
UNIX System Administration

CIS 68C1-01

Lecture 1

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Introduction

- *UNIX History and Background*
 - System V
 - Berkeley 4.x
 - Open Source Based
 - Linux
 - FreeBSD
 - Standards
 - POSIX
 - XOpen Spec 1170

Administration – Essential Tasks

- Responsibilities of a UNIX Administrator
 - User Account Management
 - System Hardware Management
 - Backups
 - Software Installation and Maintenance
 - System Monitoring
 - Troubleshooting
 - Maintenance of Local Documentation
 - Security Audits
 - User Assistance

Administration – Essential Tasks

- User Account Management
 - Home Directories
 - Group Membership
 - Mail
 - Default startup files
 - Permissions
 - Accounting and Restrictions
 - Communicating Policies and Procedures
 - Disabling and/or Removing User Accounts

Administration – Essential Tasks

- System Hardware Management
 - Capacity Planning
 - Hardware Evaluation and Purchase
 - Adding and Removing Hardware
 - Hardware Configuration
 - Cabling, Wiring, Dip Switches, etc.
 - Device Driver Installation
 - Kernel Configuration
 - Creating Device Entries
 - System Configuration and Settings
 - User Notification and Documentation

Administration – Essential Tasks

- Backups
 - Disk and Backup Media Capacity Planning
 - Performance Considerations
 - Network or System Impact
 - Disaster Recovery
 - Onsite vs. Offsite
 - Periodic Testing
 - Multiple Copies
 - User Communication
 - Schedules
 - Downtime Schedules and Policies
 - Restore Guarantees and Procedures
 - Loss Tolerance

Administration – Essential Tasks

- Software Installation and Maintenance
 - Evaluation of Software
 - Installation
 - Downloading and Building
 - Installation Directories and Availability
 - Security
 - Patches and Updates
 - User Notification
 - Local Documentation

Administration – Essential Tasks

- System Monitoring
 - Security
 - File and Directory Permissions
 - Passwords
 - Break Ins
 - Hardware Functioning and Operational
 - Capacities
 - Disk
 - Network
 - System Performance
 - Activity Logs
 - Examination
 - Periodic Rotation and Truncation

Administration – Essential Tasks

- Troubleshooting
 - Problem Discovery and Determination
 - Often very difficult
 - Root Cause Analysis
 - Resolution
 - Implementation
 - Often Requires
 - Broad and Thorough System Knowledge
 - Outside Experts
 - Luck
 - Expediency

Administration – Essential Tasks

- Maintenance of Local Documentation
 - Administrative Procedures and Policies
 - Backup Media Locations
 - Hardware
 - Location
 - Description, Connection, and Configuration Details
 - Software
 - Install Media and/or Download Location
 - Installation, Build, and Configuration Details
 - Patches Installed
 - System Usage Policies for Users

Administration – Essential Tasks

- Security Audits
 - System Logging and Audit Facilities
 - Evaluation and Implementation
 - Monitoring and Analysis
 - Traps, Auditing, and Monitoring Programs
 - Unexpected or Unauthorized Use Detection
 - System Vulnerabilities Analysis
 - Monitoring of Security Advisories and Newsgroups
 - Security Holes and Weaknesses

Administration – Essential Tasks

- User Assistance
 - Time Intensive
 - Software Availability and Usage
 - Software Configuration Settings and Variables
 - Hardware Usage, Maintenance and Troubleshooting
 - Writing FAQs

Administrative Utilities

- Command Line vs. GUI
 - Command Line Utilities
 - Require More Knowledge to Use
 - Typically Similar on Many UNIX Systems
 - More Advanced Troubleshooting, Problem Resolution and Capabilities
 - GUI-Based Utilities
 - Easier to Use
 - Specific to each UNIX System
 - Not Widely Available or Standardized

Administration Challenges

- Administration is Challenging
 - Broad Knowledge of Hardware and Software
 - Balancing
 - Short Term Needs vs. Long Term Planning
 - End User vs. Company Requirements
 - Service Provider vs. Police Model
 - Work Well and Efficiently Under Pressure
 - 24x7 Availability
 - Flexibility, Tolerance, and Patience
 - Communication