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EDUCATION
Carleton College BA Computer Science 2003
Northfield, MN
  Related Coursework (chronological order):
  Computer Networks, Software Engineering (see Althea below), Theory of Computation, Artificial Intelligence, Parallel Data Mining, History of P vs NP, Data Mining - Spam filter, Natural Language Processing, Computer Org & Architecture, Computer Graphics, History of Computer Science, Programming Languages, Operating Systems, Relational Database Design, Compiler Design, Algorithms II, Topics in Software Design, Packet Shaping (see 17-filter below)
  Honors:
  Received honors in Comprehensive Exam: talk (assigned thesis) on Distributed File Systems and a comprehensive test in core Computer Science classes.

  Member of Association for Computing Machinery (ACM) programming contest team which placed 4th in region with 145 teams which was highest rank of any liberal arts college in the country in fall 2002.

WORK EXPERIENCE (in reverse chronological order)

Gustavus Adolphus College 2004-present

UNIX Systems Administrator

- **Designed, implemented, and coordinated improvements to core computer systems:**
  o Migrated core systems (e-mail and home directories) from Sun Solaris based servers to a Linux based cluster.
  o Migrated mail from a non-scaleable single-server model to a scaleable system with four e-mail servers. It is now possible to dynamically move some users onto a new server if more capacity is needed.
  o Deployed LeftHandNetworks based iSCSI SAN which is used for Datatel, SQL servers, and file servers.
  o Implemented new backup system that does daily reverse incremental backups to a multi terrabyte disk array, from which files can be quickly restored.
  o Installed, customized, and integrated moodle as Gustavus' online course management solution. Primary technical contact for moodle.

- **Developed web based tools in PHP/MySQL for internal use:**
  o Introduced web based NetReg like system (which Carleton had developed and I modified for use on multiple VLANs, and added limited guest access) for computer network registration; it checks computers for virus scanners and up to date windows patches before allowing computers access to network resources.
  o Developed web based tools to enable users to: change passwords, forward e-mail, set up mailing lists, change spam detector settings, check disk usage, determine which directories are using the most disk space, check Internet bandwidth usage, and set up vacation messages.
  o Developed web based tools to let IT staff and/or student helpline workers: check on users disk usage, reset user passwords, create accounts based on ERP data in Datatel database, change user quotas, see which users have been disabled due to quota violations and re-enable them, view users' e-mail checking history, edit any e-mail mailing list, check on classroom use schedules, and edit file access groups.
  o Developed a web based time clock/check-in application for student employees in the Culpeper Language Center, complete with iCal style calendar view to quickly see when the lab was not covered.

- **Designed, developed, and oversaw the implementation of major network infrastructure improvements:**
    - Developed and deployed a campus wide Linux based centrally managed wireless infrastructure for a fraction of the cost of enterprise wireless systems.
    - Developed and deployed an IPTV television system using open source tools. System allows users to watch the Twin Cities broadcast channels with their computers, complete with web based program guide.
    - Set up VoIP system using Asterisk, which is used by both system administrators as well as a few niche applications such as Wireless VoIP.
    - Set up necessary servers and boot images to network boot in order to ghost computers anywhere on network.

- **Co-taught a full credit course in System Administration (MCS-294)**
    - Designed curriculum
    - Wrote and graded assignments and exams

- **Helped design and implement several core process changes:**
    - Implemented a print accounting system using open source tools (Goes live fall '07.)
    - Designed a secure automated method of resetting user passwords. (The system calls the user's cell phone and reads them a 5 digit code which they must input into the web page.) To be implemented summer, 2007.
    - Worked with Administrative Information Systems to make a daily feed of certain (non-sensitive) ERP and course data from Datatel which enabled use to keep all course e-mail lists and moodle course enrollment up to date, and easily add user accounts by simply entering their id number(s).

Conference Presentations

- 2007 Midwest EDUCAUSE Conference - Poster session on using Linux based access points to implement a campus wide managed wireless network.
- 2007 GusDay - Presented on IPTV and our implementation of IPTV using open source tools
- 2006 GusDay - Presented on to disk reverse incremental backups
- 2006 GusDay - Presented on my changes to Carleton's NetReg system

International Business Machines (IBM) 2002-2004

Software Engineer 2003-2004
Primarily working on maintaining the product developed in Internship below, extending it to better allow for multiple switch vendors (e.g. Cisco, Qlogic, Dlink) through plugins, and extending it to manage VLANs. Took several internal IBM training courses on Storage Area Networks (SANs.)

Extreme Blue Internship Summer 2002
Chosen for IBM's highly selective internship program (100 out of about 5000 applicants were accepted) and wrote program which will guide a user through setting up a BladeCenter Chassis (from setting up the management module and switch modules to launching the Remote Deployment Manager to deploy an OS) and then allow them to set "Detect and Deploy" profiles to automatically apply that profile when server blades are replaced or a new BladeCenter Chassis is discovered. At the end of the summer presented product to the President of IBM, Sam Palmisano.

Carleton College 1999-2003

Math/CS Student Technical Associate 2001-2003
Helped maintain 4 labs of dual booting Window/Linux computers, wrote a new Homework Submission Program, setup PCRdist to undo any changes made on a windows computer on reboot, general Linux administration, setup system to automatically keep all Linux systems patched and up to date, provided 24/7 emergency support for any down services, helped out any intro CS students who needed help during the day.

<u>Systems and Networking</u> 1999-2002
  Provided support for student residential computers relating to the ResNet (including phone support and housecalls), helped maintain the physical network (making patch cables or using punch down tools to activate student ports), wrote supporting software (such as a perl script which would log what MAC addresses had been observed on what switch ports to a mysql database) and set up network services (such as webmail, which included fixing bugs in Cyrusoft's IMAP authentication module.)

<u>Student Help Desk Worker</u> 1999-2001
  Helped students with any problems they had in heterogeneous Mac/Windows Novell computer labs around campus.

Princeton University Summer 2001
  Worked with Professor Larry Peterson on the "Scout OS," which was a complete rewrite of the Linux TCP/IP stack to use "paths" which allow for better QoS scheduling algorithms for network streams.

Computer Ed High Tech Camps Summers 1997-2000

Curriculum Director and Camp Counselor
  Set up 130 computer lab in a week for 40 classes/week, maintained lab, oversaw curriculum and instruction of 20 counselors, taught classes in various levels of BASIC, Pascal, C, C++, Java, HTML, PHP, Build and Repair a PC, Advanced PC Repair, Computer Networks and UNIX/Linux, and performed normal camp counselor duties.

Projects:
<u>Althea - http://althea.sourceforge.net</u>
  A GTK based IMAP client for X windows with SSL support. Has over 40,000 downloads, and 100,000 page hits. Wrote almost all of the networking code, and was primary maintainer from when our class project ended in spring 2000 until our last release in 2002 (at which point other more complete IMAP clients such as Mozilla and Evolution had become fairly stable.)

<u>l7-filter - http://l7-filter.sf.net</u>
  Designed an extension of the Linux QoS and packet filtering code to identify streams of network data based on the application layer in order to find protocols such as Kazaa or Gnutella which will move to, for example, the web port to avoid filters. (It allows Linux to do what a Packeteer Packetshaper does.) Wrote about 1/3 of the code, and am one of two primary maintainers. Users have reported that it is being used successfully in several small wireless ISPs as well as for boarding school and college dorms. This project has been slashdotted, listed on Linux Weekly News (lwn.net,) featured as the topic of a chapter (and subtitle) of a book, and incorporated into at least one commercial product.

References available upon request.