



1.0 Hardware and System Configuration

1.1 Explain Linux boot process concepts.

- **Boot loaders**
 - GRUB
 - GRUB2
- **Boot options**
 - UEFI/EFI
 - PXE
 - NFS
 - Boot from ISO
 - Boot from HTTP/FTP
- **File locations**
 - /etc/default/grub
 - /etc/grub2.cfg
 - /boot
 - /boot/grub
 - /boot/grub2
 - /boot/efi
- **Boot modules and files**
 - Commands
 - mkinitrd
- dracut
- grub2-install
- grub2-mkconfig
- initramfs
- efi files
- vmlinuz
- vmlinux
- **Kernel panic**

1.2 Given a scenario, install, configure, and monitor kernel modules.

- **Commands**
 - lsmod
 - insmod
 - modprobe
 - modinfo
- dmesg
- rmmod
- depmod
- **Locations**
 - /usr/lib/modules/[kernelversion]
 - /usr/lib/modules
 - /etc/modprobe.conf
 - /etc/modprobe.d/

1.3 Given a scenario, configure and verify network connection parameters.

- **Diagnostic tools**
 - ping
 - netstat
 - nslookup
 - dig
 - host
 - route
 - ip
 - ethtool
 - ss
 - iwconfig
 - nmcli
 - brctl
 - nmtui
- **Configuration files**
 - /etc/sysconfig/network-scripts/
 - /etc/sysconfig/network
 - /etc/hosts
 - /etc/network
 - /etc/nsswitch.conf
 - /etc/resolv.conf
 - /etc/netplan
 - /etc/sysctl.conf
 - /etc/dhcp/dhclient.conf
- **Bonding**
 - Aggregation
 - Active/passive
 - Load balancing

1.4 Given a scenario, manage storage in a Linux environment.

- **Basic partitions**
 - Raw devices
 - GPT
 - MBR
- **File system hierarchy**
 - Real file systems
 - Virtual file systems
 - Relative paths
 - Absolute paths
- **Device mapper**
 - LVM
 - mdadm
 - Multipath
- **Tools**
 - XFS tools
 - LVM tools
 - EXT tools
 - Commands
 - mdadm
- fdisk
- parted
- mkfs
- iostat
- df
- du
- mount
- umount
- lsblk
- blkid
- dumpe2fs
- resize2fs
- fsck
- tune2fs
- e2label
- **Location**
 - /etc/fstab
 - /etc/crypttab
 - /dev/
- /dev/mapper
- /dev/disk/by-
 - id
 - uuid
 - path
 - multipath
- /etc/mtab
- /sys/block
- /proc/partitions
- /proc/mounts
- **File system types**
 - ext3
 - ext4
 - xfs
 - nfs
 - smb
 - cifs
 - ntfs

1.5 Compare and contrast cloud and virtualization concepts and technologies.

- **Templates**
 - VM
 - OVA
 - OVF
 - JSON
 - YAML
 - Container images
- **Bootstrapping**
 - Cloud-init
- Anaconda
- Kickstart
- **Storage**
 - Thin vs. thick provisioning
 - Persistent volumes
 - Blob
 - Block
- **Network considerations**
 - Bridging
- Overlay networks
- NAT
- Local
- Dual-homed
- **Types of hypervisors**
- **Tools**
 - libvirt
 - virsh
 - vmm

1.6 Given a scenario, configure localization options.

- **File locations**
 - /etc/timezone
 - /usr/share/zoneinfo
- **Commands**
 - localectl
 - timedatectl
 - date
- hwclock
- **Environment variables**
 - LC_*
 - LC_ALL
 - LANG
 - TZ
- **Character sets**
 - UTF-8
 - ASCII
 - Unicode