

Linux Administration Training Curriculum

Course II - Linux Server Administration II

This 40 Hour course builds on the skills developed in the Linux Workstation Administration I course and focuses on the skills and knowledge necessary to install and administer Linux Network Servers that provide services to Linux workstations such as local File Server, Print Server, and Central Backup services to client workstations on the LAN and provide secure Web and Internet access from local and remote client stations.

Linux Server Management teaches the inner workings of the Linux OS and shows how to set up many of the server services that are included with Linux, such as FTP Server, HTTP ApacheWeb Server, SAMBA - Interacting with MS-Windows Servers, DHCP, DNS and TCP/IP Network Fundamentals. In the hands-on labs students will practice installing and setting up a Linux Network Server to support Linux and MS-Windows workstations on the local LAN. Advanced administration topics such as Network Monitoring and Security, and advanced UNIX administration commands are covered.

1. Understanding Linux as the Server

- ? Concepts of an OS and a dedicated server
- ? GPL and other software licenses
- ? What are Linux distributions?
- ? Software Distribution package contents

2. The Job Of The System Administrator

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3. Server Configuration, Startup and Tuning

- ? Server Installation Considerations
- ? System Startup, Shutdown, Run Level Control Scripts, CHKCONFIG Utility
- ? Choosing and Configuring the Boot Manager / Boot managers: LILO and GRUB
- ? Disk Partition strategies for Servers - spreading the load out
- ? Server software packages to select
- ? Installation step details
- ? Process and Resource Management, Kernel and Disk Tuning. Using the TOP tool for tuning

4. Linux File System Management

- ? File system maintenance – FSCK
- ? Adding additional disk partitions – Using FDISK, MKFS

- ? Format partitions for files and swap space – MKFS, MKSWAP
- ? Understanding the Filesystem Table /etc/fstab. Automatic network drive mounts
- ? Using commands to check disk usage – DU, DF

5. Advanced User and System Management

- ? Concepts of user logins, home directories and quotas, printer service
- ? Review how to manage user accounts
- ? Adding groups of users
- ? Disk quota management concepts and implementation
- ? The motd, login, /var area, and log files
- ? Create remote print service for client workstations
- ? Advanced RPM for software management. Add/update/remove software

6. General Network Services Administration

- ? Standard network-based services – DNS, FTP, SSHD, NFS, SAMBA
- ? WAN/LAN network testing: ping and dig
- ? Setup and maintenance of the xinetd Super Server
- ? Adding security with TCP_Wrappers
- ? Maintenance of FTP, telnet, talk, identd, ..
- ? E-mail services concepts and maintenance

7. Network Administration Basics

- ? WAN and LAN networking and managing services running
- ? Run level and service management
- ? Advanced IP management with IP aliases and multi-homed host
- ? Host name resolution concepts and services: DNS, /etc/hosts, /etc/resolv.conf
- ? Centralized IP management

8. The Network File System, NFS

- ? Concepts and security issues
- ? Setup and maintenance of NFS
- ? Centralized installation of Linux using NFS
- ? Client installation disk
- ? NFS export of installation files

9. Windows Networking Connectivity With Samba

- ? Configuring Linux to provide SMB-based file and print services

10. The Apache Web Service

- ? Concepts surrounding a Web service
- ? Setup and maintenance of HTTPD
- ? Log files and usage reports

11. Security Options

- ? System security design
- ? SUID, SGID, and Sticky Bit
- ? Trusted host and the "r" commands
- ? Using IP chains to filter network packets
- ? SSH – Secure Shell remote management
- ? Firewall, proxy server, and TCP-Wrappers
- ? Port scanning and sniffing tools
- ? Check vulnerability with nmap
- ? Central backup and restoration concepts
- ? Tar, CPIO, or Dump – when to use what

12. Kernel Reconfiguration

- ? Concepts of kernel reconfigurations
- ? Steps to rebuild a kernel
- ? Installation and testing of the new kernel

13. Server Troubleshooting

- ? Where to start and what to look for
- ? Installation and package problems
- ? Starting and stopping services
- ? Using kill and restarting system processes
- ? Why use scripting

Hands-on Labs

Lab 1: Discover hardware settings needed.

Lab 2: Installation of Linux as a server/workstation with X.

Lab 3: Initialize single user mode, repair mode, and check file systems.

Lab 4: Add users, spread out home directories, and manage login display messages.

Lab 5: Test network connectivity with PING, and configure basic FTP service.

Lab 6: Configure WAN settings and additional IP addresses.

Lab 7: Create network file services with open and limited access.

Lab 8: Configure File and Print services.

Lab 9: Configure basic apache settings for www.exampleXY.com.

Lab 10: Check current vulnerabilities, start and stop insecure services.

Lab 11: Adjust kernel parameters and rebuild kernel.

Lab 12: Create an emergency boot floppy and create an alternate root partition.

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