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Professional Objective

Seeking challenging technical position as an architect in software development, operating system programming or systems administration, preferably on FreeBSD based UNIX systems.

Highly adaptive and experienced kernel programmer and UNIX system administrator with management experience. Experienced in distributed computation, low level programming, assembly language, optimization and device driver programming.

Expertise programming with C, C++ and python in the UNIX environment.

Languages:

C (Unix and PC environment 9 years) (expert), UNIX shell programming (sh/zsh) (9 years) (expert), php (6 years) (expert), C++ (OOP/STL) (5 years) (expert), Python (highly skilled), Pascal (highly skilled), Perl (highly skilled), SQL (highly skilled), 80x86 Assembly (on MS-DOS) (highly skilled), Java, LISP/Scheme, APL, FORTRAN, COBOL, PROLOG, HTML, Basic, tcl/tk, PA-RISC 2.0, PPC, Sparc v9 assembler, VAX Assembly.

Development tools:

make (Berkeley and GNU) (expert), lex/flex (expert), yacc/bison (expert), CVS (highly skilled), grof (highly skilled), GDB (highly skilled), Valgrind, Purify, Perforce, ddd.

Development environments:

FreeBSD (expert), OS X (highly skilled), NetBSD, OpenBSD, Redhat Linux, SGI IRIX 6.x, Sun Solaris (sparc/x86: 2.6), Sun-OS 4.1.1, Redhat Linux, HPUX.

System administration

FreeBSD (expert), NetBSD, OpenBSD, Redhat Linux, SGI IRIX 6.x, Sun Solaris (sparc/x86: 2.6), Sun-OS 4.1.1, Redhat Linux.

Protocol and driver knowledge

TCP/IP (expert), UDP (expert), NFS (expert), RPC (expert), HTTP, FTP, SMTP, NNTP, Disk IO subsystems (SCSI/FC), Ethernet Drivers.

Employment History

CTO
Humor Rainbow Inc, OkCupid.com
July 2005–August 2006

Chief technical officer. Responsible for all technical aspects of Okcupid's direction. Duties included managing the software team, recruiting, data center management and deployment, office deployment, release engineering, source control, UNIX administration and developing code. Responsible for software development, website uptime.

Projects:

- Match server:
  Created an linearly scalable system to replace a failure prone and non-scalable solution. Using two servers (but scalable to the hundreds) I fit a large subset of the users into physical ram using a custom R-star tree to locate users that are adjacent. Additionally a distributed cache (modeled after the memcached project) was modified to allow for distributed computation of match results.

  This system replaced a mysql backed system and was able to perform a better job using half the hardware of the old system at a fraction of the complexity and maintenance of the old system.

Additionally this system allowed for "fast path" access for several important data points for users.
- Image server migration and reliability:
  Our image servers were located at a separate hosting facility. Reliability problems at the hosting facility prompted me to move the machines to our local co-location facility. To maximize reliability, once the servers were made local, they were put behind a load balancer and made 100% redundant. Prior to this work, if an image server went down we lost images on the site until a manual switch over was done.

Achievements:
- Engineered a number of improvements to key services and monitoring systems such that the number of incidents has gone from multiple incidents per week to less than one incident per month.
- Created bidding war between ISPs which allowed us to get three free months of 40 megabit egress and reduced our hosting costs to less than half.

FreeBSD committer
FreeBSD
August 1999–

Authorized to add/change code in the FreeBSD operating system.

Projects:
- Autofs implementation: Completed a filesystem that supports dispatch of kernel filesystem operations to user land to facilitate dynamic browsing. This facilitates user land direction of the kernel policy presented to VFS consumers.
- Working on bug fixes and SMP support. Interests include NFS performance, software RAID, Symmetric Multiprocessing (SMP), the Linux emulator, kernel vm/buffer-cache, network subsystems and threads libraries.
- Assisted in the design of the multiprocessor safe (MP safe) network buffer allocator, currently working on making the socket subsystem MP safe.
- Made file allocation subsystem MP safe, collaborated with other FreeBSD developers (Seigo Tanimura in particular) to accomplish this.
- Ported BSD/os client side NFS locking implementation to FreeBSD. Included both user space and kernel subsystems.
- Added support for PCI based wireless cards based on the Prism/Prism2 chipsets.
- Modularized several large subsystems including the System V IPC subsystem and the POSIX aio subsystem by converting them to loadable kernel modules.
- PXE step-by-step guide to network booting FreeBSD systems for install or lab deployment. Presented work at Google (http://www.google.com) and Jarna (http://www.jarna.com/) . Project is available at http://people.freebsd.org/~alfred/pxe .
- Integrated and improved Yahoo! (http://www.yahoo.com) 'accept filter' kernel technology into FreeBSD.
- Ported pthread cancel functionality from OpenBSD

Technical Yahoo
Yahoo Inc.
April 2004–April 2005

Senior technical Yahoo. Responsible for search operations and optimization.

Projects:
- Session Server. A distributed database that stores key/value pairs in a highly replicated manner. Data is stored on multiple backends and the information needed to retrieve said data is made available to clients. Multiple machine failures do not impact the availability of data. Nodes participating in data storage are automatically detected via broadcast. Project included custom thread safe RPC server dispatch stubs and quorum logic.
- DNS Cache. A local cache for DNS requests designed to reduce the impact of latency and down time of DNS servers.
- Companion servers. A system for providing web ranks for users of the Yahoo toolbar. Optimized data build process from five days down to ten hours. Optimized lookup by storing data in binary format, tuning database cache size, splitting databases into multiple buckets. Tuned database build turaround from one week to ten hours.
- Invariants class. A C++ class developed in order to track down bugs in code. Utilized inheritance to provide all derived classes with checkpoints in order to ensure object coherence. Provided mechanisms for identifying corruption and memory leaks at runtime with negligible performance impact.
- Apache data bridge module. Created an apache module that made passing data between our core components and third party developer code simple. Greatly reduced the complexity required of third party developers interfacing with our code.

Kernel developer, contractor
Apple Computer Inc.
November 2002–March 2004

Tasked with enhancing and fixing Apple Computer's OS X operating system implementation of NFS.

Tasked with creating the AutoFS filesystem for Apple Computer.

Projects:
- Main role assigned to enhance the experience of mobile users of NFS. This involved debugging several aspects of the NFS component mostly related to networking and process management.
- Provided implementation of autofs for OS X.
- Provided general filesystem notification mechanism for signaling filesystem alerts such as loss of connection to server, low disk space, filesystem mount and unmount. OS X is now the only UNIX based system to provide an escape mechanism for a broken NFS mount.
- Debugging, fixing and providing peer review to address issues. (example: forceful unmount of NFS filesystems.)

Kernel developer
Clickarray (now known as Array Networks)
June 2001–October 2001

Unix kernel developer (FreeBSD).

Projects:
- Developed TCP-splicing implementation. ftp://ftp.monarch.cs.cmu.edu/pub/dmaltz/msocks-infocom98.ps.gz ftp://ftp.monarch.cs.cmu.edu/pub/dmaltz/splice-perf-tr.ps
- Detailed code review facilitating the rewrite of high our premier product, a high performance web caching load balancer.
- Implemented non-blocking Sun RPC plug in to facilitate message passing API to reduce lock contention by assigning ownership of shared structures to a single process. This task was undertaken on my own in order to allow the product to be shipped without requiring interruption of service (reboot) for configuration changes.
- Developer assistance with workstation setup, using CVS, development software assistance (setting up X, vi/vim, emacs), understanding standard library calls and kernel facilities.
- Analyzing other projects being developed, finding and suggesting fixes for problems in code. Fixed memory corruption and leaks as well as file leaks in particular.

Principal Technologist
Wintelcom
March 1999–March 2001

Senior Architect, Programmer, Systems administrator, on call 24/7.

Projects:
- Lead designer of distributed high performance web tracking system. Project utilized C, Perl, SQL, PHP and FreeBSD.
- System administration, on call 24/7. Systems include high traffic web servers, DNS (bind 8), and NFS on platforms; FreeBSD (2.2.x/3.x/4.0), Sun Solaris (2.6/7) and Redhat Linux.
- Maintaining systems and source code via CVS.
- Designed an interpreter used to increase page rankings for web pages.
- Maintained systems consisting of databases (My-SQL, Postgresql), Perl, php and sh scripts. Responsible for backups, system security and bandwidth monitoring.
- Modified Postgresql client libraries to provide nonblocking support for C client code. (integrated in mainstream sources)
- Added support to pre-load data into the FreeBSD kernel to support zero copy data transport. Achieved **2500** connections per-second on a single 400mhz PII.
- Building x86 and Sun Ultra-sparc systems using FreeBSD and Solaris for internal and customer use.
- Tuning FreeBSD systems to support large Postgresql and Apache installs.

Developer
Hot Jobs Inc.
May 1998–March 1999

Unix C programmer projects included; spell checking engine to improve data entry, NNTP (news) posting module, text search engine. Reslex(tm) engine to extract information from unformatted resumes. HTML upload module. All work used

for back end to CGI systems. Various database conversion projects. Platforms worked on; SGI Irix 6.2, Sun Solaris 2.6, FreeBSD 3.0

Systems administrator (part time contracting)
Wintelcom
December 1998–March 1999

Administration of large web servers running the FreeBSD 3.0 system for SMP configurations. Management of virtual mail and web service redirection. Current Project involves reorganizing topology for more efficient throughput and ease of management. Scripting for statistics retrieval at regular intervals.

Systems administrator.
SUNY Tech Telecommunications Department
March 1998–July 1998

Installation and maintenance of SUNY tech tele-com dept. legacy UNIX server (Sun-OS 4.1.1), installation, securing and maintenance. Enabled telecommunications department to run legacy software for training.

Tutor
VESID
September 1997–July 1998

Contacted by VESID (New York State Educational Dept. Office of Vocational and Educational Services for Individuals with Disabilities) to tutor student.

Provided tutoring for individuals facing challenges in academia. Tutored programming in the UNIX environment. C, C++, CGI, familiarizing students with the school BSD/HP-UX heterogenous environment.

Tutor
SUNY Tech Learning Center
March 1997–July 1997

Tutoring students to assist in programming, and UNIX system administration at the SUNY Tech Learning Center. Comparable to my experience with VESID (above). Brought many "C", "D", and "F" students to "B" and "C" grades.

Education

BA in Computer Science, July 1998. Attended, left before graduation for position at Hot Jobs Inc.
SUNY Tech at Utica/Rome

HS, July 1994. Attended, left before graduation to pursue computer science degree.
Stuyvesant HS, New York, NY

Hobbies

- Development of FreeBSD kernel (network/filesystem) and userland
- Skiing
- Weight lifting
- Motorcycling (2003 Yamaha Vmax)

Miscellany

Written using vim http://www.vim.org/ using the xml suite xmlresume available at http://xmlresume.sourceforge.net/ .

$Id: res.xml.in,v 1.8 2005/04/04 17:30:42 bright Exp $

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