JOHN HOWE

EXPERIENCE

EXABLOX *01 / 2012 - Present*

Principal Engineer

One of the founding software engineers of the Exablox distributed file system, a clustered NAS with continuous data protection targeting SMB. Designed and implemented a fully integrated remote replication subsystem supporting active/active access and disaster recovery between data centers. Consistent hashing and consensus algorithms replace the need for a central metadata server. Advanced multi-threaded code written in C for a Linux-based appliance with automated test suites. One patent application.

HARMONIC *12 / 2004 - 01 / 2012*

Principal Engineer

One of the founding software engineers of the Omneon (acquired by Harmonic in 2010) MediaGrid distributed file system, a multi petabyte clustered NAS targeting video storage. Designed and implemented the data availability, dynamic data redundancy, data path, and replication services spanning three major product generations. The continuous replicated data fabric is striped over a cluster of commodity Linux servers according to provisioned bandwidth and availability metrics. Services track optimal data availability paths and respond to changes in the data fabric, such as data servers going down or rejoining the cluster, disk failures and replacement. Metadata was journaled and shared on an active/active metadata server network for redundancy. Other functionality included data server grouping, virtual clustering, data fabric repair and balancing, checkpoint/recovery, cluster initialization and readiness, volume management, bandwidth provisioning, low latency metadata paths, active/passive high availability data paths, replication over RAID, grid application framework supporting transcoders executing within the file system, split brain detection. Implementation included 100,000 lines of dense, high quality code written in C/C++, including an automated regression test suite. Customers included NBC/Olympics08, Turner, Technicolor, CNN HD, NRK. 3 patent applications. <http://www.tvtechnology.com/storage/the-storage-channel/120392>

BAYTECH CINEMA *04 / 2003 - 11 / 2004*

Principal Engineer

Start-up company designing portable HD video capture products for studio cameras. From proof of concept to product delivery, responsible for all software design and implementation for a new product line of uncompressed high definition digital video solid state recorders supporting next generation high-end digital cinematography cameras. In an aggressive start-up environment, designed embedded real-time Linux server and kernel driver software for the Power PC 440GX. Device drivers were brought up on a new proprietary base board and new FPGA logic. Server software recorded dual-HDSDI (SMPTE 372M). Block drivers supported a Linux file system (ext2) view of captured video frames. Recorded frames were automatically offloaded as files to storage servers over dual gigabit Ethernet. Server supported pattern generation and other diagnostics. Digital video formats included 1080p/24 dual and single link, 1080i, 720p. Responsible for tool infrastructure, test software, and software releases. In addition to bringing up Linux on a new embedded platform, approximately 20,000 lines of production and test code were implemented. The CineRAM recorder was featured at SIGGRAPH and NAB. Product early adopters included ILM. <http://www.videography.com/article/51858>

KASENNA *04 / 2002 - 03 / 2003*

Architect

Designed and implemented software for a video on demand delivery accelerator optimized for transferring digital video from storage to network. By applying a unique combination of low CPU overhead streaming algorithms, including zero-data copy, provisioned buffer management and video packet scheduling, achieved 950 Mbps video streaming performance for a 50% product performance using a GNIC. Solution scaled over multiple gigabit interfaces for video delivery to QAMs. 1 patent application.

OPTIBASE *1996 - 2002*

VP Engineering

Engineering for the Viewgraphics (acquired by Optibase in 2000) product line. Initiated new software development for high performance digital video products. Products kernel level system software (drivers), embedded software, application software, FPGA, PCI board design, and vertical integration with video servers. Application software included SDKs, MPEG video streaming, data casting, and QuickTime plug-ins. Vertical integration for high-end NT and Linux platforms for strategic customers. Three new product families developed, each with multiple product generations. Pushed state of the art with the first seamless MPEG2 transport stream multiplexor for NT and Unix servers; highest

performance for an DVB compliant PCI card; first uncompressed digital video PCI card for HD-SDI SMPT 292M with embedded audio with QuickTime plugin. Early adopters included SeaChange, DigitalDomain, SGI. Group of 23 engineers responsible for 2 US patent grants and 6 patent applications. <http://www.thefreelibrary.com/Viewgraphics+Debuts+VideoPump+HD+-+The+First+HDTV+Interface+for+PCs.-a054404624> <http://www.thefreelibrary.com/New+Viewgraphics+MediaPump+Interface+Board+Targets+Emerging+Digital...-a053330247>

NCUBE *1986 - 1996*

Principal Engineer

Developed high performance software for 3 major generations of massively parallel computers. Major designs included parallel I/O subsystems for 100 Mbyte/sec HIPPI, DR11w, and A/D-D/A, and super computer front-end software using PCI and VME interfaces. New kernel device drivers were written for distributed micro kernels and many Unix server architectures. Implemented numerous development tools, such as assemblers, loaders, and debuggers. Managed software projects delivering parallel SCSI subsystems, ethernet drivers, ATM device drivers. Authored DARPA-High Performance Computing technology proposals. Implemented a feasibility port of the Oracle RDBMS server software to a distributed memory parallel server architecture; this played a key part to the company being acquired. Principal engineering contributor for the first high-end video server design and deployment to such customers as British Telecom and Bell Atlantic. Recognized multiple times for exceeding customer performance and schedule expectations.

SCIENTIFIC MICRO SYSTEMS *1983 - 1986*

Engineering Manager

Established a new engineering group responsible for software development and integration projects for add-on storage controllers and subsystems. Projects included disk drivers, controller firmware, diagnostics, boot modules, and system configuration tools. Recognized for meeting aggressive schedules for new product release into manufacturing.

ALTOS COMPUTER SYSTEMS *1982 - 1983*

Engineering Manager

Established a new engineering group responsible for vertical integration of business application software for new Xenix-based servers.

INTEL *1977 - 1982*

Software Engineer

Developed floating-point software for the 8087 architecture family. Recognized as a key contributor for the industry's first product release of Fortran77 with accurate floating point support. Defined a general virtual operating system interface to facilitate portability. Participated in IEEE Std 754-1985 floating-point standards development.

EDUCATION

SANTA CLARA UNIVERSITY
MBA

UNIVERSITY OF CALIFORNIA, LOS ANGELES
BA , Mathematics

UNIVERSITY OF SOUTHERN CALIFORNIA
MA , Mathematics

UNIVERSITY OF SOUTHERN CALIFORNIA
MS , Computer Science

PATENTS

METHOD FOR FRAME ACCURATE SPLICING OF A DIGITAL TRANSPORT STREAM *Filed*
US · Inventors: John Howe, Hillel Gazit

METHOD FOR FAST FORWARD AND FAST REVERSE PLAYBACK OF DIGITAL TRANSPORT STREAMS *Filed*
US · Inventors: John Howe, Hillel Gazit

METHOD FOR RAPID SEAMLESS SWITCHING OF DIGITAL DATA STREAMS FOR DIGITAL TELEVISION *Filed*
US · Inventors: John Howe, Hillel Gazit

SYSTEMS AND METHODS FOR ACCELERATING DATA DELIVERY *Filed*
US · Inventors: John Howe, Jayakumar Muthukumarasamy, Alberto Nava

DATA STORAGE SYSTEM *Filed*
US · Inventors: John Howe, Harshy Wanigasekara, Don Craig, Alex Mitaru, Chris Davis

METHODS FOR DYANMIC PARTITIONING OF A REDUNDANT DATA FABRIC *Filed*
US · Inventors: John Howe, Pralay Dakua

DIRECTED PLACEMENT OF DATA IN A REDUNDANT DATA STORAGE SYSTEM *Issued , 01 / 2012*
US Patent: 8103628 · Inventors: John Howe, Harshy Wanigasekara, Alex Mitaru, Chuck Morris · http://www.google.com/patents/US8103628