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## Summary

Engineer with many years of experience with depth and expertise in a variety of areas, including: software packaging, tools development, systems software, software configuration and build management, language components, client/server, telecommunications, database analysis, process architecture, scalability, software porting and interprocess communication, Unix and Linux systems interfaces and architecting large systems.

Strong ability with all things \*nix. Industrial strength scripting in bash, ksh, sh, python, perl, tcl, etc. Facile with RPM, deb, and pkg.

Proficient with Linux/Unix administration, ClearCase, Perforce, sendmail and all forms of subsystem configuration.

Besides my 30+ years of industrial experience, I have been active in the Open Source community and have been running Red Hat since 1995 on my home server. I am currently running Fedora 10 and am about to upgrade to F11. My history of running Red Hat and then Fedora is largely based on my preference for the rpm packaging system versus the alternative debian based system.

I currently hold SECRET clearance.

## Education

2008 Graduate level course in cryptography, Worcester Polytechnic Institute

2000 Admin Training in ClearCase from Rational University

M.S. C.S. 1988 Boston University

B.S./math 1979, Northeastern University

## Experience

LOCKHEED MARTIN, SUNNYVALE, CA APRIL '09

(CLASSIFIED) A Lockheed project had architectural problems with their implementation of ClearCase, ClearQuest, and MultiSite. A new View Server was identified as a core problem. In addition, triggers and scripts were written, Bash login environments were properly defined. Storage was reclaimed. I designed their previously non-existent branching strategy. Corporate cultural issues played a large part in the presentation of their problems.

VIA SAT, MARLBORO, MA DEC '05 – OCT '08

*Software Engineer*

(CLASSIFIED) ViaSat is a government contractor. The division I worked in is focused primarily on encryption devices.

- Restructured the build process for software at the Corporate level developed under Linux. This included source code repository structure management, PERFORCE access issues, definition of re-useable library components, COTS repository management, as well as source repository shape definition issues.
- I created a common directory structure that contained globally defined tools. This directory structure was fully integrated into the Linux login environment. This system was deployed in both Classified and non-Classified environments.
- PCKL (the PC KeyLoader) is a tool for loading keys into crypto devices. PCKL is written in Python. It communicates with the crypto device over an HDLC RS485 serial port to an encryptor for the MIDS-JTRS program using the EKMS-308 standard under the PSIAM architecture. The communication from PCKL to the serial port is encapsulated through a server process which isolates knowledge of the port. This encapsulation also allowed for easy protocol debugging.

- PCKL was built on top of a message passing framework (VTT, the ViaSat Test Tool). In addition, VTT is used for rapid deployment of other tools for a wide variety of purposes. These tools were written for a special purpose, but the flexibility that resulted from a proper Object Oriented Design allowed PCKL and VTT to be extended for use by a spectrum of different crypto devices.
- PCKL, VTT, PTT were all packaged up using both rpm and deb with extensive triggers.

#### BASHBURN

public domain utility for lightweight cd and dvd burning. BASHBURN is a lightweight tool written entirely in bash for burning cds and dvds. It can be found at [HTTP://BASHBURN.DOSE.SE](http://BASHBURN.DOSE.SE) It was intended to be an alternative to large footprint apps like K3B. The original author wrote it in bash but I rewrote the whole application to take advantage of bash's constructs. Huge numbers of processes were eliminated. Proper structure was instituted. It is now elegant, well structured, and part of a number of Linux distributions. It is now installable using RPM.

#### GUARDIUM, WALTHAM, MA DEC '04 – NOV '05

*Software Engineer* working in Release Support and Software Packaging

- Guardium's product was shipped to customers in native package formats for a wide variety of Unix/Linux platforms. I implemented package management for their product in RPM, .deb, pkg for Solaris, and pkg for AIX. Also performed build verification.

#### AXIOWAVE NETWORKS, MARLBORO, MA SEPT '03 – NOV '04

*Principal Technical Consultant* working in Release Support and Software Packaging

Axiowave was a company that created a terabit metro class core router.

- Implemented the software used for burning flash memory. Flash was used for the boot loader, monitor, and FPGAs. The top layer of the flash system was written entirely in bash.
- Implemented a tool for extracting all debug/log/trace data from the device for later analysis.
- Worked on various Clearcase tools, triggers, utilities, etc...
- Set up the system to be used to perform *gcov* analysis.
- Performed an analysis of all LynxOS system calls to determine if they were re-entrant or restartable as advertised.

#### TREBIA NETWORKS, ACTON, MA JULY '02 – MARCH '03

*Consultant*

- Designed and implemented the basic branching strategy under CVS on Linux.
- Implemented high quality hooks into CVS to do things like branch locking, subdirectory locking within a branch, tag logging, and various other commit-time checks including commit logging.
- Set up the nightly build process for their project.
- Tasked to solve various structural implementation problems in their code. e.g., varargs vs stdargs, external data initialization at compile-time, signal issues, etc...
- Responsible for all merges.
- Implemented release support mechanism which defined what files were and were not part of the released package.
- Subverted the compiler to trap classes of warning messages and to email them to their appropriate owners as part of an integrated warning processing strategy. All warnings were cleaned up in a week.
- Fixed proper dependency generation system wide. General Makefile work.

- Acted as the de facto Linux system guru.

CONCORD COMMUNICATIONS, MARLBORO, MA JANUARY '01 – JANUARY '02

*Consultant*

- Responsible for conversion of their network monitoring application from using Ingres to Oracle. This included their imake system, as well as the kitting and installation process.
- Converted their installation process to ksh88 under Solaris.
- Provided direction for ClearCase issues.

LHS PRIORITY CALL, WILMINGTON, MA FEBRUARY '00 - FEBRUARY '01

*Consultant*

- ClearCase Administrator to help migrate a large badly managed source code base from RCS into ClearCase.
- Set up NFS/NIS on a base of over forty heterogeneous machines using Linux as the NIS server.

OPENROUTE SYSTEMS/NETRIX/NXNETWORKS, WESTBORO, MA OCTOBER 98 - FEBRUARY '00

*Consultant*

OpenRoute was a company that made smaller routers that were developed under SunOS.

- Initial task was to convert their development system to Solaris. This included replacing their system of compilers for embedded development with custom designed GNU components.
- Their entire system of Makefiles was rewritten.
- All code that used varargs was restructured to use ANSI stdargs.
- Acted as general toolsmith and Unix guru.
- Wrote a secure ftp server to allow customers access to patches and upgrades.
- Lots of interaction as a ClearCase administrator.
- Rewrote bad Cshell scripts into perl so they would work in a mixed Unix/NT environment.

CVS, WOONSOCKET, RI JUNE 98 - OCTOBER 98

*Consultant*

- Initially brought in to teach a course in debugging techniques for C++ programmers.
- Tasked to implement best practices and implemented a code review of their On Line Transaction Processing system and suggested many changes to their software methodology.
- Gave a company-wide lecture series on various topics, including finite state machines, advanced makefile usage, and techniques in solid coding.

FAX INTERNATIONAL, INC., BURLINGTON, MA. JANUARY 91 - MARCH 94 (LATER UNIFI COMMUNICATIONS)

*Founder FI* was a store and forward fax business which initially targeted traffic between the US and Japan. A customer's fax machine would be subverted to cause all traffic bound for Japan to come in to the FI network via an 800 number in San Francisco. Upon completion of document reception, the document would be transmitted to a duplicate station in Japan via a dedicated T1. The Japanese station would then make the delivery to the destination using a local phone call. The customer never gets a busy signal when sending and FI takes responsibility for dealing with all other problems involved in delivery.

*Architect* responsible for:

- Creation of the development environment using, in part, almost all of the GNU utilities (gcc, gmake, rcs, gas, etc.) from the Free Software Foundation. This also included the entire source code configuration management system. High code quality requirements were enhanced via initiation of code review sessions.
- Acting as touch-point-at-large on any issues concerning Unix for the rest of the software staff which grew to over thirty people. This included all tools development not done by myself. Tools were written in a variety of languages including: C, shell, expect, tcl, awk, sed, perl, etc...
- Provided systems administration and performance tuning direction including performance analysis of applications and kernel tuning using sar, prof, timex and crash. Kernel tuning was applied to machines varying in memory configuration from 8 to 64 Meg resulting in significant improvements.
- Design, documentation, implementation, and integration of the Fax Concentrator (FC). The FC is an ISA bus machine fitted with BrookTrout cards running SCO Unix, which is responsible for the reception and delivery of customer faxes. Some interesting characteristics of the FC: It uses in excess of forty processes all coordinated using System V semaphores, message queues, shared memory, and STREAMS pipes. A part of the FC was the NFTA (Network File Transfer Authority): an asynchronous interface to network file access, with full control over the degree of client Ethernet card saturation. Performed a full analysis of converting from analog lines to use ISDN in Japan (NTT switch) with Dialogic/Promptus hardware, with Dialogic voice and fax gear, and with Primary Rate, Inc. hardware.
- Designed and implemented a log collection and data reduction tool to process > 45Meg/day worth of FC log files using scripts written in shell, perl, awk, and many other text manipulation utilities.