israeli Defense Forces for three years (1983–1986). I received my Bachelor of Science degree in computer science ("CS") in 1991, my Master's degree in CS in 1994, and my Ph.D. in CS in 2001—all from Columbia University in New York.

5. When I began my undergraduate studies at Columbia University, I also started working as a student assistant in the various campus-wide computer labs, eventually becoming an assistant to the head labs manager, who was managing all public computer labs on campus. During that time, I also became more involved with research within the CS Department at Columbia University, conducting research on operating systems, file and storage systems, security, and other topics. I also assisted the CS department's computer administrators in managing the department's computers, which included storage, IT, networking, and cyber-security related duties.

6. During the late 1980s, I became exposed to and aware of information assurance topics. As the then-fledgling Internet was growing in popularity, so were

security problems and cyber-attacks of various sorts. For example, I was an undergraduate student working on computer programming assignments when the infamous "Morris Worm" hit the Internet in November of 1988.

7. In 1991, I joined Columbia University's CS department as a full-time systems administrator, studying towards my MS degree part-time. My MS thesis topic related to file system reliability, fault tolerance, replication, and failover in mobile networked systems. My main duties as a systems administrator involved installing, configuring, and managing many networked servers, proxies, and desktops running several operating systems, as well as network devices setup; this included many hardware upgrades, device upgrades, and BIOS firmware/chipset updates/upgrades. My duties also included ensuring reliable, secure, authenticated access to networked systems and licensed software, as well as software updates, security, and bug fixes. Examples of servers and their protocols included email (SMTP), file transfer (FTP), domain names (DNS), network file systems (NFS), network news systems (NNTP), and Web (HTTP).

8. In 1994, I left my systems administrator position to pursue my doctoral studies at Columbia University. My Ph.D. thesis topic was on versatile file system development, with examples in the fields of security and encryption, efficiency, reliability, and failover. I continued to work part-time as a systems

administrator at the CS department, and eventually I was asked to serve as manager to the entire information technology ("IT") staff. From 1991 to 2001, I was a member of the faculty-level Facilities Committee that oversaw all IT operations at the CS department. During this entire time, topics of information assurance and software protection became more prominent and time-consuming in the lives of system administrators worldwide, and my work at Columbia was no different. For example, configuring/maintaining firewalls and proxies and applying security patches, and [re]licensing software, became more important and a dominant part of everyday IT duties, as well as defending against a growing list of copyright violations and malicious software threats (e.g., viruses, worms, Trojans, spyware, and more).

9. As part of my Ph.D. studies at Columbia, I collaborated on projects to develop advanced AI-like techniques to detect previously unknown viruses (a.k.a. "zero-day malware"), using data mining and rule-based detection. This work led to several highly cited papers (nearly 1,300 citations for one of the papers alone), and two patents. I also became a Teaching Assistant (TA) for a first-ever Computer Security course given at Columbia University's CS department with Dr. Matt Blaze as instructor.

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