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Building World Class MIS Teams, for you!

CU018 - Concepts of UNIX Internals

Length: 4 Days

Description

This seminar presents an in-depth discussion of the UNIX operating system which includes operating system concepts; current UNIX hardware systems and their differences; UNIX versions and look-alikes; detailed discussions of the physical and logical file system implementation, process control mechanisms, I/O subsystem, and interprocess communications. This seminar is designed for system and application programmers, system analysts, and others responsible for porting UNIX and/or application and system software. At the conclusion of this seminar the attendee will have a thorough understanding of how UNIX operates, manages users and processes, maintains file system integrity, and controls input and output.

Course Objectives

Upon completion of this seminar the attendee will be able to:

1. state the architecture and features of the UNIX operating system;
2. list the events which occur during UNIX system startup;
3. state the purpose and functions of the UNIX shell;
4. describe the implementation of the physical and logical file systems;
5. define processes and describe how they are created, managed, and terminated;
6. describe the I/O subsystem to include block and character devices, streams and sockets; and,
7. describe how the following interprocess communications facilities operate:
 1. pipes;
 2. messages;
 3. semaphores;
 4. shared memory; and, signals.

Course Materials

1. Concepts of UNIX Internals Student Guide and course notes.

Prerequisites

None

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Course Content

I UNIX SYSTEM OVERVIEW

- A History Of UNIX
- B Hardware
- C Major UNIX Releases
- D UNIX O.S. Structure

II THE SHELL

- A Command Interpretation
- B Command Parsing
- C Standard Input/output
- D I/O Redirection
- E Background Processing
- F Shell Variables
- G Pipes
- H Filters
- I Wild Card Matching
- J Shell Programming

III THE UNIX PHYSICAL FILE SYSTEM

- A File System Format
- B Super Block
- C File System Hierarchy
- D File Allocation
- E Creating A Link
- F Mountable File Systems
- G File System Commands

IV THE UNIX LOGICAL FILE SYSTEM

- A File System Features
- B File Concept
- C Types Of Files
- D Hierarchal File System Directories
- E Path Names
- F File And Directory Names
- G System Directories
- H Listing Files And Directories
- I File Attributes
- J File Access Permissions
- K File Manipulation
- L Directory Manipulation
- M Special Files
- N Efficient Use Of File System

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V PROCESS CONTROL

- A Process Definition
- B Process Attributes
- C User Block
- D Process File Table
- E File Descriptors
- F System File Table
- G System Inode Table
- H Invoking Processes
- I Fork & Exec
- J Pipes
- K Background Processes
- L Signals

VI I/O SUBSYSTEM

- A Driver Interfaces
- B Block Devices
- C Character Devices
- D Streams

VII INTERPROCESS COMMUNICATIONS

- A Process Tracing
- B System V IPC
- C Network Communications
- D Sockets

VIII COURSE CONCLUSION