HP Education Services

Enterprise Linux Network Services (H7092S)

This is an expansive course covering a wide range of network services. Attention is paid to the concepts needed to implement and troubleshoot the network services securely and 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.

Audience

- New Linux system administrators

Prerequisites

- UNIX Fundamentals (51434S) or
- Linux Fundamentals (U8583S) and
- Enterprise Linux Systems Administration (H7091S)

Supported Distributions

- Red Hat Enterprise Linux 7, SUSE Linux Enterprise 11

Course objectives

At the conclusion of this course you should be able to:

- Gain the knowledge and skills required to setup, configure, and manage the most popular network services available for Red Hat and SUSE Linux systems

Benefits to you

- Effectively use networking services and security options
- Understand and configure services to your specific needs
- Avoid unwanted emails by configuring mail services with spam filtering

Course title:	Enterprise Linux Network Services
HP product number:	H7092S
Category/Subcategory:	Linux: RHEL7, SLES11
Course length:	4 days
Level:	Intermediate
Delivery language:	English
To order:	In HK, please contact HP Education Services on (852) 3070-6692 or email at hp-education.hk@hp.com or visit www.hp.com.hk/education Other countries please visit www.education.hp.com

Why education services from HP?

- Recognized as an IDC MarketScape leader for IT education (IDC MarketScape: Worldwide IT Education and Training 2012 Vendor Analysis, doc #232870, February 2012)

- Unmatched technical expertise and support for HP products and technologies
- Top 20 training provider and content development – **www.TrainingIndustry.com**
- More than 30 years of Education Consulting
- Global training with more than 90 training locations worldwide

Next steps

- Consider attending other advanced courses in the Linux curriculum
- Consider Linux certification: Linux Professional Institute (LPI) Level 1, Red Hat (RHCE, RHCT) or SAIR

Detailed course outline

Securing Services

- Xinetd connection limiting and access control
- Xinetd: resource limits, redirection, logging
- TCP wrappers and advanced TCP wrappers
- The /etc/hosts.allow and /etc/hosts.deny files
- /etc/hosts.{allow,deny} shortcuts
- FirewallD
- Netfilter: concepts and stateful packet filter firewall
- Using the iptables command
- Netfilter rule syntax
- Targets and common match_specs
- Connection tracking

SELinux and LSM

- SELinux security framework
- Choosing an SELinux policy and policy tools
- SELinux commands and booleans

DNS Concepts

- Naming services
- The Domain Name Space - a better way
- Delegation, zones, and server roles
- Resolving names and IP addresses
- Basic BIND administration
- Configuring the resolver and testing resolution

Configuring BIND

- BIND configuration files
- named.conf syntax and options block
- Creating a site-wide cache
- rndc key configuration
- Zones in named.conf
- Zone database file syntax
- SOA – Start of Authority
- A, AAAA, and PTR – address and pointer records
- NS - name server
- TXT, CNAME and MX – text, alias, and mail host
- SRV - SRV service records
- Abbreviations and gotchas
- $GENERATE, $ORIGIN, and $INCLUDE

Creating DNS Hierarchies

- Subdomains, delegation, and delegating zones
- in-addr.arpa. delegation and issues
- RFC2317 and in-addr.arpa.

Advanced BIND DNS Features

- Address match lists and ACLs
- Split namespace with views
- Restricting queries and zone transfers
- Running BIND in a chroot
- Dynamic DNS concepts and allowing dynamic DNS updates
- DDNS administration with nsupdate
- Common problems and securing DNS with TSIG

Using Apache

- **http** operation
- Apache architecture, configuration files, and logging
- Dynamic shared objects
- Adding modules to Apache
- **httpd.conf** – server settings and main configuration
- **http** virtual servers
- Virtual hosting DNS implications
- **httpd.conf** – VirtualHost configuration
- Port and IP based virtual hosts
- Name-based virtual host
- Log analysis and the webalizer

Apache Security

- Virtual hosting security implications
- Delegating administration and directory protection
- Directory protection with AllowOverride
- Common uses for .htaccess
- Symmetric and asymmetric encryption algorithms
- Digital certificates
- TSL using mod_ssl.so

Apache Server-Side Scripting Administration

- Dynamic **http** content
- PHP: hypertext preprocessor and developer tools
- Installing, configuring, and securing PHP
- Security related php.ini configuration
- Java servlets and JSP
- Apache's Tomcat
- Installing java SDK and Tomcat

- Using Tomcat with Apache

Implementing an FTP Server
- The FTP protocol
- Active and passive mode FTP
- ProFTPD and pure-FTPd
- vsftpd and configuring vsftpd
- Anonymous FTP with vsftpd

The Squid Proxy Server
- Squid overview, file layout, and Access Control Lists
- Applying Squid ACLs
- Tuning Squid and configuring cache hierarchies
- Bandwidth metering and monitoring Squid
- Proxy client configuration

LDAP Concepts and Clients
- LDAP: history, uses, and data model basics
- LDAP: protocol basics, applications, and search filters
- LDIF: LDAP Data Interchange Format
- OpenLDAP client tools and alternative LDAP tools

OpenLDAP Servers
- Popular LDAP server implementations
- OpenLDAP: server architecture, backends, and replication
- Managing slapd
- OpenLDAP: configuration options, sections, and server tools
- OpenLDAP: global and database parameters
- Native LDAP authentication and migration
- Enabling LDAP-based login
- System Security Services Daemon (SSSD)

Samba Concepts and Configuration
- NetBIOS and NetBEUI
- Samba daemons
- Accessing Windows/Samba shares from Linux
- Samba utilities and configuration files
- The smb.conf file
- Mapping permissions and ACLs
- Mapping Linux concepts and users
- Sharing home directories and printers
- Share authentication
- Share-level and user-level access
- Samba account database
- User share restrictions

SMTP Theory
- SMTP terminology, architecture, and commands
- SMTP extensions, AUTH, STARTTLS, and session

Postfix
- Postfix features and architecture
- Postfix components and configuration
- master.cf and main.cf
- Postfix map types and pattern matching
- Advanced Postfix options
- Virtual domains
- Postfix mail filtering
- Configuration and management commands
- Postfix logging and logfile analysis
- Postfix, relaying, and SMTP AUTH
- SMTP AUTH server, relay control, and clients
- Postfix / TLS
- TLS server configuration
- Postfix client configuration for TLS
- Other TLS clients
- Ensuring TLS security

Mail Services and Retrieval
- Filtering email
- Procmail and SpamAssassin
- Bogofilter
- amavisd-new mail filtering
- Accessing email
- The IMAP4 protocol
- Dovecot and Cyrus POP3/IMAP Servers
- Cyrus IMAP MTA integration
- Cyrus mailbox administration
- Fetchmail and SquirrelMail
- Mailing lists and GNU mailman
- Mailman configuration

For more information

To review course schedules and to register for a course, visit **www.hp.com/learn/linux** and select your country from the drop down menu.

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