

David J. Warman

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SUMMARY

I have been awarded four software patents based on my architectures. Over the past 20+ years I have regularly been the technical team leader for various hardware and software product lines, many of them award-winning and still available, and typically led technical teams of three to twelve engineers.

I have accumulated significant senior level expertise architecting and designing hardware and software at all logical levels, transistors to complete processors, machine code to Smalltalk, and embedded RTOS kernels to graphical applications, primarily in the domain of Data Communications.

My ideal position is a Senior Staff post as technology innovator, with technical leadership of a small (3 – 12 engineers) team, charged with creating exciting new technologies that demand multi- and cross-disciplinary skills.

COMPUTER SKILLS

Languages

- Assemblers, Forth, C, Perl, VNOs, Tcl, PHP, JavaScript, HTML, DHTML, XML, XMLS, UML, PALASM, ABEL, VHDL, Verilog, Smalltalk, C++, C#, Microsoft Visual Basic®, Java, Pascal, Delphi, Lisp, Algol, Prolog, Fortran
- Designed and implemented custom language interpreters

Tools

- Microsoft Visual Studio, XCode, Code Warrior, ArgoUML, Orcad, Modelsim, Xilinx Foundation, Synopsis, Leonardo, VNOs, Forth, flex, bison, gdb, grep, cvs, svn, gcc and other *nix tools

Software

- Database: MySQL, custom in-memory
- Platforms: DOS, Microsoft Windows® 3.10 through XP, Apple OS 7–9, Apple OS X, Linux, Primos, Nucleus, Solaris
- Embedded: mostly custom RTOS designs for the smaller micros (below) apart from Nucleus on the i960 and eCos on the ARM.

Processors

- Commercial: PDP 8/e, DG Nova 1200, 8004, 8008, 8080, 8086, 80186, 80188, i960, i8x86, 8051, 8048, Z80, Z180, Z8000, Pic, 6502, 68HC11, m68K, Arm Thumb 7, ARM7TDMI, PPC
- Custom: three LSI 8-bit microprocessors, several FPGA autonomous isochronous data channel controller designs including the IEEE 1394 DICE II

Protocols

- Standards: XModem, UDP, TCP/IP, SDLC, HDLC, SNA, ISDN, T1, X.25, SNMP, PPP, Ftp, HTTP, XML/XSL, SLIP, IEEE 1394, OSI stack, MIDI, USB
 - Custom: several reliable delivery statmux link protocols including low latency synchronous clients, MediaLink (Fiber and RS232, synchronous and asynchronous versions)
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AWARDS AND PUBLICATIONS

Patents

- US Patent No. 5,245,604 "A Communicating System" (MediaLink Protocol) (modified 5,751,713)
- US Patent No. 5,657,221 "Method and Apparatus for controlling non-computer system devices by manipulating a graphical representation" (VNOS)
- US Patent No. 5,544,150 "Method and apparatus for determining and indicating network integrity"
- (WO/1998/006194) METHOD AND APPARATUS FOR NETWORK CLOCK SYNCHRONIZATION

Awards for Products Based on the VNOS Core Technology

- 2005, Singlestep gets Silver award in SearchNetworking.com's 2004 Products of the Year
- 2005, Singlestep wins CRM Best in Show at IBM Partnerworld
- 2005, Singlestep wins IBM Autonomic Computing Partner of the Year
- 1991, Lone Wolf Nominated for the AES Tech Award for the MidiTap

Publications

- Article "The Layers of the Onion", Sound and Video Contractor, March 10 1992
- Article "Learning in an Introductory Expert Systems Course", IEEE Expert4(1): 45-49 (1989), with Prof. Kenneth L. Modesitt,

Leadership

- Representative for Lone Wolf to the Midi Manufacturer's Association.
 - Participated on the Show Control Midi extension definition.
 - Representative for Lone Wolf/MediaLink Technologies on the AES SC-10 Standards Committee.
 - Regular invitee to the annual Asilomar Microcomputer Workshop.
 - Regular invitee to the annual Think Conference.
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EXPERIENCE

Independent Consultant

Jun 2006-

Warman Tech , Seattle WA

- Initiated design and coding for image stitching and OCR management for a hand-held text scanner (C, C++, C#, Objective-C, OS X, Xcode Universal).
- Implemented a custom user credentials management system, optimized for high speed and large userbase by using in-memory databasing techniques (WXP, SQL server, ASPx.NET 2.0 , VS 2005).
- Interactive process visualization real-time video image generation technology (C++, WXP, VS 6, MIDI, Joystick) (ongoing).
- Video4Linux 1 and 2: bringing up the usbvision device driver; 6 patches submitted for the 2.6.21 tree, in a custom Freescale PPC SBC (C, Linux, gnu tools, kernel hacking).
- Apple iAP protocol over USB HID to the Apple iPod , in a custom Freescale PPC SBC (C, linux, gnu tools, libusb and libhid).
- Re-architected and re-implemented the configuration and protocol engine for a DAW motorized control surface based on the DICE II and its integrated ARM7TDMI, controlled by MIDI over Firewire (C, VS2005+cygwin+cross-dev gcc, eCos).
- Currently implementing a custom application based on the Gumstix Verdex computer, involving accelerometers, gyroscopes, MIDI, and A2DP Bluetooth (C/C++, Debian Linux, XScale ARM CPU).

Co-founder and Chief Scientist

Dec 2000-Jun 2006

Singlestep Technologies Corp , Seattle WA

- Primary responsibilities include creation, architecture, design and development of corporate core technology, the VNOS platform. VNOS is a graphical data-flow based rapid prototyping and deployment environment and engine. It runs on Windows 2000+ and Mac OS X with visual interface, and on Linux as a server daemon.
- Added many features to VNOS, including lazy graphical updating, in-memory Perl scripting, and VNOS expression macros.
- Technical lead and prime mentor of the Engineering Department.
- General technology resource to other groups.

Independent Consultant

Aug 1997-Nov 2000

Warman Consulting, Seattle WA

Client work included:

- Legacy IBM SNA printer stream to Xerox printers, using embedded 80188 hardware for protocol conversion and printer driver/translator running under Linux.
- Architected and designed Data Transfer Bus, Audio isochronous channel engine, Sample de-jitter digital PLL, and ARM interfaces between ARM in an ASIC and the media engines in a Xilinx Vertex FPGA. Device technology was later exploited as the DICE II chip by T.C. Electric of Canada.
- Acted as technical due-diligence investigator for several companies.
- Continued development of VNOS: implemented embedded Forth (initially for debug), data flow connections, virtual widgets, widget building wizard, property editor, Internet connectivity, and the basic set of computational virtual widgets.

Co-founder and Chief Scientist

Apr 1989-Aug 1997

Lone Wolf Technologies, Redondo Beach, CA and Seattle, WA

- Co-invented the MediaLink Protocol
- Designed and implemented the RTOS and channeling firmware for the Motorola-based 68HC11 MidiTap MIDI network product.
- Architected, designed, and implemented Visual Studio, a management tool for the MidiTap network.
- Architected and implemented the lower speed ML125K asynchronous version of the MediaLink protocol engine, which retargeted the technology as an OEM device management for networking Professional Audio equipment
- Re-targeted the Visual Studio code to support the ML125K networking. This software was the first called VNOS (Visual Network Operating System)
- Was an active participant in the Midi Manufacturers' Association (MMA). Contributed materially to the Show Control Protocol.
- Was an active participant in the AES Working Group 10, later the SC-10 Standards Committee.
- Company renamed to MediaLink Technologies Corp. in 1994.
- Designed and implemented a MediaLink FPGA (Xilinx 4025) that conveyed CD quality audio streams autonomously and isochronously, using the 68HC11 as a stream manager.
- Designed a DMA MediaLink controller in Xilinx 4025 this time driven in-band by an i960 processor. Handled multiple voice quality channels.

Senior Scientist

Nov 1975-Mar 1989

Micom Communications, Simi Valley CA

- Designed a replacement for the DG 1200 computer, using the AMD 2900 ALU bit slice chip.
- Responsible for architecture and design of most of the Micom serial data statmux communications products , and for design and implementation of their various link protocols. The protocol requirements of guaranteed delivery without lost data, over both land and satellite links, and in the face of noise environments with up to 1 in 10^3 BER, were met.
- Performed architectural and design oversight of the design teams.
- Performed technical due diligence functions for Micom's acquisitional expansion phase.
- Complete list of products in which I was involved:
 - Micro 100 transaction line concentrator
 - Micro 300 custom network logging concentrator
 - Micro 500 family modem error correction and data compression units
 - Micro 600 Data PBX (some board designs)
 - Micro 800 statistical multiplexer
 - Micro 800/II stat mux (team of 7) (over 250,000 sold at \$1500 per by 1990)
 - Micro 8000 stat mux family (team of 14)
 - Micro 900 multi-drop stat mux family (team of 3)
 - X.25 PAD, protocols and reliable in-place code-load.
 - Marathon stat mux family (team of 25) (over 200,000 sold by 2000)
 - PPP access for SNMP management and Ethernet Bridge for NetRunner Sunrise
 - Z8000 based mesh networking node (team of 11)
 - Micom network management system (team of 6)
 - Paradyne N-Plexor; 56K over load balanced 9600Bd synchronous links .

EDUCATION

California State University

Northridge, CA

- M.Sc., Computer Science, incomplete
 - Obtained 24 of 30 course units with a GPA of 4.0. Thesis chairperson not available for cross-specialty thesis comprising graphical control of Audio DSP algorithms, so started Lone Wolf to pursue this interest instead of seeking a different thesis subject.
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Birkbeck College, University of London

London, UK

- B.Sc., Mathematical Sciences with Physics