Part 1

What is Linux?

- History
- Linux environment.

Introduction of Red hat Enterprise Linux and its versions.

- About Red hat certification
- Different between Red hat Linux versions
- New features in Red hat Linux 7

Linux basic commands.

- System identification commands
- Listing commands

Linux advanced commands.

Basic hardware requirements and Installation.

- Support with i386 and x86_64 bit systems
- Types of installation
- Partitioning plan
- Assigning identification information to installed system.

Structure of Linux.

- Hierarchy structure
- Types of files.
- Setting up symbolic link and hard link.

Partitioning the Hard disk with different mechanisms.

- Primary partitions
- Logical partitions
- Using fdisk
- Using parted

File systems and Mounting.

- File system structure
- About ext3 , ext4 and xfs file systems
- Creating the file system
- Checking the file systems integrity.
- Tuning the file system parameters.
- Mounting file systems temporally
- Mounting the file systems using fstab
- Using fuser command
- Disk usage commands

User management and configuring user quotas.

- Types of users

- Configuration files of user management tasks
- Creating users and groups
- Modifying users and groups
- Deleting users and groups
- Setting up users profiles
- Uses of Disk quota
- Configuring user quota
- Configuring group quota

Setting up file permissions.

- Basic rules of setting permissions
- Changing permission using chmod
- Changing ownership using chown
- Changing group ownership using chgrp
- Setting up umask
- Configuring sticky bit and setuserid, setgroupid
- Using chattr
- Using Access control list(ACL)

Using sudo for controlling the users.

- Setting up sudo access to normal users using visudo
- Setting users to handle particular aplications

Package management using rpm and tar.

- Downloading rpms
- Installing the packages
- Upgrading the packages
- Checking the packages.

Process management and monitoring.

- Explaining processes
- Using different tools to monitoring the processes
- Killing the unwanted process
- Changing the priority of the processes

Basic Networking.

- Basic networking devices
- Network topologies
- Subneting

Using Networking commands and troubleshooting.

- Setting up static ip
- Network basic commands
- Explaining about network configuration files

Network bonding.

- Booting process and GRUB
- What are the programs involved for booting
- Booting stages
- GRUB
- /etc/intitab and runlevels

Part-2

Setting up yum server and clients

- Preparing the system for yum server
- Configuring local yum server
- Configuring yum mirror server.
- Setting up yum clients.

Configuring FTP server

- Setting up FTP server using vsftpd package
- Using /etc/vsftpd/vsftpd.conf
- Setting up anonymous access
- Denying and allow users to access ftp server.

Building local DNS server and slave

- Setting up DNS master server
- Change the setting in configuration files
- Creating the zone databases
- Test the configuration and setup the client systems
- Setup the slave server
- Assign the slave ip to clients and and test the setup

Hosting the websites using apache server

- Installing the apache packages
- The apache configuration file
- Apache log files
- Setting password for websites
- Virtual hosting

Securing the apache server using ssl

- Usiing ssl.conf

Setting up ssh server and transferring file using scp, rsync

- Using ssh key authentication
- Generating the ssh key
- Using scp and rsync

Using DHCP server to generate dynamic ips to clients

- Installing dhcp server
- The dhcp configuration file
- Test the client systems

SAMBA server configuration

- Installing samba packages
- The samba configuration file
- Create public share
- Configure samba login
- Setting up samba clients

Setting up mail server using POSTFIX

- About MTA,MDA.MUA and MSA
- Installing postfix packages
- Setup postfix as default mail server
- The postfix configuration file
- The /etc/aliases file
- Setting up email clients.

Using squid proxy server to block the web sites.

- Installing squid packages
- The /etc/squid/squid.conf file
- Denying and allowing the websites with different methods

NFS and AUTOFS

- Explaining different NFS services
- Installing NFS packages
- The /etc/exports
- NFS server options
- Installing AUTOFS
- The Autofs configuration files

Centralized user authentication using NIS

- Installing NIS packages
- Setting up the NIS domain name
- Generate the NIS maps databases
- Setup the client system

Centralized user authentication using LDAP

- Installing the LDAP packages
- Setup the configuration using setup.ds.admin.pl script
- Installing the DS console
- Setting up the directory suffix
- Create users and groups
- Pointing ldap clients to communicate with server.

Part-3

Configuring IPTABLES

- Explaining command structure

- input rules, output rules and forword rules
- setting up masquerading
- backing up iptable rules

Performance tuning and maintaining logs

- Tuning /etc/security/limits.conf file
- The sysctl.conf file
- Viewing tunable parameters

Tuning the hardware resources using CGROUPS

- Explaining about subsystems
- Limit the cpu access to users and groups
- Limit the memory access to users and groups

SELINUX concepts

- Using selinux commands
- Basic selinux settings
- About selinux context
- Setting selinux Booleans

Installing new kernel

- Installing new kernel
- Recompiling the kernel

Remote accessing using VNC

- Installing vnc server and clients
- Sharing the graphical desktop to clients

Configuring logical volume manager

- Pv creation
- Vg creation
- Lv creation
- Extending vgs
- Extending lvs
- Vg reduce
- Lv reduce
- Moving pvs to other vg
- Creating snapshot volumes

RAID concepts and setting up software RAID

- Creating RAID-0, RAID-1, RAID-5
- Testing RAID-1 and RAID-5 failover
- Creating spare hard disks

Installing OS using kickstart.

- Creating Kickstart file

- Share the kickstart file through NFS
- Install the clients using kickstart file

Installing OS using pxe boot.

- configuring tftp service
- configuring dhcp service
- configuring nfs service
- creating the kickstart file

Dumping TCP data using TCPDUMP

- capture packets using tcpdump command
- Install wireshark