

## Linux<sup>®</sup> Administration and Support: Hands-On - 4 Days

*Course 144 Overview*

- You Will Learn How To**
- Install, configure and support Linux servers for reliability, functionality and performance
  - Control and troubleshoot the boot process
  - Create and extend volume management and access external storage
  - Deploy software components from source and packaged distributions
  - Deliver file, print and network services for both UNIX and Windows clients
  - Build, install and tune a customized Linux kernel for improved functionality
- Course Benefits** Open source software and operating systems continue to increase in popularity, allowing organizations to maintain complex systems more cost effectively. The need for administrators who can leverage the benefits of these systems is growing at a rapid rate. In this course, you gain the knowledge and skills required to build, manage and tune a Linux server to meet your organization's critical administrative needs.
- Who Should Attend** Those responsible for the design, support and maintenance of new and existing Linux systems benefit from this course. Knowledge of Linux or UNIX at the level of Course 143, "Linux Comprehensive Introduction," or Course 428, "UNIX Comprehensive Introduction," is required.
- Hands-On Training** Extensive exercises using Red Hat Enterprise Linux, CentOS Linux and other open-source software provide you with hands-on experience administering and supporting Linux. Exercises include:
- Designing and performing an installation
  - Recovering from catastrophic failure
  - Creating and modifying users and groups
  - Administering logical volumes and file systems
  - Configuring network services
  - Sharing files and printers with Samba
  - Building a high-availability load-balancing cluster
  - Creating a customized kernel

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## Course 144 Outline

### Installing Linux

#### Administering open source systems

- The roles of an administrator
- Open source licensing
- Acquiring your Linux distribution

#### The installation process

- Selecting storage technology
- Structuring the file system
- Selecting software packages
- Performing the installation

### Booting Linux

#### Managing the boot process

- Choosing the boot loader
- Specifying the target run level
- Following the boot scripts sequence
- Assigning services with **chkconfig**
- The **/etc** configuration hierarchy

#### Rescuing an unbootable system

- Troubleshooting a boot loader
- Recovering with rescue media

### Developing an Administrative Framework

#### Users and groups

- Defining users in **passwd** and **shadow**
- Assigning users to groups
- Establishing and modifying accounts

#### Process control and logging

- **ps**
- **pstree**
- **top**
- **vmstat**
- Examining the **/proc** file system
- Signaling processes with **kill** and **pkill**
- Capturing important events with **syslog**

### Managing File Systems

#### Device and volume management

- Installing new disks
- Establishing and extending logical volumes

#### Mounting file systems

- Creating and tuning journaled file systems
- Attaching to network file servers

#### Ensuring availability

- Backing up and restoring data
- Archiving system configuration
- Repairing file systems with **fsck**

### Adding and Updating Software

#### Employing package management schemes

- Manipulating portable **tar** archives
- Installing and updating software with Red Hat Package Manager (RPM)
- Listing and checking system software
- Alternative packaging schemes

#### Building software from source

- Working with SRPMs
- Resolving dependency issues with **yum**
- Packaging binary RPMs

### Configuring Networks

#### Connecting to an IP network

- Setting IPv4 addresses and netmasks
- Configuring and testing IPv6 connectivity

#### Controlling network services

- Specifying standalone network services
- Running services through **xinetd**
- Monitoring network activity

### Supporting Print and File Services

#### Service for UNIX and Mac OS clients

- Offering local and network print services
- Updating printer drivers
- Sharing files with NFS

#### Service for Windows clients

- Emulating Windows services with Samba
- Authenticating users

### The Linux Kernel

#### Kernel configuration and tuning

- Probing the PCI bus with **lspci**
- Discovering new hardware with **udev**
- Manipulating kernel data structures

#### Running high-performance clusters

- Balancing network load with Linux Virtual Server (LVS)
- Ensuring high availability

#### Building an improved kernel

- Deciding when to upgrade
- Inserting new device drivers
- Determining required functionality