

Donald E. Matthews
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OBJECTIVE

Software Engineering Consultant specializing in Storage Area Networks (SANs), Windows Storage Device Drivers, Architecture of SAN Appliances using SCSI / SAS / SATA / Fibre Channel / iSCSI / USB / 1394 / PCIe / NVMe, Tape Library Virtualization, real-time embedded systems firmware development for SAN peripherals and RAID controllers and other devices, Windows / Linux / Embedded device drivers, MPIO, SCST, and Storage Networking technologies seeking Clients requiring related expertise.

Very strong Windows device driver expertise, including WHQL certification and the development of user-mode DLLs and applications that provide APIs for driver testing. Significant experience with Windows kernel-mode device driver development (both WDM and KMDF) and debugging with WinDbg on all versions of Windows. Experience with network protocol stacks (TCP/IP) and drivers (NDIS) and with merging Network traffic and Storage traffic on a single medium in a Windows driver environment.

Extensive experience with multiple Linux distributions (RedHat, SUSE, Fedora, CentOS, Gentoo, etc.) at the driver level and also the application level. Strong embedded software design and C/C++ coding skills, Bash and Python scripting, and GDB debugging.

Superior teamwork and communication skills. Excellent customer interaction skills, with many positive outcomes while working remotely on multi-site product development teams. Able to work independently and with minimal supervision.

EDUCATION

Master of Science in Electrical Engineering (MSEE), Iowa State University.

GPA - 3.6 on a 4.0 scale

Thesis: A Microcomputer Communications Network

Bachelor of Science in Electrical Engineering (BSEE), South Dakota State University.

GPA - 3.7 on a 4.0 scale

Minor: Computer Science

PATENTS

Patent Number 7,600,059 entitled *Multiple LUN Support For SATA Devices* issued by U.S. Patent and Trademark Office on October 6, 2009.

Patent Number 5,263,160 entitled *Augmented Doubly-Linked List Search and Management* issued by U.S. Patent and Trademark Office on November 16, 1993.

EXPERIENCE

NexiTech, Inc.

Woodland Park, CO

Dec/95 - Present

President and CEO

NexiTech is a software development firm and provider of special purpose storage appliances, such as its Virtual Tape Array system, through select OEM partners. With specialization in kernel-mode device drivers for Windows and Linux, NexiTech develops components like its ASPI Manager for commercial customers worldwide and the U.S. government, including the [NAVAIR Presidential Helicopter](#) mission. Expertise in SCSI Target Mode for Fibre Channel and iSCSI helps consulting clients and customers alike create innovative storage appliances and solutions. Please visit www.NexiTech.com.

Chaparral Network Storage, Inc.

Longmont, CO

Jul/98 - Dec/01

Chief Engineer

Responsible for the architecture and development of a unified Intelligent Storage Router product family (i.e. Fibre Channel-to-SCSI routers). Provided technical team leadership and technology presentations to internal management and external customers, partners, and investors in an energized start-up environment. Firmware development in C/C++ for highly-available FC-to-FC RAID platform. Well-versed in all Storage Networking concepts and technologies.

NexiTech, Inc. partial client list (representative samples from 2015 back to 1995):

Client – Micron Technology, Inc. - Windows device driver research and development related to SATA SSD devices. Experience with Windows 8 network debugging and WDK 8. Linux-based firmware development for SAS and NVMe SSD devices.

Client – Intel Corporation - Linux-based embedded systems firmware design and development for a new non-volatile memory product.

Client – Lockheed Martin Corporation - NexiTech's specialized ASPI software library has been chosen by the U.S. Navy to load mission planning information for the Presidential Helicopter, also known as Marine One.

Client – Emulex Corporation - Linux kernel-mode driver design and development for Emulex Fibre Channel intelligent storage host bus adapters (HBAs). Fixed bugs and implemented new features in Linux Target Mode driver. Experience with setup and testing of complex systems involving zoning, NPIV, and sequence-level error recovery.

Client – Mountain Secure Systems - Designed and implemented the Linux software for a ruggedized GbE-to-SATA Network-Attached Storage (NAS) appliance that utilized Solid-State Drive (SSD) technology. Embedded Linux application development, including the configuration of NFS, SNMP, DHCP, TFTP, and PXE protocols.

Client – Microsoft Corporation - Responsible for maintaining all storage-related Windows Driver Kit (WDK) technical documentation for Windows Vista and beyond.

Client – Egenera, Inc. - Responsible for leading a team of developers tasked with providing support for Windows Server 2008 (Longhorn) on the client's virtualized server hardware platform. Experience with Windows PE 2.1 and the tools in the Windows AIK (Automated Installation Kit). Experience with Microsoft Windows Storport Virtual Miniport driver development.

Client – Quantum Corporation - Windows device driver development for Windows 2000 and beyond. Developed a WDM-compliant storage Filter Driver for Windows 2K/XP and Windows Server 2003. Linux Command Line Interface (CLI) and Graphical User Interface (GUI) development for storage device configuration and management applications. Extensive experience with SATA on both Windows and Linux platforms. Provided remote maintenance of tape device drivers and other storage software.

Client – StorageTek - Firmware development for the StreamLine™ SL500 Modular Library System, a Linux-based Fibre Channel Automated Tape Library. Experience with Sun Solaris, Rational ClearCase, and Embedded Linux software development.

Client – ETI-NET - Supplied Virtual Tape Emulation software for the BackBox™ Buffered Tape Adapter, a Windows-based Fibre Channel backup appliance. Experience with Virtual Tape Library software development.

Client – Adaptec, Inc. - Device driver development for the Adaptec ASA-7211, an iSCSI Host Bus Adapter (HBA) with hardware acceleration via TCP/IP Offload Engine (TOE). Experience with RedHat Linux kernel-mode device drivers.

Matthews Consulting

Woodland Park, CO

Jul/93 - Jul/96

Sole Proprietor

Client – Symbios Logic, Inc. - Wrote an ASPI Manager as a VxD under Windows 3.1 and Windows 95. The Windows 3.1 version included a FastDisk interface for the purpose of providing 32-bit disk access to SCSI disk devices. This VxD was written entirely in 'C' using Vireo Software's VtoolsD VxD toolkit.

Client – Hewlett-Packard Co. - Wrote a VxD to provide an interface to custom hardware. Added multi-port functionality to another VxD. Experience with Intel 80x86 32-bit privileged protected-mode assembly language, 16-bit Windows DLL (Dynamic Link Library) development, and Windows application development using Visual C++ and other Microsoft tools.

Client – Apple Computer, Inc. - Macintosh SCSI device driver development. Wrote a custom SCSI device driver to enable the NCR 53C96 SCSI controller chip in a Quadra 950 to operate in SCSI Target Mode. Wrote custom disk drive partitioning code using the SCSI Manager. Experience with MPW (Macintosh Programmer's Workshop), and programming tasks involving the Device Manager, SCSI Manager, and Serial Manager. Debugging experience with MacsBug.

Client – Apple Computer, Inc. - Real-time embedded system firmware development for MC68331-based SCSI controller. SCSI device driver development running under VRTXsa. Experience with UNIX and SUN SPARCstation IPX using GNU C compiler. Device driver development for NCR 53C94 SCSI controller. Provided both Initiator and Target functionality, and supported host-to-host transfers between SCSI controller and a Macintosh (dual-initiator system).

Digital Equipment Corporation Colorado Springs, CO Oct/87 - Mar/93

Principal Software Engineer

Provided technical leadership for a SCSI-2 firmware development team, part of a larger team that brought the world's first 220 MB 2.5" SCSI disk drive based on the Intel 80C188 from concept to production in just 12 months. Participated in architectural definition and design. Primarily responsible for performance optimization features such as caching, tagged command queuing, and seek ordering. Developed a method for downloading firmware updates over the SCSI interface. Wrote special code to trace SCSI interface activity for workload characterization and performance analysis.

Software design for DEC proprietary magnetic disk storage array (RAID). Responsible for the analysis, design, implementation, and testing of an embedded controller-based Cache Manager, written in C. Functionality included read caching, pre-fetch caching, write-through caching, and write-back caching in a striped and mirrored magnetic disk storage array.

Hewlett-Packard Company Colorado Springs, CO Jun/84 - Oct/87

Member Technical Staff

Designed the hardware and software for a disk controller board that interfaced a computer network protocol analyzer (Ethernet and other protocols) to various HP disk products via HP-IB (IEEE-488). Firmware development in C and assembly language for the MC68000/MC68008. Designed the hardware and software for a solid-state disk. Experience with data communications, computer networks, protocols, and software engineering methodologies.

PUBLICATIONS

"Porting VxDs from Windows 3.1 to Windows 95" by Don Matthews, Dr. Dobbs Journal, November 11, 1995.

TEACHING

Taught undergraduate-level college courses in microelectronics and computer architecture (both lectures and labs) for three years while a graduate student at Iowa State University.

REFERENCES

Available upon request.