Red Hat Enterprise Linux (RHEL) / CentOS : Managing Network Services

Presentation

Objectives : Learn Red Hat Enterprise Server Network Services Management.
Who can benefit: Linux technicians and administrators.
Prerequisites: A clear understanding of basic Linux administration.
Learning technique : Clear, theoretical course content divided into lessons and extensive LABS available on-line 24/24 7/7.
Duration : 35 hours.
Instructor : Certified **LPI**.
Student Progression : Student progression is monitored both in terms of effective course duration and in terms of student comprehension using self-assessment tests.
Resources : CentOS 7 Virtual Appliance.

Programme

- **Starting and stopping network services under Systemd**
  - Systemd
  - The systemctl command
  - Configuration files
  - The systemd-analyze command
  - Managing services under Systemd
- **Managing the Network**
  - TCP/IP
    - Messages, Datagrams and Segments
    - Establishing a TCP connection
    - The TCP header

        - The UDP header
        - Fragmentation and Re-encapsulation
        - TCPv4 Classes
        - Subnet Masks
            - Variable Length Subnet Masks - VLSM
        - Ports and sockets
    - Configuring a Network Client under Linux
        - /etc/services
        - Ethernet address resolution with arp
    - Configuring TCP/IP on RHEL 6
        - DHCP
            - /etc/sysconfig/network
            - /etc/sysconfig/network-scripts/ifcfg-ethX (où X=0,1 ...)
        - Fixed IP Address
            - /etc/sysconfig/network
            - /etc/sysconfig/network-scripts/ifcfg-ethX (où X=0,1 ...)
        - The hostname command
        - The ifconfig command
        - Manually bringing up and down a network interface
        - The /etc/networks file
        - IP address resolution
            - /etc/resolv.conf
            - /etc/nsswitch.conf
            - /etc/hosts
    - Configuring TCP/IP on RHEL 7
        - The nmcli command
        - Connections and Profiles
        - Adding a second IP address to an existing profile
        - The hostname command
        - The ip command
        - Manually bringing up and down a network interface
    - Network Services
        - xinetd
        - TCP Wrapper

- Network Diagostic Commands
  - ping
  - ping6
  - netstat-i
  - traceroute
  - traceroute 6
  - tracepath6
- Static Routing Tables on RHEL 6
  - The route Command
  - The netstat Command
  - Turning routing ON/OFF
- Static Routing Tables on RHEL 7
  - The ip Command
  - Turning routing ON/OFF
- Remote Administration
  - Telnet
  - ssh
  - wget
  - ftp
  - scp
- Administrating an NFS server
  - Presentation
    - NFSv3 services and processes
    - NFSv3 services and processes
    - Basic commands
  - Server installation
  - Client installation
  - The rpcinfo command
  - The nfsstat command
- Packet Sniffers
  - TCPdump
  - Wireshark
- Port Scanners
  - nmap

        - netcat
    - The Netfilter Firewall
        - Introduction
        - Configuration using scripts on RHEL 6
        - Configuration using firewalld on RHEL 7
    - Cryptology
        - Public Key Infrastructures
            - X509 Certificates
        - SSH and SCP
        - SSH Tunneling

- **Managing the DNS, NTP, FTP and DHCP servers**
    - The DNS server
        - Pre-installation configuration
        - Installation
        - Configuration files
            - named.ca
            - named.conf
            - Zones
                - Type
                - File
                - db.fenestros.loc.hosts
                - db.2.0.10.hosts
        - rndc
            - The rndc key
            - Configuration files
        - LAB #1 - Install and configure bind9
    - The Time server
        - Introduction
        - Installation
        - The ntp.conf file
        - LAB #2 - Installing and configuring ntp
    - The vsftpd FTP server
        - Installation

        - Basic configuration
        - /etc/ftpusers
        - vsftpd Anonymous server
            - Configuration
        - Virtual users
            - Introduction
            - Configuration
        - LAB #3 - Installing and configuring vsftpd
    - The DHCP server
        - Introduction
        - Installation
        - Basic configuration
            - The dhcpd.conf file

- **Managing the Samba server**
    - Microsoft networking
        - Microsoft network types
        - Windows client types
    - Understanding Samba,
        - Samba Daemons
        - Samba commands
    - Installation
        - Basic configuration
        - Manually starting Samba,
        - SAmba configuration
        - Managing accounts and groups
        - Creating the smbpasswd file
        - Understanding the smb.conf file
            - Sécurité = share
            - Sécurité = user
        - Testing Samba.

- **Managing the Postfix server**.
    - Sendmail basic configuration
    - Installation & Configuration

        - Installation
        - Basic Configuration
        - Dovecot
    - Advanced configurations
        - Défining Aliases
        - SMTP AUTH
        - SSL

- **Managing the Apache server**
    - Presentation and Configuration
        - Testing Apache
            - with telnet
            - with a browser
        - Configuring the global environment and the main server
            - /etc/httpd/conf/httpd.conf
            - /etc/httpd/conf.d/autoindex.conf
            - /etc/httpd/conf.d/userdir.conf
            - /etc/httpd/conf.d/welcome.conf
            - /etc/httpd/conf.modules.d/00-*.conf
            - /etc/httpd/conf.d/local.conf
        - Virtual servers
            - Named virtual hosts
            - IP based virtual hosts
    - Additional modules
        - mod_userdir
        - mod_php
        - mod_auth_basic
        - mod_auth_mysql
        - mod_authnz_ldap
        - mod_ssl
        - mod_proxy
        - mod_dav
        - mod-rewrite
        - mod_header

        - mod_suexec

- **Managing OpenLDAP**
    - Presentation
        - What is LDAP?
            - The X.500 protocol
            - LDAP v3
        - How does LDAP work?
            - LDAP information model
            - DN versus RDN
        - LDAP structure
            - Attributes
                - User attributes
                - Operational attributes
                - Object classes
                - OID's
                - Schemas
    - Installing the LDAP server
    - Configuring the LDAP server
        - The local LDAP directory
        - Referrals
        - Replication
    - Configuration files
        - slapd.conf
            - include
            - allow
            - referral
            - pidfile
            - argsfile
            - modulepath
            - moduleload
            - TLSCACertificateFile, TLSCertificateFile & TLSCertificateKeyFile
            - security
            - access to

- database config
- backend
- suffix DN
- checkpoint
- rootdn <DN>
- rootpw <mot de passe>
- directory
- index
- replogfile <filename>
- replica host <hostname>[:<port>] [bindmethod={ simple | kerberos | sasl }]
- loglevel
- password-hash
- schemacheck
- idletimeout
- sizelimit
- timelimit
- readonly <on | off>
- lastmod <on | off>

  - /etc/openldap/ldap.conf
  - cn=config
  - Securing the directory
    - Creating an adlinistrative password
    - Implementing SSL
- Creating and maintaining the databases
  - The LDIF format
  - Creating a database online
    - The ldapadd command
    - Using the luma graphical client
    - The Directory Information Tree
    - alias
    - attributes
    - classes
    - schemas
    - referrals