

Richard Bennett

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- Software Architect/Team Lead with extensive experience developing leading-edge, high-performance, resilient networking products and systems.
- Hands-on development experience with wireless networks, routers, video servers, switches, access points, advanced computing environments, NICs, IEEE 802 LANs, and dozens of popular protocols.
- Experienced with embedded systems, Windows, Unix and Linux, DOS, C, C++, Python, Perl, assembler, Perforce, CVS, Clear Case, OOP, and structured development.
- Track record of successful projects and products, contributions to major networking standards, excellent teamwork and written communication, and highly skilled at tradeoff analysis.

Employment Experience

Airgo Networks, Palo Alto, 2001-2002. Technical Leader.

- Designed an 802.11 Access Point, including choice of CPU and OS, definition of inter-access point routing protocols, embedded CPU tradeoffs, definition of value-added services, and detailed definition of configuration parameters and statistics. Developed site survey and network management primitives, and brought-up OS on prototype hardware.
- Designed, specified, and developed a verification test bench for a novel 802.11 chipset, including simulations, an NDIS driver, a diagnostic DLL, Python- and C-based applications, VERA conversions, an ARM agent, and a wxWindows-based GUI.

Cisco Systems, San Jose, 2000. Technical Leader (contract).

As technical lead of the diagnostics group responsible for the 7500 Router, wrote diagnostics for Intel-based Gigabit Ethernet and Triple STM-1 SONET port adapters. One used the Power PC on a smart card, and both ran under the Cisco Integrated Diagnostic System. Co-designed an on-line diagnostic for IOS, created a library for sharing code between IOS and IDS, and helped other programmers with design issues.

3Com Corporation, Santa Clara, 1996-2000, 2001. Sr. Software Engineer.

Executed 4 successful projects over a five-year period including the following:

- NDIS Ethernet driver supporting magic packet protocol (2001) and ODI Token Ring driver (1996).
- TCP/IP auto-install program using ARP, DHCP, and Ping (1996).
- Diagnostics and traffic test tools for a variety of Ethernet NICs from 10M/bps to 1G/bps, with ARM processors and without, on DOS, Windows, OS/2 and NT; 1996-2000.

Hewlett Packard/EIT, Palo Alto, 1994-96. Sr. Member Technical Staff.

- Member of research team developing a bandwidth negotiation protocol for real-time Web

applications, under a grant from DARPA. Evaluated, integrated, and extended a number of videoconferencing tools for the MBONE, an IP multicast overlay, and specified protocol enhancements for peered routing of multicast traffic over variable-bandwidth links.

- Designed and coded an API and protocol for distributed control of a video file server from a variety of set-top boxes and PCs. Protocol allowed for pipelining multiple commands upstream, and a rich but simple error-recovery and event notification system. This API resembles the TiVo and Replay personal video recorder user interface.

Independent Software Contractor, 1994: Real-time systems, video servers.

Completed several short-term contracts on video and audio servers with Compression Labs, Polycom, Starlight Networks, Sony, and 3Com.

Mobile Digital, Alameda, 1993-94. Project Lead/Wireless WAN Protocols.

Developed portable suite of transport layer protocols for Wireless WANs RAM Mobile Data, Ardis, and CDPD. Work was in C language for MS-DOS, Unix, and Windows, and included network management, power management, and error recovery in addition to standard transport functions for wired WANs.

Photonics Corporation, San Jose, 1991-93. Project Lead/Wireless LAN Protocol.

Designed and implemented a protocol for bandwidth reservation, label-based inter-access point routing, hidden node protection, data transfer, multiple access priorities, segmentation, and error recovery for an infrared LAN. Implemented protocol in an NDIS driver for DOS/Windows on Intel Ethernet chip. This protocol was the precursor to DFWMAC, the IEEE 802.11 standard articulated two years later.

Fremont Communications, Fremont, 1990-1991. Vice-President of Engineering.

Managed a group of four engineers responsible for all user interface and protocol elements of an award-winning, low-cost PC-based fax modem, in a start-up environment.

Memorex-Telex, Milpitas, 1987-90. Director, Technical Marketing.

Managed a group of five system engineers who designed, provisioned, and installed networks for company's customers, including NICs, Novell file and print server, and typically a 3270 gateway for mainframe access.

Lityan Systems, Singapore, 1986-87. Consultant.

Advised offshore developer about the American market for ISO and IEEE 802-compliant networking and diagnostics products, wrote business plan and produced demo software running 3Com network operating system software and MS Net.

Excelan Inc., San Jose, 1985-1986. Project Lead, OSI Protocols.

Designed and developed OSI file transfer, access, and management protocol (FTAM) for turnkey LAN/protocol company. Represented company at OSI Implementors' Workshop and contributed

to design of multi-protocol framework for future development of IP and OSI protocols.

Tandem Computers, Austin, TX, 1983-1985. Software engineer.

Developed LAN products and demos, supported sales organization in closing LAN deals, and represented company on LAN standards committees. Wrote DOS device drivers in Intel assembly language and developed mainframe-based SMB file server. Served as Vice-Chair and Editor of 802.3 1BASE5 Task Group.

Texas Instruments, Austin, TX, 1977-1983. Software engineer.

Designed and implemented the first application for company's Token Ring chipset, a tunneling terminal server for legacy equipment. Developed a minicomputer-based 3270 emulator and related SNA LAN gateway. Wrote drivers and file transfer utilities for PC to Host, under a variety of proprietary real-time and time-sliced operating systems, with a variety of protocols.

Education

Post-graduate work, University of Texas, Computer Science, Logic, and EE, 1977-78.
BA, University of Texas, 1975.

Industry Groups

Contributor, IEEE 802.11, 1991-93. Designed Plink II MAC protocol, precursor to the standard DFWMAC submitted to the committee by Xircom, Symbol, and NCR two years later.

Secretary and Founder, Open Token Foundation (1989). Organized group of Token Ring vendors into trade group.

Participant, OSI Workshop (1985-86). Wrote interoperability subset specification for protocol suites with multiple options, and demonstrated feasibility of open protocols

Vice-Chair and Editor, IEEE 802.3 1BASE5 task force (1984-85). Wrote first Twisted-Pair Ethernet Standard.

Publications

Ethernet History: Nikkei Network, February 2003 (interviewed as architect of twisted-pair standard and pre-standard wireless MAC.)

New Challenges in Corporate Connectivity: Dataquest, 1990 (with Glenn Schiller.)

Token Ring's First Decade: The Open Token, September-November 1989.

Supplements to IEEE CSMA/CD 802.3 Standard: IEEE, 1989 (listed co-author).