Mark Notarus
Network Engineer

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Summary

An expert Network Engineer used to working with large production networks, with experience both in design as well as day-to-day support and maintenance. Able to both develop networks to meet requirements while meeting financial constraints, and able to work with customers and managers to revise scope as requirements change.

Work Experience

6/01-Present: Network Engineer, Campus Information Technologies and Educational Services group, University of Illinois at Urbana-Champaign.

Responsible for a network of 65,000 hosts serving more than 250 buildings

- Primary job responsibilities include management and maintenance of entire core campus network, including all WAN and interbuilding aspects network components, peering connections to commodity internet providers and research networks like Internet2, maintain vendor relationships, bug and issue resolution with vendors, resolution of issues involving multiple hardware vendors , and delivering new network features to campus.
- Maintain campus and inter-campus backbone links, plus dozens of off-campus circuits ranging from 56Kb/s to OC-3 ATM, Sonet and WAN 1G links.
- Support deployed equipment ranging from very current (Cisco 6500 switches, Foundry Fastiron and Netiron hardware) to older devices (Cisco 7200 and 5300 routers, older Foundry Ironcore based products, Catalyst 5500 class hardware, LS1010 ATM switches, etc.)
- Deploy new high-end core network (6 Foundry Netirons, 1 Catalyst 6500) to replace previous core network; new network provides higher redundancy, capacity, and 10G capabilities; wrote software to automatically generate new configurations involved in: moving 8 previous core routers managing subnets to 4 new routers, migrating ACLs, updating router interfaces for subnets, and adding/removing vlans from links (project completed in 2006)
- Help write technical specifications for our annual network equipment RFPs, evaluate and grade responses, select equipment to fit roles for our Network Design Office to use while upgrading buildings.
- Develop network management tools as needs arise. Highlights include:
    - Developed the Network Buoy system, a lightweight unix based network probe which monitors and reports real-time network service metrics based on actual network performance, not SNMP results. Data is available for both live browsing as well as historical lookup.
    - Write a tool that allows 1 command/click blocking of hosts on our multi vendor network. Tool finds where the host is attached, determines the right response for the hardware, creates or extends ACL as appropriate and blocks the device. Tool also provides one click unblock
    - Create an automated tool that monitors output of firewall logs to automatically detect infected windows host, block the host, and generate tickets
    - Enhance open source NoCat project into a full-featured network captive portal solution. Added features like user logging, remote disconnect and user bans, etc. Deployed service now serves up to 12,000 logins a day in our wireless deployment.
    - Develop modules for FreeRadius and a web interface to allow our campus IT Professionals to create guest users for the wireless network, let them manage those

users (account start date, etc), and as well as print out professional PDF user guides with the user login info inserted neatly inside.
    - Various other projects like software that monitors all links in the multivendor core network and flag vlan configuration inconsistencies, daily config check software that downloads and revision controls every managed device's(1220 and counting) config, then mails out a human readable config diff with context information, and much more.
- Lead conversion from legacy Fast Ethernet and ATM campus backbone to new redundant Foundry FastIron Gig-E Core network. involving migration of over 300 subnets. (project completed in 2001)
- Project management for all University Administration networks upgrades
- Troubleshoot and resolve networking issues caused by denial of service attacks, virus infected machines, and other daily security and network performance issues.

4/99-6/01: Lead Network Engineer, Global Telecommunications Solution Sector, Motorola Inc.
Responsible for a network of over 25,000 ports in three major campuses, including 6 data centers

- Design and implement a network core designed to achieve 99.999% network uptime, in a campus network with 150+ access switches and 300+ subnets. Network was successfully providing 4.6 NINES availability when I left.
- Manage a project to upgrade all network ports at Arlington Heights campus to 99.999% availability, 10/100 switched networking to the desktop (more than 18,000 ports)
- Plan, budget, and manage networking installation for the new Deer Park Motorola facility to seat approximately 2,500 people with a $14M network budget
- Manage and operate project to select two hardware vendors to serve all of Motorola's global networking requirements, based on objective measures of features and support
- Supervise a team of 7 FTE and 3 contractors
- Design strategies to meet Motorola's corporate networking and security policies while improving network performance
- Manage all Northern Illinois NSS networks, covering 26,000 network ports, using a mix of ATM LANE, Gigabit Ethernet, FDDI, and using primarily Cisco and Cabletron network hardware. Provide 24/7 support for all NSS locations
- Design and implement networking in new construction areas, new facilities, as well as existing network closet upgrades
- Support existing WAN Frame Relay and ATM links to remote sites

3/97-4/99: Network Design Office and Backbone Support Group, CCSO, University of Illinois
Responsible for designing and installing networks in dozens of buildings, as well as helping to manage campus core network, remote access, and wan links.

- Design in-building networks on campus, covering 25 of more than 250 buildings on campus including:
    - Selection of appropriate media for links
    - Selection and configuration of vLAN technology, as needed
    - Selection and installation of equipment
    - Identification of location for new fiber and copper wire
    - Assist departments with understanding their needs so they can plan their network growth
- Evaluate new vendor switches for suitability for on-campus use
- Provide 24/7 support of Cisco LS1010s, Cisco routers, and Catalyst 5x00 class gear in our ATM/LANE/Ethernet backbone

- Responsible for support for 33 terminal servers, 1300 dial-in lines, analog and digital, in 6 pools
- Complete rewrite of Tacacs+ server to add features like single-connection mode, kerberos, ph, dynamic authorization. Processes 50K transactions/day.
- Maintain campus and inter-campus backbone links, plus 170+ off-campus circuits ranging from 56Kb/s to OC-3 ATM

11/95 - 3/97: Network Administrator Support, CCSO, University of Illinois

- Provide support to campus departmental network administrators
- Support work includes software, hardware, and network troubleshooting
- Develop and teach classes in networking to campus netadmins
- Provide in-depth network and protocol analysis to solve obscure network problems
- On-site consulting work for other university departments
- Evaluate and recommend software for departmental needs
- Develop and enhance software for campus-wide use

Education

- Cisco CCNP Certification, Feb. 2002
- Bachelor of Science degree in Math and Computer Science from the University of Illinois, Champaign-Urbana, May, 1996

Relevant Skills

Networking: Extensive experience with networking hardware like routers, repeaters, cabling, and bridges. Experience with large multi-vendor 50,000+ node network mixing ATM, LANE, and 10M/100M/1G/10G/s Ethernet. Experience with Network General, HP Internet Advisor, Ethereal network analyzers and their use in troubleshooting networks. Expert with Cisco's IOS, LS1010s, Cisco Catalysts, Foundry L2 and L3 switches, as well as switches from many other vendors: 3com, HP, Bay, Cabletron/Enterasys. Experience with T1's, BRI/PRI ISDN circuits, DSx links, xDSL gear, etc. Experienced in TCP/IP, OSPF, RIP, BGP4, AppleTalk, IPX, etc. Familiar with Netscreen firewalls and Tipping Point IPS systems.

Programming: PERL, PHP, C, and C++, expect. Written applications and utilities for DOS, Windows, and Unix. Written TCP/IP networking monitoring tools for Unix in C++ and Perl Some SQL programming experience.

System Administration: Mac OS X and Unix system administration, especially Linux RedHat derivatives.

References Available Upon Request