Curriculum Vitae

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Samsung v. Cerence
IPR2024-00978
Exhibit 1003

Mark R. Lanning

Mark is currently the President of Telecom Architects, Inc., I.N. Solutions, Inc.[1] and Reticle Consulting, LLC. Each of these companies provides professional consulting services and custom software development for one or more particular technical areas. I.N. Solutions (Intelligent Networking Solutions) was established in 1991 with an emphasis on applications design and network architecture engineering for telephone-based switching and Advanced Intelligent Networking systems. Telecom Architects was established in 1999 to provide specialized consulting services to fixed and wireless telecom service providers and their equipment suppliers. Reticle Consulting was created in 2009 to provide specialized consulting services for forensic software analysis and software source code comparison for software misappropriation cases.

Mark has over 35 years of engineering experience in all the development life cycle phases for hardware and software products. He has worked with both network operators and product suppliers regarding network architectures and product development and has acquired key insights into their perspectives and requirements as both suppliers and customers.

While working for three different product suppliers, Mark was directly responsible for the design, development and rollout of new products that have earned combined revenues in excess of one billion dollars for their respective companies. These products include: the DSC/Alcatel Signal Transfer Point (STP) product; the Telinq/ADC M13 transmission multiplexer and analyzer products; and the Tandem/HP Service Control Point (SCP), Service Management System (SMS); Service Creation Environment (SCE) products and their applications.

Since starting I.N. Solutions in 1991, Mark has worked with Motorola, Sprint, Nextel, and British Telecom (BT) to roll out some of the most successful telecom applications and network expansions worldwide. Mark was directly involved in the design of Sprint's Common Channel Signaling System 7 (SS7) network and the design and rollout of its FON (calling card) and 800 number services. Mark was the program manager responsible for the design and rollout of BT's Advanced Cellular Network (ACN) that used AIN functionality. BT's ACN was one of the largest cellular networks in the world and also includes advanced corporate virtual private network (VPN) and pre-pay validation services. Starting in 1998, Mark and the Telecom Architects (TAI) team were contracted by Nextel to design their 2.5G cellular iDEN switching, VoIP dispatch network[2] and its TDM/SONET transmission networks. After completion of the 2.5G network design, Mark and the TAI team performed a large part of the qualification, testing and rollout phases for new equipment suppliers and their applicable products into Nextel's network.

Before starting his own consulting company in 1991, Mark was initially employed as individual contributor on both hardware and software development projects, later worked as a manager on hardware and software development groups that varying in size from 5-20 engineers and eventually held several executive management positions with responsibility of over 200 engineers.

Hardware and Software Development Experience

Mark's hardware and software experience began in 1974 while in the US Army Signal Corps. Mark was initially trained as a hardware technician on data and voice crypto (encrypted transmission) communications equipment. After achieving the "top graduate" award at three different hardware and

[1] I.N. Solutions Inc. is no longer active.
[2] Also referred to as the Nextel push-to-talk or walkie-talkie feature that did not require a voice bearer channel.

software training schools, Mark received a Top Secret security clearance and was transferred to the Army Security Agency (ASA). His assignment with the ASA included joint software development with the National Security Agency (NSA) and the white house communications staff. The software development was done on "state of the art" computer and communication systems built by DEC and GE using assembly language.

From 1978-1983, Mark worked as both a hardware and software development engineer for IT&T Defense Communications. The majority of his time was spent on building a new store and forward message switching system that was used by the white house, US embassies worldwide and two major US airlines. DEC PDP-11 and PDP-15 computers were coupled together and operated in conjunction with custom IT&T hardware for this system. The system architecture was traditional mini-computer architecture with sixteen front-end communications computers to interface with hundreds of modems and perform various communications protocols. The software was written in DEC assembly language. Many different types of communications protocols and state of the art modems were used with this system.

In 1983, Mark was hired as hardware and software development engineer by Digital Switch Corporation (now a part of Alcatel) and was later promoted to design and development manager responsible for their initial SS7 protocol and Signal Transfer Point (STP) products. The STP product performed packet switching for thousands of messages per second between telephone switches for the purpose of connecting normal phone calls worldwide and support of advanced telephony services. The STP was designed to have a fault tolerant hardware and software architecture to provide 24x7 operation and provided interfaces to various telephone company management and support systems. A typical configuration of the STP product included at least 200 separate microprocessor boards working in a closely coupled distributed system architecture. Communications between the processors was performed over parallel hardware buses using DSC's proprietary operating system. Mark was also responsible for development of all the communication protocols the STP would require to communicate with other switching, operations and administration systems. These protocols were X.25, X.75, SS7 MTP/SCCP/TCAP and FTP. The hardware used was Zilog Z-8000 and Motorola 68xxx family microprocessors. The software was written in assembly and C languages.

In 1985, Mark was hired by Telinq Inc. (now part of ADC) as their director of software development and was later promoted to vice president of hardware and software development. Telinq was a venture capital start-up company and their initial two products were high speed digital TDM transmission multiplexers and analyzers mainly used by telecom network operators and service providers. The hardware consisted of multiple Motorola 68xxx family processors replicated different types of custom designed high-speed gate arrays. The software was distributed and written in C and assembly language.

In 1987, Mark joined the Telecom Division of Tandem Computers, Inc. (now part of HP) as their Vice President of hardware and software development. Tandem Telecom was a new division that built products for telephone companies that leveraged its fault tolerant Guardian and Unix based computer systems. The initial products built under Mark's direction were a Service Control Point (SCP), Service Management System (SMS) and Service Creation Environment (SCE). Although these product names are unique to Intelligent Networking telephony systems, they use state of the art hardware and software to perform many standard functions. The SCP system performs on-line transaction processing for the telephone switches in a network. These transactions support phone company services like 800 number translation, calling card number validation and home location register (HLR) functionality for cellular networks. The SCP was a fault tolerant multiple processor system capable of supporting hundreds of globally located nodes with multiple processors in each node. Each SCP required specialized

communications software and hardware that was build by Tandem Telecom. The full suite of commercial communications software was supported including X.25, TCP/IP and SS7. The software was written in C, C++ and assembly language. The SMS system was build to manage multiple SCP systems, update the software applications and keep their multi-million record databases synchronized. The SMS software was written in C and C++. The SCE was telephone service authoring tool used by telephone company personnel to modify or create new services on their network without requiring them to be intimately familiar with the underlying system or detailed programming. The SCE software ran on Unix or PC Windows operating systems and was written in C++ and C and the most advanced software development workbench software.

Program and Project Management Experience

Mark has been directly involved with formal project management concepts and tools since 1984. Most, if not all, the projects listed above were managed using project management concepts and tools. The main techniques used for these projects were PERT and CPM. Mark either generated the initial PERT chart and staff assignments for each project or was directly involved in defining the program logic and assignments to be used. Since 1984, every project that Mark has been responsible for has included formal product life cycle documentation, requirements tracking, problem reporting and resolution.

Since 1991, Mark has been responsible for some large development and network architecture projects with a budget in excess of $100 million each. Two of these projects were for British Telecom's cellular network division called Cellnet. The initial project, ACN, was an on-line transaction processing (OLTP) system responsible for real-time dialed digit translation for every phone call in the Cellnet network and was required to perform thousands of transactions per second. The second project replaced Cellnet's batch-oriented billing system with a distributed real-time call detail record collection and on-demand rating and billing system. Both of these systems required custom development for a majority of the software that was done by different companies located across multiple countries and continents. The ACN project lasted about four years and involved over 100 software development personnel located in Texas, Nebraska, California, Sweden, Spain, Finland and England. The billing system project lasted more than three years and required over 600 developers at its peak that were located in England, Colorado, Texas and Sweden. Both of these systems were 24x7 mission critical to completing wireless calls and billing.

Mark and members of the Telecom Architects group have developed innovative methods for requirements definition, design, modeling and documentation of large telecommunications networks. Some of this methodology has been published by Wireless Review Magazine.

In 1977 and 1978 Mark obtained a Private Pilot, Commercial, Instrument, and Flight Instructor ratings.

Mark received a BS in Computer Science degree from Southern Methodist University in 1983 and has been a visiting lecturer at SMU on various data and voice telecommunications subjects.

Industry Memberships

Member of IEEE and IEEE Standards Association.
Member of ACM (Association for Computing Machinery).

Telecom Standards Definition

Mark is one of the Advanced Intelligent Network (AIN) and Signaling System Number 7 (SS7) pioneers. He was a contributing member of the first ANSI T1X1 standards group that defined and approved the initial North American AIN and SS7 requirements and was actively involved with this group for three years. These standards were later adopted by the ITU.

Telephony Systems

Mark has been directly involved with the development and/or detailed functional analysis of the following systems: DSC/Alcatel DEX-STP, DEX-400, DEX-600 and MegaHub circuit switches; Nortel DMS circuit switch for class IV and MSC applications; Ericsson AXE circuit switch for class IV, MSC and HLR applications; Lucent's 5ESS circuit switch in class IV, class V and MSC applications; Tandem/HP SCP, SMS, SCE and HLR.

Mark has also been intimately involved with the design, analysis and/or network implementation of many different PSTN and cellular network elements including at least: MSC, VLR, HLR, BSC, BTS, SMSC, MMSC, GGSN/SGSN, eNodeB, and RNC.

Network Design Experience Summary

Mark has extensive telecommunications network design experience for both North American and European fixed and wireless networks. He has participated in the creation of RFIs and RFPs and the evaluation of supplier responses; negotiated supplier equipment contracts; written requirements for custom hardware and software features and has led engineering teams in the design and rollout of new networks and network expansions. These network designs included LANs, WLANs, WANs, TDM and SONET transmission networks, signaling system 7 (SS7) networks, ATM/IP data switching/routing, mission critical on-line transaction processing enterprise networks and voice switching networks using traditional circuit switches, soft switches and media gateways.

Software Development Languages and Tools

Assembly language for DEC PDP-11, PDP-15, Zilog Z-80 & Z-8000, and Motorola 68xxx processors.
Fortran IV and Fortran 77.
Cobol.
Pascal.
Basic and Visual Basic
C and C++
X Windows, Motif and SmallTalk Toolkits
Microsoft Office FrontPage
Java and JavaScript

Publications

Mark Lanning and David Sanders, "In Sync" Wireless Review. January 15, 2000.

Technical Expert Experience for Cases Filed Since 2016.01.01

Huawei Technologies Co. Ltd. v. T-Mobile USA Inc., Nokia Solutions and Networks, et al. C.A. Nos. 2:16-cv-00052 and 2:16-cv-00056. Before the United States District Court for the Eastern District of Texas, Marshall Division. On behalf of Nokia & Cisco. Provided deposition testimony.

Nokia Solutions and Networks US LLC, et al. v. Huawei Technologies Co. LTD., et al. C.A. Nos. 2:16-CV-00753, 754, 755 and 756. Before the United States District Court for the Eastern District of Texas, Marshall Division. On behalf of Nokia.

Sycamore IP Holdings LLC v. AT&T Inc. et al. C.A. No. 2:16-cv-00588. Before the United States District Court for the Eastern District of Texas, Marshall Division. On behalf of AT&T. Provided deposition testimony.

Apple Inc. v. Qualcomm Inc. C.A. No. 3:17-cv-00108. Before the United States District Court for the Southern District of California in San Diego. On behalf of Apple.

Koninklijke KPN NV. v. TCL Corporation et al. C.A. No. 1:17-cv-00091. Before the United States District Court for the District of Delaware. On behalf of TCL.

Blackberry Limited, et al. v. Avaya Inc. C.A. No. 3:16-cv-2185. Before the United States District Court for the Northern District of Texas in Dallas. On behalf of Avaya.

Plectrum LLC v. AT&T Mobility LLC. C.A. No. 4:17-cv-120. Before the United States District Court for the Eastern District of Texas in Sherman. On behalf of AT&T.

Securus Technologies Inc. v. Global Tel*Link Corporation. C.A. No. 3:16-cv-01338. Before the United States District Court for the Northern District of Texas in Dallas. On behalf of Securus.

Intellectual Ventures I, LLC and Intellectual Ventures II, LLC v. Ericsson. C.A. No. 1:14-cv-01233-LPS. Before the United States District Court for the District of Delaware. On behalf of Ericsson.

Iridescent Networks, Inc. v. AT&T Mobility LLC and Ericsson Inc., C.A. No. 6:16-cv-1003-RWS-JDL. Before the United States District Court for the Eastern District of Texas in Tyler. On behalf of AT&T. No worked performed as of 09/15/2020.

Network Managing Solutions, LLC v. AT&T Mobility, LLC. C.A. No. 1:16-cv-00295−RGA (Filed April 2016). Before the United States District Court for the District of Delaware. On behalf of AT&T Mobility. No worked performed as of 09/15/2020.

Barkan Wireless IP Holdings, L.P. v. Samsung and Verizon. C.A. No. 2:18-cv-28-JRG. Before the United States District Court for the Eastern District of Texas, Marshall Division. On behalf of Samsung and Verizon.

Genband U.S. LLC and Sonus Networks, Inc. v. Metaswitch Networks Ltd and Countersuit. Cause No. DC-17-03697. Before the District Court of Dallas County, Texas, 134th Judicial District. Case regarding Internet and switching devices. On behalf of Genband.

Maxell, Ltd. v. Huawei Technologies Co. Ltd. et al. C.A. No. 5:16-cv-00178−RWS (Filed Nov. 2016). Before the United States District Court for the Eastern District of Texas, Texarkana Division. On behalf of Huawei. Inter Partes Review of U.S. Pat. Nos. 6,973,334, 6,983,140, and 7,324,487.

Zest Labs Inc et al v. Wal−Mart Inc. C.A. No. 4:18−cv−00500−JM (Filed Aug. 2018). Before the United States District Court for the Eastern District of Arkansas, Little Rock Division. Provided deposition and trial testimony. On behalf of Zest.

Zomm, LLC v. Apple Inc. C.A. No. 4:18-cv-04969−HSG (Filed Apr. 2018). Before the Before the United States District Court for the Northern District of California, Oakland Division. On behalf of Apple. Inter Partes Review of U.S. Pat. No. 8,351,895. Provided multiple deposition testimony.

Sol IP, LLC, v. AT&T Mobility LLC. C.A. No. 2:18-cv-526-RWS-RSP (Filed 2018). Before the United States District Court for the Eastern District of Texas, Marshall Division. On behalf of AT&T.

Packet Intelligence LLC v Nokia Solutions and Networks U.S. LLC. C.A. No. 2:18-cv-00382-JRG (Filed Aug. 2018). Before the United States District Court for the Eastern District of Texas, Marshall Division. On behalf of Nokia.

Carucel Investments L.P. v. General Motors Company, et. al. C.A. No. 3:18−cv−03332 (Filed Dec. 2018). Before the Before the United States District Court for the Northern District of Texas, Dallas Division. On behalf of Carucel. Provided multiple deposition testimony.

Rembrandt Wireless Technologies, L.P. v Apple Inc. C.A. 2:19-cv-00025-JRG (Filed Jan. 2019). Before the United States District Court for the Eastern District of Texas, Marshall Division. On behalf of Apple. Inter Partes Review of U.S. Pat. Nos. 8,023,580 and 8,457,228.

Optis Wireless Technology, LLC, Unwired Planet, LLC, and Panoptis Patent Management, LLC v Apple Inc. C.A. No. 2:19-cv-66. (Filed Feb. 2019). Before the United States District Court for the Eastern District of Texas, Marshall Division. Provided deposition and trial testimony. On behalf of Apple.

Cellular Evolution LLC v. T-Mobile US, Inc. et al., C.A. 2:19-cv-232-JRG (Filed Jun. 2019). Before the United States District Court for the Eastern District of Texas, Marshall Division. On behalf of T-Mobile.

DataQuill Limited v. TCL Communication Technology Holdings Limited et al., C.A. 2:19-cv-03394-AB-PLA (Filed Apr. 2019). Before the United States District Court for the Central District of California, Los Angeles Division. On behalf of TCL.

Huawei Technologies Co. Ltd. v Verizon Communications, Inc., et. al., C.A. 2:20-cv-00030 (Filed Feb. 2020). Before the United States District Court for the Eastern District of Texas, Marshall Division. On behalf of Verizon. Provided deposition and trial testimony.

Synkloud Technologies, LLC v Adobe, Inc. CA 6:19-cv-00527-ADA (Filed Sep. 2019). Before the United States District Court for the Western District of Texas, Waco Division. On behalf of Adobe.

Castlemorton Wireless, LLC v. Verizon Communications Inc. et. CA 6:20−cv−00035−ADA (Filed Jan. 2020). Before the United States District Court for the Western District of Texas, Waco Division. On behalf of Verizon and Charter Communications.

Confidential Arbitration case on behalf of Nokia regarding cellular devices.

IPCom v. Verizon (Nokia). CA 2:20-cv-323 (Filed 2020.10.01.). Before the United States District Court for the Eastern District of Texas, Marshall Division. Also included petitioner IPRs. On behalf of Verizon and Nokia. Provided IPR deposition testimony.

IPCom v. AT&T (Ericsson). CA 2:20-cv-323 (Filed 2020.10.01.). Before the United States District Court for the Eastern District of Texas, Marshall Division. Also included petitioner IPRs. On behalf of AT&T and Ericsson. Provided IPR deposition testimony.

Philips v. Thales et al. ITC Investigation No. 337-TA-1240. Before the ITC. Also, declarations for Patent Owner IPRs. On behalf of Philips. Provided deposition and hearing testimony.

Sisvel S.p.A. v. TCL Communication Technology Holdings Limited et al., CA 1:20-cv-00654-MN. Before the United States District Court for Delaware. On behalf of TCL. Provided IPR deposition testimony. Case active as of 05/08/2024.

Godo Kaisha IP Bridge 1 v Ericsson Inc. CA 2:21-cv-213-JRG. Before the United States District Court, Eastern District of Texas. On behalf of Ericsson.

Aegis 11 S.A. v Hisense Co. Ltd. CA 1:20-cv-03891-MHC. Before the United States District Court, Northern District of Georgia. On behalf of Hisense.

CommWorks Solutions, LLC v Comcast Cable Communications, d/b/a Xfinity, et al. CA 6:21-cv-00366. Before the Western District of Texas, Waco Division. On behalf of Comcast.

Collision Communications, Inc. v Ericsson. CA 2:21-cv-00327. Before the United States District Court, Eastern District of Texas. On behalf of Ericsson.

TQ Delta, LLC v. Nokia. CA 2:21-cv-309-JRG. Before the United States District Court, Eastern District of Texas. On behalf of Nokia and CommScope. Case active as of 05/08/2024.

Maxell v Lenovo and Motorola Mobility. ITC Investigation No. 337-TA-1312/1324. On behalf of Lenovo and Motorola Mobility.

Smart Mobile Technologies LLC v. Apple Inc. CA 6:21-cv-00603-ADA. Before the United States District Court, Western District of Texas. On behalf of Apple.

Telecom Network Solutions, LLC v. AT&T Inc., et al. CA 2:21-cv-00415-JRG (Lead Case). With member cases CA 2:21-cv-00416-JRG and CA 2:21-cv-00418-JRG. Before the United States District Court, Eastern District of Texas. On behalf of T-Mobile. Case active as of 05/08/2024.

VoIP-Pal.com v Verizon Wireless Services, LLC, et al. CA 16-cv-00271. Before the United States District Court in Nevada. On behalf of AT&T.

LG Electronics v TCL Electronics. CA 2:22-cv-00122-JRG. Before the United States District Court, Eastern District of Texas. On behalf of TCL Electronics. Case active as of 05/08/2024.

Howlink Global LLC v AT&T et al. and Verizon Communications, Inc. et al. CA 2:22-cv-00040. Before the United States District Court, Eastern District of Texas. On behalf of AT&T and Verizon (Ericsson and Nokia).

Ex-Parte Reexamination of U.S. Patent No. 9,137,830. On behalf of United Patents, Inc.

Silent Communication, LLC v Adobe Inc. CA 6:22-cv-00527. Before the United States District Court, Western District of Texas. On behalf of Adobe. Case active as of 05/08/2024.

Mitsubishi Electric Corporation and Sisvel International S.A. v TCL Communication Technology Holdings Limited, et al. Case No. 8:22-CV-01073-GW-DFM. Before the United States District Court, Central District of California. On behalf of TCL. Case active as of 05/08/2024.

Ex-Parte Reexamination of U.S. Patent No. 7,924,802. On behalf of United Patents, Inc.
Case active as of 05/08/2024.

Dali Wireless, Inc. v. Cellco Partnership D/B/A Verizon Wireless et al., Case No. 6:22-cv-00104-ADA. Before the United States District Court, Western District of Texas.
Dali Wireless, Inc. v. AT&T Corp. et al, Case No. 2:22-CV-12-RWS-RSP. Before the United States District Court, Eastern District of Texas.
Dali Wireless, Inc. v. T-Mobile US, Inc., et al., Case No. 2:22-cv-414. Before the United States District Court, Eastern District of Texas.
All three above cases are on behalf of Ericsson. Cases active as of 05/08/2024.

Genghiscomm Holdings, LLC v. TCL Communication Inc., Case No. 2:23-cv-08949. Before the United States District Court, Central District of California.
Case active as of 05/08/2024.

Cerence Operating Company v. Samsung Electronics Co. Ltd. And Samsung Electronics America, Inc., Case No. 2:23-cv-00482. Before the United States District Court, Eastern District of Texas, Marshall Division.
Case active as of 05/08/2024.