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CU200 - UNIX System Administration

Course Description:

Learn and practice essential administration tasks. Generic system administration concepts are covered and related to specific vendors' systems.

Audience:

UNIX administrators and anyone involved with the UNIX System V, Release 4 operating system.

Prerequisites:

Fundamentals of UNIX, and some system administration experience recommended.

Course Contents

Overview of System Administration

- System Administrator Responsibilities
- A Brief History of UNIX
- Evolving Standards
- Navigating the Documentation

User Administration

- What is a "user" in UNIX?
- The /etc/passwd File
- Groups
- The /etc/group File
- Passwords
- Adding Users
- Deleting Users
- Modifying User Attributes
- The Login Process
- /etc/profile and .profile
- Communicating with Users: /etc/motd
- Communicating with Users: The wall Command

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File System Basics

- The Hierarchy
- Files
- Directories
- Device Files
- Character and Block Devices
- The/dev Directory
- Links
- Symbolic Links
- A File System Tour
- The df Command
- The du Command
- The fi nd Command

Advanced File System Concepts

- The Physical File System
- The Inode File
- File Storage in Disk Blocks
- The Superblock
- The Free List
- Slices and File Systems
- File System Types

Disk Management

- Making a File System
- The mkfs Command
- Sharing Filesystems
- The mount Command
- The fstab File
- The fsck Command
- The lost+found Directory
- The prtvtoc Command

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Backups

- Backup Strategies
- Backup Tools
- The tar Command
- The cpio Command
- The dump Command
- Network Backup Strategies

UNIX Processes

- Overview of Processes
- Process Space
- Process Table
- The fork/exec Mechanism
- The ps Command
- Background Processes
- The kill Command
- Scheduling Jobs
- The cron Daemon
- The at Command
- The crontab Command
- Format of cron Files
- Access to Scheduling Facilities

System Startup and Shutdown

- Run States
- The init Daemon
- /etc/inittab
- The inittab Actions
- The init Command
- The rc Scripts
- Single-User Mode
- The shutdown Command

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UNIX System Security

- Security Overview
- Physical Security
- Account Security
- SUID and SGID Settings
- File and Directory Permissions
- Software Security

Performance Monitoring and Tuning

- Performance Issues
- Methods of Improving Performance
- Swapping and Paging
- The sar Utility
- Using sar
- The truss Command

IP Addressing

- Basic Network Needs
- Ethernet Addresses
- IP Addresses
- DNS vs /etc/hosts to Resolve IP Addresses
- Network Addresses
- Network Classes
- Broadcast Addresses
- Subnet Masks

Configuring TCP/IP

- The /etc/hosts File
- The ifconfig Command
- The /etc/services File
- The inetd Daemon
- The /etc/inetd.conf File
- Simple TCP/IP Troubleshooting: The ping and netstat Commands

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The LP Print Service

- Printing Overview
- The lp, lpstat, and cancel Commands
- Adding a Printer
- The lpadm Command
- The accept and reject Commands
- The enable and disable Commands
- Adding a Networked Printer
- Other Administrative Commands

Network Utilities

- Network Services
- telnet - Terminal Emulator
- ftp - File Transfer
- rcp - Remote Copy
- rlogin - Remote Login
- rsh - Remote Commands

Kernel Reconfiguration

- Overview of Reconfiguration
- Kernel Parameters
- Steps to Reconfigure a Kernel
- Specific Steps for SVR4

Overview of NIS

- What is NIS?
- Why Use NIS?
- NIS Design and Implementation
- NIS Maps
- Configuring NIS