

This 5 day expansive course covers a wide range of network services useful to every organization. Special attention is paid to the concepts needed to implement these services securely, and to the troubleshooting skills which will be necessary for real-world administration of these network services. The course material is designed to provide extensive hands-on experience. Topics include: Security with SELinux and Netfilter, DNS concepts and implementation with Bind; LDAP concepts and implementation using OpenLDAP; Web services with Apache; FTP with vsftpd; caching, filtering proxies with Squid; SMB/CIFS (Windows networking) with Samba; and e-mail concepts and implementation with Postfix combined with either Dovecot or Cyrus.

Course Objectives:

- Configure network devices to communicate in networks
- Implement Internet and web hosting services
- Manage file services
- Learn LDAP concepts and clients
- How to use Apache
- Implement FTP and Squid servers
- Secure networks
- Troubleshoot system and network issues

Audience: Experienced Linux system administrators needing to set up or manage secure, enterprise-level network servers.

Prerequisites: Students should already be comfortable with basic Linux or UNIX administration, and have a good understanding of network concepts, the TCP/IP protocol suite is also assumed.

Number of Days: 5 days

<p>1 Securing Services Xinetd Xinetd Connection Limiting and Access Control Xinetd: Resource limits, redirection, logging TCP Wrappers The /etc/hosts.allow & /etc/hosts.deny Files /etc/hosts.{allow,deny} Shortcuts Advanced TCP Wrappers Basic Firewall Activation Netfilter: Stateful Packet Filter Firewall Netfilter Concepts Using the iptables Command Netfilter Rule Syntax Targets</p>	<p>Common match_specs Connection Tracking AppArmor SELinux Security Framework Choosing an SELinux Policy SELinux Commands SELinux Booleans Graphical SELinux Policy Tools</p> <p>2 DNS Concepts Naming Services DNS - A Better Way The Domain Name Space Delegation and Zones Server Roles Resolving Names Resolving IP Addresses Basic BIND Administration</p>
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	Configuring the Resolver		OpenLDAP: Server Architecture
	Testing Resolution		OpenLDAP: Backends
3	Configuring Bind		OpenLDAP: Replication
	BIND Configuration Files		OpenLDAP: Configuration
	named.conf Syntax		Options
	named.conf Options Block		OpenLDAP: Configuration
	Creating a Site-Wide Cache		Sections
	rndc Key Configuration		OpenLDAP: Global Parameters
	Zones In named.conf		OpenLDAP: Database
	Zone Database File Syntax		Parameters
	SOA - Start of Authority		OpenLDAP Server Tools
	A & PTR - Address & Pointer Records		Enabling LDAP-based Login
	NS - Name Server		System Security Services
	CNAME & MX - Alias & Mail Host		Daemon (SSSD)
	Abbreviations and Gotchas	8	Using Apache
	\$ORIGIN and \$GENERATE		HTTP Operation
4	Creating DNS Hierarchies		Apache Architecture
	Subdomains and Delegation		Dynamic Shared Objects
	Subdomains		Adding Modules to Apache
	Delegating Zones		Apache Configuration Files
	in-addr.arpa. Delegation		httpd.conf - Server Settings
	Issues with in-addr.arpa.		httpd.conf - Main Configuration
	RFC2317 & in-addr.arpa.		HTTP Virtual Servers
5	Advanced Bind DNS Features		Virtual Hosting DNS
	Address Match Lists & ACLs		Implications
	Split Namespace with Views		httpd.conf - VirtualHost
	Restricting Queries		Configuration
	Restricting Zone Transfers		Port and IP based Virtual Hosts
	Running BIND in a chroot jail		Name-based Virtual Host
	Dynamic DNS Concepts		Apache Logging
	Allowing Dynamic DNS Updates		Log Analysis
	DDNS Administration with nsupdate		The Webalizer
	Common Problems	9	Apache Security
	Common Problems		Virtual Hosting Security
	Securing DNS with TSIG		Implications
6	LDAP Concepts and Clients		Delegating Administration
	LDAP: History and Uses		Directory Protection
	LDAP: Data Model Basics		Directory Protection with
	LDAP: Protocol Basics		AllowOverride
	LDAP: Applications		Common Uses for .htaccess
	LDAP: Search Filters		Symmetric Encryption
	LDIF: LDAP Data Interchange Format		Algorithms
	OpenLDAP Client Tools		Asymmetric Encryption
	Alternative LDAP Tools		Algorithms
7	OpenLDAP Servers		Digital Certificates
	Popular LDAP Server Implementations		SSL Using mod_ssl.so

<p>10 Apache Server-Side Scripting Administration Dynamic HTTP Content PHP: Hypertext Preprocessor Developer Tools for PHP Installing PHP Configuring PHP Securing PHP Security Related php.ini Configuration Java Servlets and JSP Apache's Tomcat Installing Java SDK Installing Tomcat Manually Using Tomcat with Apache</p> <p>11 Implementing an FTP Server The FTP Protocol Active Mode FTP Passive Mode FTP ProFTPD Pure-FTPd vsftpd Configuring vsftpd Anonymous FTP with vsftpd</p> <p>12 The Squid Proxy Server Squid Overview Squid File Layout Squid Access Control Lists Applying Squid ACLs Tuning Squid & Configuring Cache Hierarchies Bandwidth Metering Monitoring Squid Proxy Client Configuration</p> <p>13 Samba Concepts and Configuration Introducing Samba Samba Daemons NetBIOS and NetBEUI Accessing Windows/Samba Shares from Linux Samba Utilities Samba Configuration Files The smb.conf File Mapping Permissions and ACLs Mapping Linux Concepts Mapping Case Sensitivity Mapping Users</p>	<p>14 SMTP Theory SMTP SMTP Terminology SMTP Architecture SMTP Commands SMTP Extensions SMTP AUTH SMTP STARTTLS SMTP Session</p> <p>15 POSTFIX Postfix Features Postfix Architecture Postfix Components Postfix Configuration master.cf main.cf Postfix Map Types Postfix Pattern Matching Advanced Postfix Options Virtual Domains Postfix Mail Filtering Configuration Commands Management Commands Postfix Logging Logfile Analysis chrooting Postfix Postfix, Relaying and SMTP AUTH SMTP AUTH Server and Relay Control SMTP AUTH Clients Postfix / TLS TLS Server Configuration Postfix Client Configuration for TLS Other TLS Clients Ensuring TLS Security</p> <p>16 Mail Services and Retrieval Filtering Email</p>	<p>Sharing Home Directories Sharing Printers Share Authentication Share-Level Access User-Level Access Samba Account Database User Share Restrictions</p>
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Procmail
SpamAssassin
Bogofilter
amavisd-new Mail Filtering
Accessing Email
The IMAP4 Protocol
Dovecot POP3/IMAP Server
Cyrus IMAP/POP3 Server
Cyrus IMAP MTA Integration
Cyrus Mailbox Administration
Fetchmail
SquirrelMail
Mailing Lists
GNU Mailman
Mailman Configuration

17 Appendix A - Sendmail

Sendmail Architecture
Sendmail Components
Sendmail Configuration
Sendmail Remote Configuration
Controlling Access
Sendmail Mail Filter (milter)
Configuring Sendmail SMTP AUTH
Configuring SMTP STARTTLS

18 Appendix B - NIS

NIS Overview
NIS Limitations and Advantages
NIS Client Configuration
NIS Server Configuration
NIS Troubleshooting Aids