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

- The ldapsearch command
- The ldapmodify command
- The ldapdelete command
  - Creating a database offline
    - The slapadd command
  - Maintaining an LDAP database
    - The slapcat command
    - The slapindex command
    - The slapdn command
    - The slaptest command
    - The slapauth command
- LAB #1 - Replication
  - Preparation
  - Replication
    - Configuring the supply server
    - Configuring the consumer server
    - Tests

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