

COMPUTER SKILLS

- kernel development, Linux, FreeBSD, OS X, Device drivers: USB, network, scsi, fiber channel
- Strong C / C++ perl bash make programing languages
- Operating systems: Suse Linux, RedHat Enterprise Linux, FreeBSD, Windows, Apple OS X, Embedded Linux
- System virtualization: VMWare
- Networking protocols (TCP/IP, SMTP, DNS, FTP, HTTP, NFS, PXE)
- Mail servers: sendmail, imap, pop, spamasassin, clamav, squirrelmail
- Web servers: apache, modperl, php
- Phone systems: Asterisk
- Software development tools: CVS, Subversion, Perforce, GIT, Bugzilla, Mediawiki, cscope, emacs
- Storage: Linux file systems XFS, ext3, volume management md lvm

EXPERIENCE

2009 Warecorp Minneapolis MN (Contract)

Web based host and system support: Provide high end system support and integration for hosting infrastructure, using entirely open source software.

Skills: Apache, Gentoo Linux, raid storage, network administration, MySQL, Postgresql, php

2007 - 2008 HED Milwaukee WI (Contract)

Linux Specialist: Delivered a complete development environment to support an ARM based automotive embedded system. This included providing all the cross compiled application support libraries, configuring and compiled gnu tool chain for arm, linux kernel configuration, build and create complete system install. This work provided many challenges as it required addressing many issues that arose during the process of a complete system bring up: Linux kernel work such as back porting Memory Technology Devices to support larger than 2 gigabyte SD cards, integrating custom USB drivers to the linux kernel to allow access to special USB OTG chip. Other challenges involved creating root filesystem install images and writing to flash memory, analyzing and boot size and boot time issues to allow the system to be as small and efficient as possible, developing a make based build and install system that is easy to use and understand.

Skills: embedded linux, busybox, linux device drivers, uClibc, gnu tool chains, JFFS2, make

2008 PMC Sierra (Contract)

Specialized contract to specifically debug and fix a long standing XFS bug that was causing random system panics on embedded NAS server. I diagnosed the problem using a kernel debugger and manual code analysis. The fix was provided to the XFS Open Source project and the customer.

Skills: Linux kernel debugging, Open Source

2007-2008 Panasas Minneapolis, MN

Senior Programmer: This Job required many skills given the startup nature of the company and the need to address the ever changing demands of its customers. The more focused work was centered on migrating the Panasas kernel components from single processor based system to a modern multi cpu system, this involved understanding and re-factoring code that was not designed to run in a current environment to one with shared resources and proper locking mechanisms. I created a virtualized development and test infrastructure using VMWare. This system virtualization allowed for modern hardware to support older legacy software that would not run on current hardware. I also created automated install system to rapidly create virtualized test systems using RedHat Anaconda kickstart files.

Skills: Linux, FreeBSD, SMP, concurrency, C, code analysis, PXE, kickstart

2006-2007 Red Hat Minneapolis, MN

Filesystem Engineer: Contributor to RedHat Cluster Suite, specifically GFS (Global file system) clustered filesystem component.

Skills: RedHat Enterprise Linux, PXE, automated install, kernel debugging / development

1999-2006 Silicon Graphics Inc Minneapolis, MN (Contract)

Filesystem Engineer: This long running contract started with the port of SGI's premier file system XFS from their proprietary os IRIX to the Linux operation system. The the process required many new advancements—developing code portability techniques and practises so the code would be more maintainable — understanding complex operating system subsystems like the linux buffer cache, page cache, resource sharing / locking, filesystem VFS interfaces. As a requirement before the XFS code could be open sourced the entire code base was audited ensuring that there were no encumbered lines of code and there would be not legal issues. The contract was extended refocusing efforts to SGI's clustered version of XFS, CXFS. The specific goal was to move CXFS and XVM (Device Volume Manger) from the existing linux 2.4 based kernel to a linux 2.6 based kernel. Several part of the project required a major rewrite. The build system was rewritten to use the linux kbuild system, the entire block layer changed from linux 2.4 to linux 2.6 (which required most of the data IO path of XVM to be rewritten), many kernel interfaces changes were required throughout the entire system. Additional projects that were developed to support on going project requirements — an automated build system that could check for build failures across all supported platforms — writing tests and integrating into test execution and reporting framework — ongoing source code management support (ptools, CVS, git) and ug tracking and management (Bugworks, Bugzilla).

Skills: open source software, Linux kernel development, perl, make, software design, Suse SLES / Red Hat Enterprise Linux system configuration and automated install.

1998-1999 Vieu, Inc Minneapolis MN (Contract)

Filesystem Engineer: This was a specialized contract to port a Solaris device driver to Linux. The specific driver was an experimental storage driver called DAFS (Direct Access File System). The project was intended to help promote Vieu's infiniband products (when infiniband was an emerging technology) with an eye on displacing some of Fiber channel dominance in the enterprise storage market. Porting devices drivers from one OS to another requires a good understanding of both systems and good code porting techniques to create a understandable and maintainable code base.

Skills: Linux, Solaris, code portability

1997-1998 Genesys, LLC St. Paul, MN

Software Engineer/Project Lead: Managed 5 member engineering team developing a web based image management system. The system was built on multiple emerging server side web based technologies – like server side javascript and HTML templates. Most of the products that were current at the time now have been replaced, but even at that time it was a challenge to keep up with current and changing web technologies. The requirement to continually learn and possibly adapt became very apparent in this role. The other part of this position was keeping up with the server side of the business, which involved designing and installing large scale UNIX based systems to provide file serving via various protocols – nfs, apple talk, samba.

Skills: IRIX, Oracle, netscape, javascript, storage systems, volume management, file systems

1992-1998 University of Minnesota Laboratory for Computational Science and Engineering

Systems Integration Engineer: This position involved development and integration that focused on delivering very high performance storage and graphics systems for the purpose of visualization of large fluid flow simulation data sets. Significant projects involved creating the first terabyte filesystem using XFS. Multi screen graphics display called the Powerwall which was built using multiple high end SGI graphics systems and several projectors combined into one large display system.

EDUCATION

Bachelor of Arts, Computer Science

University of Minnesota

OPEN SOURCE

Administrator:

XFS Filesystem independent resources <http://xfs.org>
SGI's main open source portal <http://oss.sgi.com>