

A fast paced 5-day course that is a combination of "Enterprise Linux Systems Administration", and "Enterprise Linux Networking Services." Particular focus is given to translating Solaris and HP-UX skills to Linux.

Course Objectives:

- New hardware discoveries
- Learn new file system maintenance
- Use commands within the default shell
- View and modify file and directory permissions
- Manage processes
- Archive files and perform remote file transfers
- Understand Security administration
- Monitor and troubleshoot system
- Learn virtual hosting and mail services

Audience: Experienced UNIX administrators.

Prerequisites: A good understanding of network concepts, the TCP/IP protocol suite, and basic UNIX security is also assumed.

Number of Days: 5 days

1 Linux Hardware Discovery, Interaction and Control
Hardware Discovery Tools
Configuring New Hardware with hwinfo
Hardware and System Clock
Console
Virtual Terminals
Serial Ports
SCSI Devices
USB Configuration
Defining a Printer
Tape Libraries
Managing Linux Device Files
Kernel Hardware Info - /sys/
/sys/ Structure
udev
Kernel Modules
Configuring Kernel Components and Modules
Handling Module Dependencies
Configuring the Kernel via /proc/
System Tool

2 Boot Process and SYSV INIT

Booting Linux on PCs
GRUB Configuration
Boot Parameters
/sbin/init
/etc/inittab
/etc/rc.d/rc.sysinit
SUSE /etc/init.d/boot
Runlevel Implementation
System Configuration Files
RHEL6 Configuration Utilities
SLES11 Configuration Utilities
Typical SysV Init Script
The /etc/rc.local File
The /etc/init.d/*.local Files
Managing Daemons
Controlling Service Startup
Shutdown and Reboot
Run Level and Kernel
Information

3 Software Maintenance

RPM Features

	- RPM Architecture - Working with RPMs - Querying and Verifying with rpm - Updating the Kernel RPM - Using the YUM command - Using the Zypper command - YUM package groups - Zypper Services and Catalogs - Configuring YUM - YUM Repositories - Installing Source RPM Packages - Software Tools Comparison Matrix	- NFS Clients - NFS Server Configuration - Implementing NFSv4 - AutoFS - AutoFS Configuration - Accessing Windows/Samba Shares from Linux - SAN Multipathing - Multipath Configuration - Multipathing Best Practices - iSCSI Architecture - Open-iSCSI Initiator Implementation - iSCSI Initiator Discovery - iSCSI Initiator Node Administration - Mounting iSCSI Targets at Boot - iSCSI Multipathing Considerations
4	Filesystem Administration - Partitioning Disks with fdisk - Partitioning Disks with parted - Filesystem Creation - Mounting Filesystems - Filesystem Maintenance - Resizing Filesystems - Swap - Configuring Disk Quotas - Setting Quotas - Viewing and Monitoring Quotas - Filesystem Attributes - Backup Software - Backup Examples - Filesystem Creation and Management	User/Group Administration - User and Group Concepts - User Administration - Modifying Accounts - Group Administration - Password Aging - Default User Files - Controlling Logins - System Security Services Daemon (SSSD) - Manual DS Client Configuration - system-config-authentication - SLES Graphical DS Client Configuration - PAM Overview - PAM Module Types - PAM Order of Processing - PAM Control Statements - pam_wheel.so - pam_limits.so - User/Group Administration Comparison Matrix
5	LMV & RAID - Logical Volume Management - Implementing LVM - Creating Logical Volumes - Manipulating VGs & LVs - Advanced LVM Concepts - system-config-lvm - SLES Graphical Disk Tool - RAID Concepts - Array Creation with mdadm - Software RAID Monitoring - Software RAID Control and Display - LVM and RAID: Unix Tool Comparison	Security Administration - Security Concepts - Tightening Default Security - Security Advisories - File Access Control Lists
6	Remote Storage Administration - Remote Storage Overview - Remote Filesystem Protocols - Remote Block Device Protocols - File Sharing via NFS - NFSv4	
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	Manipulating ACLs		Multiple IP Addresses
	Viewing ACLs		Enabling IPv6
	Backing Up ACLs		Interface Bonding
	File Creation Permissions with umask		Interface Bridging
	User Private Group Scheme		802.1q VLANs
	Alternatives to UPG		Tuning Kernel Network Settings
	TCP Wrappers Concepts		Network Configuration Tools
	Xinetd	11	Monitoring & Troubleshooting
	Basic Firewall Activation		System Status - Memory
	Netfilter Concepts		System Status - I/O
	Using the iptables Command		System Status - CPU
	Common match_specs		Performance Trending with sar
	Connection Tracking		Troubleshooting Basics: The
	AppArmor		Process
	SELinux Security Framework		Troubleshooting Basics: The
	SELinux Modes		Tools
	SELinux Commands		System Logging
	Choosing an SELinux Policy		Syslog-ng
	SELinux Booleans		Rsyslog
	SELinux Policy Tools		/etc/rsyslog.conf
	(X)INETD and Firewalls		Log Management
9	Process Administration		Log Anomaly Detector
	Automating Tasks		strace and ltrace
	at & cron Usage		Common Problems
	Anacron		Troubleshooting Incorrect File
	Viewing Processes		Permissions
	Managing Processes		Inability to Boot
	Tuning Process Scheduling		Typos in Configuration Files
	Process Accounting		Corrupt Filesystems
	Setting Resource Limits via ulimit		RHEL6 Rescue Environment
10	Networking		SUSE Rescue Environment
	Linux Network Interfaces		Process Tools
	Ethernet Hardware Tools	12	The X Window System
	Network Configuration with ip		X Modularity
	Command		X.Org Drivers
	Configuring Routing Tables		Configuring X Manually
	IP to MAC Address Mapping with ARP		Automatic X Configuration
	Starting and Stopping Interfaces		Automatic X Configuration -
	NetworkManager		SLES
	DNS Clients		The X11 Protocol and Display
	DHCP Clients		Names
	Network Diagnostics		Display Managers and Graphical
	Information from netstat and ss		Login
	Managing Network-Wide Time		Starting X Apps Automatically
	Continual Time Sync with NTP		X Access Control
	Configuring NTP Clients		

	Remote X Access (historical/insecure approach)		System Security Services Daemon (SSSD)
	Remote X Access (modern/secure approach)	15	Using VSFTPD and APACHE
	XDMCP		vsftpd
	Remote Graphical Access With VNC and RDP		Anonymous FTP with vsftpd
	Specialized X Servers		Configuring vsftpd
	Enabling the Graphical User Interface		HTTP Operation
13	Bind Concepts and Configuration		Apache Architecture
	The Domain Name Space		Apache Configuration Files
	Delegation and Zones		httpd.conf - Server Settings
	Server Roles		httpd.conf - Main Configuration
	Resolving Names		httpd.conf - VirtualHost Configuration
	Resolving IP Addresses		Virtual Hosting DNS Implications
	Basic BIND Administration		Dynamic Shared Objects
	Configuring the Resolver		Adding Modules to Apache
	Testing Resolution		Apache Logging
	rndc Key Configuration		Log Analysis
	BIND Configuration Files	16	APACHE Security
	named.conf Syntax		Delegating Administration
	named.conf Options Block		Directory Protection
	Creating a Site-Wide Cache		Directory Protection with AllowOverride
	Zones In named.conf		Common Uses for .htaccess
	Zone Database File Syntax		Symmetric Encryption Algorithms
	SOA - Start of Authority		Asymmetric Encryption Algorithms
	A & PTR “Address & Pointer” Records		Digital Certificates
	NS - Name Server		SSL Using mod_ssl.so
	CNAME & MX - Alias & Mail Host	17	The Squid Proxy Server
	Abbreviations and Gotchas		Squid Overview
	\$GENERATE, \$ORIGIN, and \$INCLUDE		Squid File Layout
14	OPENLDAP		Squid Access Control Lists
	OpenLDAP: Server Architecture		Applying Squid ACLs
	OpenLDAP: Backends		Tuning Squid & Configuring Cache Hierarchies
	OpenLDAP: Replication		Bandwidth Metering
	OpenLDAP: Configuration Options		Monitoring Squid
	OpenLDAP: Configuration Sections		Proxy Client Configuration
	OpenLDAP: Global Parameters	18	Samba Concepts and Configuration
	OpenLDAP: Database Parameters		Introducing Samba
	OpenLDAP Server Tools		Samba Daemons
	OpenLDAP Client Tools		NetBIOS and NetBEUI
	LDIF: LDAP Data Interchange Format		
	Enabling LDAP-based Login		

	Accessing Windows/Samba Shares from Linux		Anaconda: Common Boot Options
	Samba Utilities		Anaconda: Loading Anaconda and Packages
	Samba Configuration Files		Anaconda: Storage Options
	The smb.conf File		Anaconda: Troubleshooting
	Mapping Permissions and ACLs		FirstBoot
	Mapping Linux Concepts		Kickstart
	Mapping Case Sensitivity		A Typical Install
	Sharing Home Directories		22 Installing SLES11
	Sharing Printers		YaST Install Program Interface
	Share Authentication		Network Installation
	Share-Level Access		SLP for SUSE Linux Installation
	User-Level Access		Installation Choices
	Mapping Users		Kernel Crash Dump
	Samba Account Database		Configuration
	User Share Restrictions		Creating AutoYaST2 Files
19	Postfix		Using AutoYaST2 files
	Postfix Features		linuxrc Automation
	Postfix Components		Installation Diagnostics
	Postfix Configuration		After The First Reboot
	master.cf		A Typical Install
	main.cf		
	Postfix Map Types		
	Postfix Pattern Matching		
	Virtual Domains		
	Postfix Mail Filtering		
	Configuration Commands		
	Management Commands		
	Postfix Logging		
	SMTP AUTH Server and Relay Control		
	SMTP AUTH Clients		
	TLS Server Configuration		
	Postfix Client Configuration for TLS		
	Ensuring TLS Security		
20	Mail Services and Retrieval		
	Procmail		
	SpamAssassin		
	amavisd-new Mail Filtering		
	Accessing Email		
	The IMAP4 Protocol		
	Cyrus IMAP/POP3 Server		
	Cyrus IMAP MTA Integration		
	Cyrus Mailbox Administration		
21	Installing RHEL6		
	Anaconda: An Overview		
	Anaconda: Booting the System		