



Software Systems Group

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## *Ned W. Rhodes*

### ***Professional Capabilities:***

Thirty-plus years of experience in the computer industry developing hardware and software solutions to complex business and scientific problems. Areas of special expertise include advanced hardware and software security development, real-time data acquisition, embedded systems, data communications, device drivers design, system design, office automation, networking, Web design and contract programming. Mr. Rhodes' skills enable him to quickly adapt to any software or firmware programming and hardware environment.

### ***Academic Background:***

- § CDP, Certificate of Data Processing, 1982, Institute for the Certification of Computer Professionals
- § MS, George Washington University, 1979, Computer Science
- § BSEE, University of Minnesota, 1975, Electrical Engineering

### ***Related Experience:***

#### **Software Systems Group, 1984 - Present**

*President* - Mr. Rhodes is the founder and President of Software Systems Group (SSG), whose mission is to analyze and solve business problems using computers, software and networks drawing upon experiences with Intel, Apple, Linux and Microsoft hardware and software.

**Current Programs:** Web site development using Microsoft .Net tools, including IIS and SQL Server utilizing managed code (C#/VB) and AJAX client-side scripting. Mr. Rhodes is also involved with other Content Management Systems (Joomla) and Web 2.0 portal development.

**Firmware development:** Development of an internet security appliance based on the IBM 440GX PowerPC processor that allowed organizations to build secure Virtual Private Networks and firewalls to secure their communications over the Internet. Mr. Rhodes led the design and software enhancement development to port this capability to the Linux operating environment. In addition to the embedded firmware, this appliance utilized HTML and Python software components. The code was managed with CVS, Subversion and Git version control systems. He worked closely with the hardware engineers to develop the necessary board support packages, wrote firmware based diagnostics as well as Linux device drivers to support the hardware. Significant additions were made to the Linux TCP/IP stack to accommodate the security protocols implemented in software and with hardware (HiFn) crypto processors.

**Device Driver Development:** Throughout his career, Mr. Rhodes has been involved with device driver development. This started with writing specialized hardware device drivers to support data acquisition on mini and microcomputers, and then went on to include Ethernet protocol drivers for both RT-11 and VAX/VMS machines. More recently he has modified Windows device drivers that implemented VPN connectivity and wrote and modified Linux /proc, device drivers as well as user/kernel mode communications.

**Macintosh Development Efforts:** C++ program required interfacing special-purpose hardware networked together using RS-485 and AppleTalk. Mr. Rhodes was responsible for the data acquisition server that acquired data from up to 192 channels and stored the data in a digital form for playback. He was responsible for the workstation software that allowed users to control and playback data. In addition, he designed and implemented the VME-based digital storage and playback system which was running a PSOS kernel.

**Software/Programming Languages Experience:**  
*C, C#, C++, Basic/Visual Basic/VBScript, ASP, .Net, AJAX, Java/Javascript, Python, Pascal, Cobol, Fortran, HTML, Assembler on multiple platforms (Intel, Motorola, PowerPC)*

**Database Experience:**  
*SQL/SQL Server, Access, Filemaker Pro, Dbase, Clipper*

**Operating Systems Experience:** *Windows Vista/XP/Server, Macintosh, Linux, VMS, RT-11, RSX-11M, UCSD Pascal, DOS, VTRX, PSOS, CP/M*

**Hardware Experience:**  
*Motorola 6502/6809/HC11, 68K, Intel, PowerQuic II (MPC8260), PowerPC(440GX)*

## ***Ned W. Rhodes***

### ***Related Experience (Cont'd):***

**Other Projects:** Lead development of real-time data acquisition and control system for US Army helicopters used in the evaluation of Generation IV/V night vision goggles and sensors. This system was developed using Unix and VRTX, a real-time kernel. In addition, SSG worked with the National Weather Service to convert their Flash Flood Warning System from PDP-11 processors to IBM-PCs running MS-DOS and performed some database work on an instrument custody program for the Navy using IBM-PCs. Other projects have included the development of a professional liability maintenance program that handles membership lists, insurance coverage and billing for Professional Risk Management Services, Inc. on one of their in-house MicroVAX systems, and the design and installation of Wide Area Network for a sheet metal manufacturer that handles their inventory, order processing and accounting functions.

#### **1981 – 1984 - Melpar Division of E-Systems Inc.**

*Senior Software Engineer* - He was involved exclusively with the development of multiple processor systems. He developed a seven-layer protocol, modeled after the ISO standard, that ran on PDP-11/23 minicomputers using the RT-11 operating system and on VAX processors running VMS. This protocol allowed an 11/23 to communicate with the other nodes of a distributed processor system that consisted of DEC and HP processors. For example, the VAX could be used as a graphics display processor, controlled by an 11/23 based operator console that queried an HP database for information; all were linked together by Melpar's own real-time, local area network called the E-BUS and a common protocol.

#### **1973 – 1981 - Naval Ship Research and Development Center**

*Electronics Engineer* - In the Control and Measurement Division of the Central Instrumentation Department, he developed designs for control and measurement systems that were used during full-scale trials to evaluate ship performance and characteristics. One such system was used to evaluate the acoustical characteristics of a submarine hull. It was used in two full-scale field trials aboard United States submarines and then modified to acquire data from a quarter-scale submarine model at a deep water facility in Bayview, Idaho. He also designed and implemented data acquisition systems for the evaluation of the Navy's air cushioned landing craft.

### ***Security Clearance:***

- § DOD Top Secret with Special Background Investigation (SBI), currently inactive.

### ***Presentations:***

- § Mr. Rhodes designed and produced a series of lectures for the Lawrence Livermore National Laboratory (Livermore, California) that was videotaped for use as a part of their in-house continuing education effort.
- § Mr. Rhodes has presented over ten special seminars covering topics such as introduction to computer operating systems, word processing, FORTRAN programming techniques and advanced programming methods.
- § Mr. Rhodes has presented a two-day seminar to computer personnel at the National Weather Service.
- § He has also taught in the Education Department at MicroCenter. The class list included most of the popular Microsoft programs as well as desktop publishing programs and databases.

### ***Related Publications:***

- § Mr. Rhodes has numerous engineering and technical writings accepted for publication. List available upon request.

### ***References:***

- § References furnished upon request.

### ***Hobbies and Other Interests:***

- § Boating and cruising the Potomac River and Chesapeake Bay. Obtained a 50 Ton USCG captain's license in 2005. Officer in local and regional yachting associations.
- § Target shooting
- § Reading and movies
- § President of Donaldson Run Civic Association, member of Arlington County's Committee of 100 and completed Arlington County Community Emergency Response Training (CERT) program.