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SUMMARY:

* Twenty years of significant technical achievements including numerous software inventions, a US Patent on an image processing device, and participation in an experiment which won the 1976 Nobel Prize in Physics.

* Proven ability to organize people and direct them in the solution of problems, and to create new organizations to address new needs.

* Demonstrated ability to find and solve key organizational and technical problems, both in current status and in long range planning activities.

* Experienced in software development on numerous platforms including VAX, Alpha, PC, and Sun and networks of these and other machines. Developed applications used throughout GE and elsewhere.

* Extensive networking experience with local and wide area networks, PC and Mac networking, servers, wiring and hardware specification and selection, and all other aspects of the subject from having been involved in the networking of both RCA and GE Corporations and total responsibility for the wiring of groups I was in.

* An innovator in security technology. Supported security maintenance within GE internal networks (7000+ node DECnet; growing TCP/IP network). Developed, distributed, and maintained security tools on VMS, Unix, and PC platforms. Provided local systems support on these platforms also. Designed and built many utilities for supporting security audit/control while promoting system usefulness.

EDUCATION:

Program Management Training Program RCA TRAINING CENTER 1988

Ph. D., Physics UNIVERSITY OF PENNSYLVANIA 1974

M.S., Physics UNIVERSITY OF PENNSYLVANIA 1969

Bachelor of Arts (double major: Physics, honors, and Philosophy) WILLIAMS COLLEGE; Magna Cum Laude; Phi Beta Kappa 1968

EXPERIENCE:

Principal Software Engineer, Digital Equipment Corp. 4/1995-present

Highlights:

* Produced new architecture document for VMS SCSI (now in early implementation stages). Served as SCSI group acting leader for a few months.

* Made several DKdriver enhancements to allow it to support optical and other disks more easily. Wrote an automatic archival storage compression system which will be distributed via freeware CD.

* Developed a security access monitor implementing Windows NT security semantics on VMS filesystems. Designed and developed code for multipath switching with various server types to handle direct and served path cases, and to enable consistent handling and failover of cluster situations where multiple path controllers and served paths exist.

* Designed support for new device naming constructs which will replace existing naming for SCSI devices. Corrected many bugs in the SCSI code base.

* Proposed a system to meld multiple filestructures to simplify system management and to take advantage of more efficient directory handling of Spiralog and provided the basic design outline, how to implement it, and performance characteristics to the Digital filesystems group. Devised several I/O performance enhancing techniques which may be incorporated into VMS.

* Gave tutorials at DECUS on comparative security attributes of NT, VMS, and Unix, on SCSI futures, and produced tutorials on network security and on I/O performance improving.

* Develops systems software for VMS, Windows NT, and Unix and runs these systems on home systems as a continuation of work done previously. Some products so developed are near to entering the market.

Systems, Networking, and Security Consultant, 1993-1995 General Cybernetic Engineering Concord, Pa.

Highlights:

* Developed robotics control software for disks to make them transparently available as though all were simultaneously online.

* Proposed, designed and developed the SQUASH compressing virtual disk system.

* Developed extended security access monitor and a comprehensive file undeletion facility, transparent storage migration software, and fragmentation inhibitor software (with significantly better performance and many extensions over earlier work, which was left behind.) Produced documentation and configuration scripts so these can be standalone products. (Introduction of my Hierarchical Storage Manager occurred in 1995. The others are undergoing beta test in 1996.) The security system adds many capabilities to earlier work including file passwords, control of special utility permissions, instant user notification of problems, and more. The undelete and HSM systems are complete, product quality implementations useful in day to day operations of computing centers. The security package in particular breaks new ground in protecting files against tampering or unauthorized access, providing an enhanced security model which reduces risks to sensitive data due to mistaken or malicious access, even where the attack is done with privileges. Because these packages become part of the file system, they cannot be circumvented with simple commands or via disabling separate security facilities within VMS, and they can prevent, rather than only react to, tampering.

* Designed automatic file shelving / unshelving facilty for Unix; implementation proceeding.

* Designed innovative caching system for disks of widely varying access characteristics.

* Designed and developed complete file structure support for Write Once Read Many (WORM)) devices.

* Developed new SCSI disk class driver for optical disks on VMS (VAX, AXP).

* Designed a unique cache system suited to situations where devices of different I/O rates exist on a machine, to basically make the slow devices appear as fast as the fast ones.

* Designed initial versions of a Novell remote backup server to provide remote magtape access to Novell nets.

* Designed Unix filesystem to read non-Unix file structures (e.g., VMS) and "incompatible" Unix structures (e.g. Solaris on OSF/1). Implementation is now complete. Transport is (initially) TCP/IP. An OSF DSF implementation may follow. Remote tape access is also being added. Also built a filesystem able to read BSD FFS filestructures from machines of the other "endian-ness" transparently, without need of Unix sources.

* Implemented remote disks hosted on OSF/1 and user NFS server as basis for filestructure access routines and Unix HSM package, under constuction. Transport using TCP/IP used, though DECnet transport may be added.

* Provided assistance to local school officials in maintaining their Solaris based mail system in addition to regular system administration of 2 Unix and 2 VMS platforms at the office.

Chief Software Architect, 1992 - 1993 RAXCO, Inc. Rockville, Md. (Supervisors: Gary Meyer, then Bob Nolan)

Highlights:

* Designed and implemented complete Hierarchical Storage Management (HSM) software system for VMS, striping and striping/journalling drivers, experimental partial file undeletion facility, and several other software devices for use in products. (These runs on both VAX and AXP platforms.) Also implemented softlinks on VMS, transparent compression and decompression and space management, and software "write-once" disks (to secure journal files from privileged tampering).

* Produced revision of KBlock product. Included was X terminal support, at my suggestion and by my design.

* Specified designs for several other products to be constructed by others to do remote file sharing and for tape management systems.

* Served as design checkpoint for much of the company's new system level code and provided instruction for more junior people as needed, plus examples of how to solve technical problems and assistance with knotty problems.

* Produced and gave internals tutorials at DECUS symposium.

* Designed terminal intercept technology to be used for Unix versions of several security products and conducted investigations of techniques needed to implement additonal unix based security controls.

* Designed and implemented extended security facility for VMS. This facility is designed to ensure file access controls may be efficiently managed in a large organization, provide integrity assurances for data, and prevent abuse of privilege.

Staff Engineering Scientist, G.E. Aerospace Technology Operations Valley Forge, PA 1979 - 1992 (Supervisors: Dr. Thomas A. Martin, Charles Wise)

Highlights:

MAJOR CONTRIBUTOR TO SOFTWARE PORTIONS OF LONG RANGE PLANS FOR AEROSPACE

* Wrote software sections of several Long-Range Technology Plans.

* MCC Software Technical Advisory Committee member.

* Internal technical advisor function; numerous reports on software technology and futures.

INTERNAL SOFTWARE CONSULTANT

* Helped secure Sun and VAX platforms and networks by developing and providing tools, acting as a center for security alerts, and providing custom assistance to secure individual sites and solve system and network security issues that arise. Provided consultation on internal networking issues of all sorts as well, both LAN and WAN protocols. Organized a network information center which was used by over 3000 logins per month for several years.

* Contributed numerous technically innovative tools. Examples have included distributed multilevel secure OS kernel design and implementation, distributed symbolic debuggers, virtual and cryptodisks, CAD tools, language processors, DBMS systems, decision support systems, communications systems, and more.

* Gave inhouse tutorials on issues such as multilevel security, dataflow processing, databases, or others. (Also give talks at computer user group symposia at times.)

* Participated in Red Team reviews in numerous contracts.

ENGINEERING ENVIRONMENT SPECIALIST

* Managed repository of engineering tools and software resources, providing functioning software re-use for GE departments.

* Produced and enhanced key networking tools for internal network.

* Researched and made available key productivity enhancement tools to sites where needed.

* Did network and system administration and integration for mixed PC/Mac/Sun/Vax network and had full responsibility for the network environment in the Technology Staff and later in the Engineering Support Center. These networks included PCs, Macs, workstations, and mainframes.

ORGANIZATIONAL LEADER

* Specified and recommended network security policy.

* Experience in several executive committees within DECUS leadership.

* Head of two major technology transfer groups.

* Library projects chair for DECUS international library

* Started several working groups, recruited leaders, and coordinated projects.

Member, Technology Staff Siemens TED, Cherry Hill, N.J. 1979

Highlights:

* Participated in developing an X.25 packet switch. Did extensive systems support of pdp11 systems, developed an executive for the X.25 switch, solved numerous technical problems which arose. These included systems, hardware interfacing, and general software support issues. During much of the time I acted as a systems consultant informally within the staff, as the need for such help proved large.

Senior Member Engineering Staff, RCA Missile & Surface Radar Division, Moorestown, NJ 1976 to 1979

Highlights:

* Developed several parts of a radar air control system.

* Major systems support role in fixing problems in CMS-2Y compiler system and software development environment.

* Internal tutor to other team members in structured design techniques and other issues. (Received Chief Engineer’s Technical Excellence award in recognition of this, 1978)

Research Scientist, Massachusetts Institute of Technology, Boston, MA 1972-1976

Highlights:

* One of the authors of Phys. Rev. Lett. 31, 4 (1974). "Discovery of New Particle J". Involved in all aspects of the experiment. Discovery won the 1976 Nobel Prize in Physics.

* Devised numerous realtime utilities and computer language processors, CAD tools and some interfaces involved in the above experiment.

* Devised analysis tools to design the experimental detectors which later became the core of the data analysis.

PROFESSIONAL HONORS:

Outstanding Technical Contribution by an Individual 1990 DECUS President's Day Award (Awarded in recognition of certain applications I have developed including crypto-disks, spreadsheet programs, network identifier support (a security tool), distributed debuggers, and more)

Outstanding Contribution by an Individual 1988 DECUS President's Day Award (Awarded in recognition of efforts which have made the software distributions to which I contribute and which I direct the most successful publication in DECUS)

PATENTS and PUBLICATIONS:

U.S. PATENT NO. 4,475,238, 1984 MAGNETORESISTIVE IMAGING DEVICE

VAX Professional, Vol. 12, No. 2, "VMS System Security in the Hard Cases". (1990). One or two more also since then.

Approximately 100 DECUS publications including: VAX/L&T Symposium Collections, 1985-1996 (containing lots of my code that implements various devices and system services for VMS on Vax and AXP and on SunOS and some of my X11 code).

Contributing author for MSDOS Kermit communications package

DECUS Library #11S006, DDT22 & SysAid Package (distributed symbolic debugger, distributed multilevel secure kernel), 5/1988. (MSX-11 multilevel kernel first submitted 1980; package has been revised several times since.)

DECUS Library #RB0122, DBMS & Spreadsheet for MS-DOS 10/1986

DECUS Library #VS0024, AnalytiCalc - 3D Spreadsheet 1/1989 and AnalyRIM spreadsheet/DBMS 1992

Phys. Rev. Lett. **31**,4 (1974) "Discovery of a New Particle J"

References:

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Various Additional Refs:

Pat St. Laurent, Supervisor, Digital Equipment

Dick Munroe, Chief Tech. Officer Acorn Software Cox St., Hudson, Mass. 508 568 1618

Bill Tabor Intraco Systems Boca Raton, Fla. 407 367 0600

Bob Nolan, President RAXCO, Inc. 2440 Research Blvd., Suite 200, Rockville, Md. 20850 301 670 3512

Bruce Zielinski Lockheed-Martin Aerospace (formerly Martin Marietta Aerospace) (formerly GE Aerospace) (formerly RCA Aerospace and Defense) 609 866 6372

Dr. Thomas A. Martin Medford Lakes, NJ

Jeff Jalbert, President JCC Consulting Inc. Granville, Ohio 43023-0381 614 587 0157

Other references available upon request