LPIC 2-201 - Linux Network Professional (part 1)

Duration: 5 Days   Course Code: LIN201

Overview:

LPIC-2 is the second certification in the multi-level professional certification program of the Linux Professional Institute (LPI). The LPIC-2 will validate the candidate's ability to administer small to medium–sized mixed networks.

LPIC-2 exam 201 topics Capacity PlanningLinux KernelSystem StartupFilesystem and DevicesAdvanced Storage Device AdministrationNetworking ConfigurationSystem Maintenance

Target Audience:

Linux Professionals who want to prepare for the LPIC 201 exam.

Objectives:

- **To become LPIC-2 certified the candidate must be able to**:

- perform advanced system administration, including common tasks regarding the Linux kernel, system startup and maintenance;

- perform advanced Management of block storage and file systems as well as advanced networking and authentication and system security, including firewall and VPN;

- install and configure fundamental network services, including DHCP, DNS, SSH, Web servers, file servers using FTP, NFS and Samba, email delivery; and

- supervise assistants and advise management on automation and purchases.

Prerequisites:

- LIN101
- LIN102

Testing and Certification

This course prepares for the LPIC-2 (201-450) exam.

Follow-on-Courses:

LIN202

Content:

Topic 200: Capacity Planning

200.1 Measure and Troubleshoot Resource Usage

Description: Candidates should be able to measure hardware resource and network bandwidth, identify and troubleshoot resource problems.

Key Knowledge Areas:

- Measure CPU usage
- Measure memory usage
- Measure disk I/O
- Measure network I/O
- Measure firewalling and routing throughput
- Map client bandwidth usage
- Match / correlate system symptoms with likely problems
- Estimate throughput and identify bottlenecks in a system including networking
- Use monitoring and measurement tools to monitor IT infrastructure usage.
- Predict capacity break point of a configuration
- Observe growth rate of capacity usage
- Graph the trend of capacity usage
- Awareness of monitoring solutions such as Icinga2, Nagios, collectd, MRTG and Cacti
- Kernel 2.6.x, 3.x and 4.x documentation
- /usr/src/linux/
- Kernel Makefiles
- Kernel 2.6.x/3.x make targets
- Customize the current kernel configuration.
- Build a new kernel and appropriate kernel modules.
- Install a new kernel and any modules.
- Ensure that the boot manager can locate the new kernel and associated files.
- Module configuration files
- Use DKMS to compile kernel modules.
- Awareness of dracut
- Use command-line utilities to get information about the currently running kernel and kernel modules
- Manually load and unload kernel modules
- Determine when modules can be unloaded
- Determine what parameters a module accepts
- Configure the system to load modules by names other than their file name.
- /proc filesystem
- Content of /, /boot/ , and /lib/modules/
- Tools and utilities to analyze information about the available hardware
- udev rules
- Systemd
- SysV init
- Linux Standard Base Specification (LSB)

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- GRUB version 2 and Legacy
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- hardware initialisation and setup
- daemon/service initialisation and setup

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- Understanding of PXE for both BIOS and UEFI
- Awareness of systemd-boot and U-Boot
- The concept of the fstab configuration
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- Use of UUIDs for identifying and mounting file systems
- Understanding of systemd mount units
- Tools and utilities to manipulate and ext2, ext3 and ext4
- Tools and utilities to perform basic Btrfs operations, including subvolumes and snapshots
- Tools and utilities to manipulate XFS
- Awareness of ZFS
- autofs configuration files
- Understanding of automount units
- UDF and ISO9660 tools and utilities
- Awareness of other CD-ROM filesystems (HFS)
- Awareness of CD-ROM filesystem extensions (Joliet, Rock Ridge, El Torito)
- Basic feature knowledge of data encryption (dm-crypt / LUKS)
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- Tools and utilities to configure DMA for IDE devices including ATAPI and SATA
- Tools and utilities to configure Solid State Drives including AHCI and NVMe
- Tools and utilities to manipulate or analyse system resources (e.g. interrupts)
- Awareness of sdparm command and its uses
- Tools and utilities for iSCSI
- Awareness of SAN, including relevant protocols (AoE, FCoE)
- Tools in the LVM suite
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- Location and content of access restriction

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- Utilities to gain information about the network configuration
- Methods of information about the recognized and used hardware devices
- System initialization files and their contents (SysV init process)
- Awareness of NetworkManager and its impact on network configuration
- Unpack source code using common compression and archive utilities
- Understand basics of invoking make to compile programs
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- Know where sources are stored by default
- Knowledge about directories that have to be include in backups
- Awareness of network backup solutions such as Amanda, Bacula, Bareos and BackupPC
- Knowledge of the benefits and drawbacks of tapes, CDR, disk or other backup media
- Perform partial and manual backups.
- Verify the integrity of backup files.
- Partially or fully restore backups.
- ?Automate communication with users through logon messages
- Inform active users of system maintenance

200.2 Predict Future Resource Needs

Description: Candidates should be able to monitor resource usage to predict future resource needs.

Key Knowledge Areas:

- Measure CPU usage
- Measure memory usage
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- Measure network I/O
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- Predict capacity break point of a configuration
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202.3 Alternate Bootloaders

Description: Candidates should be aware of other bootloaders and their major features.

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Topic 205: Network Configuration

205.1 Basic networking configuration

Description: Candidates should be able to configure a network device to be able to connect to a local, wired or wireless, and a wide-area network. This objective includes being able to communicate between various subnets within a single network including both IPv4 and IPv6 networks.

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- Kernel 2.6.x, 3.x and 4.x documentation
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- Kernel Makefiles
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- ?Automate communication with users through logon messages
- Inform active users of system maintenance

Topic 201: Linux Kernel

201.1 Kernel Components

Description: Candidates should be able to utilize kernel components that are necessary to specific hardware, hardware drivers, system resources and requirements. This objective includes implementing different types of kernel images, identifying stable and development kernels and patches, as well as using kernel modules.

Key Knowledge Areas:

- Measure CPU usage
- Measure memory usage
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- Measure network I/O
- Measure firewalling and routing throughput
- Map client bandwidth usage
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- Determine when modules can be unloaded
- Determine what parameters a module accepts
- Configure the system to load modules by names other than their file name.
- /proc filesystem
- Content of /, /boot/ , and /lib/modules/
- Tools and utilities to analyze information

BackupPC
- Knowledge of the benefits and drawbacks of tapes, CDR, disk or other backup media
- Perform partial and manual backups.
- Verify the integrity of backup files.
- Partially or fully restore backups.
- ?Automate communication with users through logon messages
- Inform active users of system maintenance

Topic 203: Filesystem and Devices

203.1 Operating the Linux filesystem

Description: Candidates should be able to properly configure and navigate the standard Linux filesystem. This objective includes configuring and mounting various filesystem types.

Key Knowledge Areas:

- Measure CPU usage
- Measure memory usage
- Measure disk I/O
- Measure network I/O
- Measure firewalling and routing throughput
- Map client bandwidth usage
- Match / correlate system symptoms with likely problems
- Estimate throughput and identify bottlenecks in a system including networking
- Use monitoring and measurement tools to monitor IT infrastructure usage.
- Predict capacity break point of a configuration
- Observe growth rate of capacity usage
- Graph the trend of capacity usage
- Awareness of monitoring solutions such as Icinga2, Nagios, collectd, MRTG and Cacti
- Kernel 2.6.x, 3.x and 4.x documentation
- /usr/src/linux/
- Kernel Makefiles
- Kernel 2.6.x/3.x make targets
- Customize the current kernel configuration.
- Build a new kernel and appropriate kernel modules.
- Install a new kernel and any modules.
- Ensure that the boot manager can locate the new kernel and associated files.
- Module configuration files
- Use DKMS to compile kernel modules.
- Awareness of dracut
- Use command-line utilities to get information about the currently running kernel and kernel modules

205.2 Advanced Network Configuration and Troubleshooting

Description: Candidates should be able to configure a network device to implement various network authentication schemes. This objective includes configuring a multi-homed network device and resolving communication problems.

Key Knowledge Areas:

- Measure CPU usage
- Measure memory usage
- Measure disk I/O
- Measure network I/O
- Measure firewalling and routing throughput
- Map client bandwidth usage
- Match / correlate system symptoms with likely problems
- Estimate throughput and identify bottlenecks in a system including networking
- Use monitoring and measurement tools to monitor IT infrastructure usage.
- Predict capacity break point of a configuration
- Observe growth rate of capacity usage
- Graph the trend of capacity usage
- Awareness of monitoring solutions such as Icinga2, Nagios, collectd, MRTG and Cacti
- Kernel 2.6.x, 3.x and 4.x documentation
- /usr/src/linux/
- Kernel Makefiles
- Kernel 2.6.x/3.x make targets
- Customize the current kernel configuration.
- Build a new kernel and appropriate kernel modules.
- Install a new kernel and any modules.
- Ensure that the boot manager can locate the new kernel and associated files.
- Module configuration files
- Use DKMS to compile kernel modules.
- Awareness of dracut
- Use command-line utilities to get information about the currently running kernel and kernel modules
- Manually load and unload kernel modules
- Determine when modules can be unloaded
- Determine what parameters a module accepts
- Configure the system to load modules by names other than their file name.
- /proc filesystem
- Content of /, /boot/ , and /lib/modules/
- Tools and utilities to analyze information about the available hardware
- udev rules
- Systemd

- about the available hardware
- udev rules
- Systemd
- SysV init
- Linux Standard Base Specification (LSB)
- BIOS and UEFI
- NVMe booting
- GRUB version 2 and Legacy
- grub shell
- boot loader start and hand off to kernel
- kernel loading
- hardware initialisation and setup
- daemon/service initialisation and setup
- Know the different boot loader install locations on a hard disk or removable device.
- Overwrite standard boot loader options and using boot loader shells.
- Use systemd rescue and emergency modes.
- SYSLINUX, ISOLINUX, PXELINUX
- Understanding of PXE for both BIOS and UEFI
- Awareness of systemd-boot and U-Boot
- The concept of the fstab configuration
- Tools and utilities for handling swap partitions and files
- Use of UUIDs for identifying and mounting file systems
- Understanding of systemd mount units
- Tools and utilities to manipulate and ext2, ext3 and ext4
- Tools and utilities to perform basic Btrfs operations, including subvolumes and snapshots
- Tools and utilities to manipulate XFS
- Awareness of ZFS
- autofs configuration files
- Understanding of automount units
- UDF and ISO9660 tools and utilities
- Awareness of other CD-ROM filesystems (HFS)
- Awareness of CD-ROM filesystem extensions (Joliet, Rock Ridge, El Torito)
- Basic feature knowledge of data encryption (dm-crypt / LUKS)
- Software raid configuration files and utilities
- Tools and utilities to configure DMA for IDE devices including ATAPI and SATA
- Tools and utilities to configure Solid State Drives including AHCI and NVMe
- Tools and utilities to manipulate or analyse system resources (e.g. interrupts)
- Awareness of sdparm command and its uses
- Tools and utilities for iSCSI
- Awareness of SAN, including relevant protocols (AoE, FCoE)
- Tools in the LVM suite
- Resizing, renaming, creating, and removing logical volumes, volume groups, and physical volumes
- Creating and maintaining snapshots
- Activating volume groups
- Utilities to configure and manipulate ethernet network interfaces

- Manually load and unload kernel modules
- Determine when modules can be unloaded
- Determine what parameters a module accepts
- Configure the system to load modules by names other than their file name.
- /proc filesystem
- Content of /, /boot/ , and /lib/modules/
- Tools and utilities to analyze information about the available hardware
- udev rules
- Systemd
- SysV init
- Linux Standard Base Specification (LSB)
- BIOS and UEFI
- NVMe booting
- GRUB version 2 and Legacy
- grub shell
- boot loader start and hand off to kernel
- kernel loading
- hardware initialisation and setup
- daemon/service initialisation and setup
- Know the different boot loader install locations on a hard disk or removable device.
- Overwrite standard boot loader options and using boot loader shells.
- Use systemd rescue and emergency modes.
- SYSLINUX, ISOLINUX, PXELINUX
- Understanding of PXE for both BIOS and UEFI
- Awareness of systemd-boot and U-Boot
- The concept of the fstab configuration
- Tools and utilities for handling swap partitions and files
- Use of UUIDs for identifying and mounting file systems
- Understanding of systemd mount units
- Tools and utilities to manipulate and ext2, ext3 and ext4
- Tools and utilities to perform basic Btrfs operations, including subvolumes and snapshots
- Tools and utilities to manipulate XFS
- Awareness of ZFS
- autofs configuration files
- Understanding of automount units
- UDF and ISO9660 tools and utilities
- Awareness of other CD-ROM filesystems (HFS)
- Awareness of CD-ROM filesystem extensions (Joliet, Rock Ridge, El Torito)
- Basic feature knowledge of data encryption (dm-crypt / LUKS)
- Software raid configuration files and utilities
- Tools and utilities to configure DMA for IDE devices including ATAPI and SATA
- Tools and utilities to configure Solid State Drives including AHCI and NVMe
- Tools and utilities to manipulate or analyse system resources (e.g. interrupts)

- SysV init
- Linux Standard Base Specification (LSB)
- BIOS and UEFI
- NVMe booting
- GRUB version 2 and Legacy
- grub shell
- boot loader start and hand off to kernel
- kernel loading
- hardware initialisation and setup
- daemon/service initialisation and setup
- Know the different boot loader install locations on a hard disk or removable device.
- Overwrite standard boot loader options and using boot loader shells.
- Use systemd rescue and emergency modes.
- SYSLINUX, ISOLINUX, PXELINUX
- Understanding of PXE for both BIOS and UEFI
- Awareness of systemd-boot and U-Boot
- The concept of the fstab configuration
- Tools and utilities for handling swap partitions and files
- Use of UUIDs for identifying and mounting file systems
- Understanding of systemd mount units
- Tools and utilities to manipulate and ext2, ext3 and ext4
- Tools and utilities to perform basic Btrfs operations, including subvolumes and snapshots
- Tools and utilities to manipulate XFS
- Awareness of ZFS
- autofs configuration files
- Understanding of automount units
- UDF and ISO9660 tools and utilities
- Awareness of other CD-ROM filesystems (HFS)
- Awareness of CD-ROM filesystem extensions (Joliet, Rock Ridge, El Torito)
- Basic feature knowledge of data encryption (dm-crypt / LUKS)
- Software raid configuration files and utilities
- Tools and utilities to configure DMA for IDE devices including ATAPI and SATA
- Tools and utilities to configure Solid State Drives including AHCI and NVMe
- Tools and utilities to manipulate or analyse system resources (e.g. interrupts)
- Awareness of sdparm command and its uses
- Tools and utilities for iSCSI
- Awareness of SAN, including relevant protocols (AoE, FCoE)
- Tools in the LVM suite
- Resizing, renaming, creating, and removing logical volumes, volume groups, and physical volumes
- Creating and maintaining snapshots
- Activating volume groups
- Utilities to configure and manipulate ethernet network interfaces
- Configuring basic access to wireless

- Configuring basic access to wireless networks
- Utilities to manipulate routing tables
- Utilities to configure and manipulate ethernet network interfaces
- Utilities to analyze the status of the network devices
- Utilities to monitor and analyze the TCP/IP traffic
- Location and content of access restriction files
- Utilities to configure and manipulate ethernet network interfaces
- Utilities to manage routing tables
- Utilities to list network states.
- Utilities to gain information about the network configuration
- Methods of information about the recognized and used hardware devices
- System initialization files and their contents (SysV init process)
- Awareness of NetworkManager and its impact on network configuration
- Unpack source code using common compression and archive utilities
- Understand basics of invoking make to compile programs
- Apply parameters to a configure script
- Know where sources are stored by default
- Knowledge about directories that have to be include in backups
- Awareness of network backup solutions such as Amanda, Bacula, Bareos and BackupPC
- Knowledge of the benefits and drawbacks of tapes, CDR, disk or other backup media
- Perform partial and manual backups.
- Verify the integrity of backup files.
- Partially or fully restore backups.
- ?Automate communication with users through logon messages
- Inform active users of system maintenance

201.2 Compiling a kernel

Description: Candidates should be able to properly configure a kernel to include or disable specific features of the Linux kernel as necessary. This objective includes compiling and recompiling the Linux kernel as needed, updating and noting changes in a new kernel, creating an initrd image and installing new kernels.

Key Knowledge Areas:

- Measure CPU usage
- Measure memory usage
- Measure disk I/O
- Measure network I/O
- Measure firewalling and routing throughput
- Map client bandwidth usage
- Match / correlate system symptoms with

- Awareness of sdparm command and its uses
- Tools and utilities for iSCSI
- Awareness of SAN, including relevant protocols (AoE, FCoE)
- Tools in the LVM suite
- Resizing, renaming, creating, and removing logical volumes, volume groups, and physical volumes
- Creating and maintaining snapshots
- Activating volume groups
- Utilities to configure and manipulate ethernet network interfaces
- Configuring basic access to wireless networks
- Utilities to manipulate routing tables
- Utilities to configure and manipulate ethernet network interfaces
- Utilities to analyze the status of the network devices
- Utilities to monitor and analyze the TCP/IP traffic
- Location and content of access restriction files
- Utilities to configure and manipulate ethernet network interfaces
- Utilities to manage routing tables
- Utilities to list network states.
- Utilities to gain information about the network configuration
- Methods of information about the recognized and used hardware devices
- System initialization files and their contents (SysV init process)
- Awareness of NetworkManager and its impact on network configuration
- Unpack source code using common compression and archive utilities
- Understand basics of invoking make to compile programs
- Apply parameters to a configure script
- Know where sources are stored by default
- Knowledge about directories that have to be include in backups
- Awareness of network backup solutions such as Amanda, Bacula, Bareos and BackupPC
- Knowledge of the benefits and drawbacks of tapes, CDR, disk or other backup media
- Perform partial and manual backups.
- Verify the integrity of backup files.
- Partially or fully restore backups.
- ?Automate communication with users through logon messages
- Inform active users of system maintenance

203.2 Maintaining a Linux filesystem?

Description: Candidates should be able to properly maintain a Linux filesystem using system utilities. This objective includes

networks
- Utilities to manipulate routing tables
- Utilities to configure and manipulate ethernet network interfaces
- Utilities to analyze the status of the network devices
- Utilities to monitor and analyze the TCP/IP traffic
- Location and content of access restriction files
- Utilities to configure and manipulate ethernet network interfaces
- Utilities to manage routing tables
- Utilities to list network states.
- Utilities to gain information about the network configuration
- Methods of information about the recognized and used hardware devices
- System initialization files and their contents (SysV init process)
- Awareness of NetworkManager and its impact on network configuration
- Unpack source code using common compression and archive utilities
- Understand basics of invoking make to compile programs
- Apply parameters to a configure script
- Know where sources are stored by default
- Knowledge about directories that have to be include in backups
- Awareness of network backup solutions such as Amanda, Bacula, Bareos and BackupPC
- Knowledge of the benefits and drawbacks of tapes, CDR, disk or other backup media
- Perform partial and manual backups.
- Verify the integrity of backup files.
- Partially or fully restore backups.
- ?Automate communication with users through logon messages
- Inform active users of system maintenance

205.3 Troubleshooting Network Issues

Description: Candidates should be able to identify and correct common network setup issues, to include knowledge of locations for basic configuration files and commands.

Key Knowledge Areas:

- Measure CPU usage
- Measure memory usage
- Measure disk I/O
- Measure network I/O
- Measure firewalling and routing throughput
- Map client bandwidth usage
- Match / correlate system symptoms with likely problems
- Estimate throughput and identify bottlenecks in a system including networking
- Use monitoring and measurement tools to

likely problems

- Estimate throughput and identify bottlenecks in a system including networking
- Use monitoring and measurement tools to monitor IT infrastructure usage.
- Predict capacity break point of a configuration
- Observe growth rate of capacity usage
- Graph the trend of capacity usage
- Awareness of monitoring solutions such as Icinga2, Nagios, collectd, MRTG and Cacti
- Kernel 2.6.x, 3.x and 4.x documentation
- /usr/src/linux/
- Kernel Makefiles
- Kernel 2.6.x/3.x make targets
- Customize the current kernel configuration.
- Build a new kernel and appropriate kernel modules.
- Install a new kernel and any modules.
- Ensure that the boot manager can locate the new kernel and associated files.
- Module configuration files
- Use DKMS to compile kernel modules.
- Awareness of dracut
- Use command-line utilities to get information about the currently running kernel and kernel modules
- Manually load and unload kernel modules
- Determine when modules can be unloaded
- Determine what parameters a module accepts
- Configure the system to load modules by names other than their file name.
- /proc filesystem
- Content of /, /boot/ , and /lib/modules/
- Tools and utilities to analyze information about the available hardware
- udev rules
- Systemd
- SysV init
- Linux Standard Base Specification (LSB)
- BIOS and UEFI
- NVMe booting
- GRUB version 2 and Legacy
- grub shell
- boot loader start and hand off to kernel
- kernel loading
- hardware initialisation and setup
- daemon/service initialisation and setup
- Know the different boot loader install locations on a hard disk or removable device.
- Overwrite standard boot loader options and using boot loader shells.
- Use systemd rescue and emergency modes.
- SYSLINUX, ISOLINUX, PXELINUX
- Understanding of PXE for both BIOS and UEFI
- Awareness of systemd-boot and U-Boot
- The concept of the fstab configuration
- Tools and utilities for handling swap partitions and files
- Use of UUIDs for identifying and mounting file systems
- Understanding of systemd mount units

manipulating standard filesystems and monitoring SMART devices.

Key Knowledge Areas:

- Measure CPU usage
- Measure memory usage
- Measure disk I/O
- Measure network I/O
- Measure firewalling and routing throughput
- Map client bandwidth usage
- Match / correlate system symptoms with likely problems
- Estimate throughput and identify bottlenecks in a system including networking
- Use monitoring and measurement tools to monitor IT infrastructure usage.
- Predict capacity break point of a configuration
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- Install a new kernel and any modules.
- Ensure that the boot manager can locate the new kernel and associated files.
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- udev rules
- Systemd
- SysV init
- Linux Standard Base Specification (LSB)
- BIOS and UEFI
- NVMe booting
- GRUB version 2 and Legacy
- grub shell
- boot loader start and hand off to kernel
- kernel loading

monitor IT infrastructure usage.

- Predict capacity break point of a configuration
- Observe growth rate of capacity usage
- Graph the trend of capacity usage
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- Build a new kernel and appropriate kernel modules.
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- SYSLINUX, ISOLINUX, PXELINUX
- Understanding of PXE for both BIOS and UEFI
- Awareness of systemd-boot and U-Boot
- The concept of the fstab configuration
- Tools and utilities for handling swap partitions and files
- Use of UUIDs for identifying and mounting file systems
- Understanding of systemd mount units
- Tools and utilities to manipulate and ext2, ext3 and ext4
- Tools and utilities to perform basic Btrfs

- Tools and utilities to manipulate and ext2, ext3 and ext4
- Tools and utilities to perform basic Btrfs operations, including subvolumes and snapshots
- Tools and utilities to manipulate XFS
- Awareness of ZFS
- autofs configuration files
- Understanding of automount units
- UDF and ISO9660 tools and utilities
- Awareness of other CD-ROM filesystems (HFS)
- Awareness of CD-ROM filesystem extensions (Joliet, Rock Ridge, El Torito)
- Basic feature knowledge of data encryption (dm-crypt / LUKS)
- Software raid configuration files and utilities
- Tools and utilities to configure DMA for IDE devices including ATAPI and SATA
- Tools and utilities to configure Solid State Drives including AHCI and NVMe
- Tools and utilities to manipulate or analyse system resources (e.g. interrupts)
- Awareness of sdparm command and its uses
- Tools and utilities for iSCSI
- Awareness of SAN, including relevant protocols (AoE, FCoE)
- Tools in the LVM suite
- Resizing, renaming, creating, and removing logical volumes, volume groups, and physical volumes
- Creating and maintaining snapshots
- Activating volume groups
- Utilities to configure and manipulate ethernet network interfaces
- Configuring basic access to wireless networks
- Utilities to manipulate routing tables
- Utilities to configure and manipulate ethernet network interfaces
- Utilities to analyze the status of the network devices
- Utilities to monitor and analyze the TCP/IP traffic
- Location and content of access restriction files
- Utilities to configure and manipulate ethernet network interfaces
- Utilities to manage routing tables
- Utilities to list network states.
- Utilities to gain information about the network configuration
- Methods of information about the recognized and used hardware devices
- System initialization files and their contents (SysV init process)
- Awareness of NetworkManager and its impact on network configuration
- Unpack source code using common compression and archive utilities
- Understand basics of invoking make to compile programs
- Apply parameters to a configure script
- Know where sources are stored by default

- hardware initialisation and setup
- daemon/service initialisation and setup
- Know the different boot loader install locations on a hard disk or removable device.
- Overwrite standard boot loader options and using boot loader shells.
- Use systemd rescue and emergency modes.
- SYSLINUX, ISOLINUX, PXELINUX
- Understanding of PXE for both BIOS and UEFI
- Awareness of systemd-boot and U-Boot
- The concept of the fstab configuration
- Tools and utilities for handling swap partitions and files
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- Tools and utilities to manipulate and ext2, ext3 and ext4
- Tools and utilities to perform basic Btrfs operations, including subvolumes and snapshots
- Tools and utilities to manipulate XFS
- Awareness of ZFS
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- Awareness of CD-ROM filesystem extensions (Joliet, Rock Ridge, El Torito)
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- Software raid configuration files and utilities
- Tools and utilities to configure DMA for IDE devices including ATAPI and SATA
- Tools and utilities to configure Solid State Drives including AHCI and NVMe
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- Activating volume groups
- Utilities to configure and manipulate ethernet network interfaces
- Configuring basic access to wireless networks
- Utilities to manipulate routing tables
- Utilities to configure and manipulate ethernet network interfaces
- Utilities to analyze the status of the network devices
- Utilities to monitor and analyze the

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- Tools and utilities to manipulate XFS
- Awareness of ZFS
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- Awareness of sdparm command and its uses
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- Utilities to manipulate routing tables
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- Utilities to analyze the status of the network devices
- Utilities to monitor and analyze the TCP/IP traffic
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- Utilities to configure and manipulate ethernet network interfaces
- Utilities to manage routing tables
- Utilities to list network states.
- Utilities to gain information about the network configuration
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- System initialization files and their contents (SysV init process)
- Awareness of NetworkManager and its impact on network configuration
- Unpack source code using common compression and archive utilities
- Understand basics of invoking make to compile programs
- Apply parameters to a configure script
- Know where sources are stored by default
- Knowledge about directories that have to be include in backups

- Knowledge about directories that have to be include in backups
- Awareness of network backup solutions such as Amanda, Bacula, Bareos and BackupPC
- Knowledge of the benefits and drawbacks of tapes, CDR, disk or other backup media
- Perform partial and manual backups.
- Verify the integrity of backup files.
- Partially or fully restore backups.
- ?Automate communication with users through logon messages
- Inform active users of system maintenance

201.3 Kernel runtime management and troubleshooting

Description: Candidates should be able to manage and/or query a 2.6.x, 3.x or 4.x kernel and its loadable modules. Candidates should be able to identify and correct common boot and run time issues. Candidates should understand device detection and management using udev. This objective includes troubleshooting udev rules.

Key Knowledge Areas:

- Measure CPU usage
- Measure memory usage
- Measure disk I/O
- Measure network I/O
- Measure firewalling and routing throughput
- Map client bandwidth usage
- Match / correlate system symptoms with likely problems
- Estimate throughput and identify bottlenecks in a system including networking
- Use monitoring and measurement tools to monitor IT infrastructure usage.
- Predict capacity break point of a configuration
- Observe growth rate of capacity usage
- Graph the trend of capacity usage
- Awareness of monitoring solutions such as Icinga2, Nagios, collectd, MRTG and Cacti
- Kernel 2.6.x, 3.x and 4.x documentation
- /usr/src/linux/
- Kernel Makefiles
- Kernel 2.6.x/3.x make targets
- Customize the current kernel configuration.
- Build a new kernel and appropriate kernel modules.
- Install a new kernel and any modules.
- Ensure that the boot manager can locate the new kernel and associated files.
- Module configuration files
- Use DKMS to compile kernel modules.
- Awareness of dracut
- Use command-line utilities to get information about the currently running kernel and kernel modules
- Manually load and unload kernel modules

TCP/IP traffic
- Location and content of access restriction files
- Utilities to configure and manipulate ethernet network interfaces
- Utilities to manage routing tables
- Utilities to list network states.
- Utilities to gain information about the network configuration
- Methods of information about the recognized and used hardware devices
- System initialization files and their contents (SysV init process)
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- Knowledge of the benefits and drawbacks of tapes, CDR, disk or other backup media
- Perform partial and manual backups.
- Verify the integrity of backup files.
- Partially or fully restore backups.
- ?Automate communication with users through logon messages
- Inform active users of system maintenance

203.3 Creating and configuring filesystem options

Description: Candidates should be able to configure automount filesystems using AutoFS. This objective includes configuring automount for network and device filesystems. Also included is creating filesystems for devices such as CD-ROMs and a basic feature knowledge of encrypted filesystems.

Key Knowledge Areas:

- Measure CPU usage
- Measure memory usage
- Measure disk I/O
- Measure network I/O
- Measure firewalling and routing throughput
- Map client bandwidth usage
- Match / correlate system symptoms with likely problems
- Estimate throughput and identify bottlenecks in a system including

- Awareness of network backup solutions such as Amanda, Bacula, Bareos and BackupPC
- Knowledge of the benefits and drawbacks of tapes, CDR, disk or other backup media
- Perform partial and manual backups.
- Verify the integrity of backup files.
- Partially or fully restore backups.
- ?Automate communication with users through logon messages
- Inform active users of system maintenance

Topic 206: System Maintenance

206.1 Make and install programs from source

Description: Candidates should be able to build and install an executable program from source. This objective includes being able to unpack a file of sources.

Key Knowledge Areas:

- Measure CPU usage
- Measure memory usage
- Measure disk I/O
- Measure network I/O
- Measure firewalling and routing throughput
- Map client bandwidth usage
- Match / correlate system symptoms with likely problems
- Estimate throughput and identify bottlenecks in a system including networking
- Use monitoring and measurement tools to monitor IT infrastructure usage.
- Predict capacity break point of a configuration
- Observe growth rate of capacity usage
- Graph the trend of capacity usage
- Awareness of monitoring solutions such as Icinga2, Nagios, collectd, MRTG and Cacti
- Kernel 2.6.x, 3.x and 4.x documentation
- /usr/src/linux/
- Kernel Makefiles
- Kernel 2.6.x/3.x make targets
- Customize the current kernel configuration.
- Build a new kernel and appropriate kernel modules.
- Install a new kernel and any modules.
- Ensure that the boot manager can locate the new kernel and associated files.
- Module configuration files
- Use DKMS to compile kernel modules.
- Awareness of dracut
- Use command-line utilities to get information about the currently running kernel and kernel modules
- Manually load and unload kernel modules
- Determine when modules can be unloaded
- Determine what parameters a module accepts

- Determine when modules can be unloaded
- Determine what parameters a module accepts
- Configure the system to load modules by names other than their file name.
- /proc filesystem
- Content of /, /boot/ , and /lib/modules/
- Tools and utilities to analyze information about the available hardware
- udev rules
- Systemd
- SysV init
- Linux Standard Base Specification (LSB)
- BIOS and UEFI
- NVMe booting
- GRUB version 2 and Legacy
- grub shell
- boot loader start and hand off to kernel
- kernel loading
- hardware initialisation and setup
- daemon/service initialisation and setup
- Know the different boot loader install locations on a hard disk or removable device.
- Overwrite standard boot loader options and using boot loader shells.
- Use systemd rescue and emergency modes.
- SYSLINUX, ISOLINUX, PXELINUX
- Understanding of PXE for both BIOS and UEFI
- Awareness of systemd-boot and U-Boot
- The concept of the fstab configuration
- Tools and utilities for handling swap partitions and files
- Use of UUIDs for identifying and mounting file systems
- Understanding of systemd mount units
- Tools and utilities to manipulate and ext2, ext3 and ext4
- Tools and utilities to perform basic Btrfs operations, including subvolumes and snapshots
- Tools and utilities to manipulate XFS
- Awareness of ZFS
- autofs configuration files
- Understanding of automount units
- UDF and ISO9660 tools and utilities
- Awareness of other CD-ROM filesystems (HFS)
- Awareness of CD-ROM filesystem extensions (Joliet, Rock Ridge, El Torito)
- Basic feature knowledge of data encryption (dm-crypt / LUKS)
- Software raid configuration files and utilities
- Tools and utilities to configure DMA for IDE devices including ATAPI and SATA
- Tools and utilities to configure Solid State Drives including AHCI and NVMe
- Tools and utilities to manipulate or analyse system resources (e.g. interrupts)
- Awareness of sdparm command and its uses
- Tools and utilities for iSCSI
- Awareness of SAN, including relevant protocols (AoE, FCoE)

- networking
- Use monitoring and measurement tools to monitor IT infrastructure usage.
- Predict capacity break point of a configuration
- Observe growth rate of capacity usage
- Graph the trend of capacity usage
- Awareness of monitoring solutions such as Icinga2, Nagios, collectd, MRTG and Cacti
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- Tools and utilities to configure DMA for IDE devices including ATAPI and SATA
- Tools and utilities to configure Solid State Drives including AHCI and NVMe
- Tools and utilities to manipulate or analyse system resources (e.g. interrupts)
- Awareness of sdparm command and its uses
- Tools and utilities for iSCSI
- Awareness of SAN, including relevant protocols (AoE, FCoE)
- Tools in the LVM suite

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- Resizing, renaming, creating, and removing logical volumes, volume groups, and physical volumes
- Creating and maintaining snapshots
- Activating volume groups
- Utilities to configure and manipulate ethernet network interfaces
- Configuring basic access to wireless networks
- Utilities to manipulate routing tables
- Utilities to configure and manipulate ethernet network interfaces
- Utilities to analyze the status of the network devices
- Utilities to monitor and analyze the TCP/IP traffic
- Location and content of access restriction files
- Utilities to configure and manipulate ethernet network interfaces
- Utilities to manage routing tables
- Utilities to list network states.
- Utilities to gain information about the network configuration
- Methods of information about the recognized and used hardware devices
- System initialization files and their contents (SysV init process)
- Awareness of NetworkManager and its impact on network configuration
- Unpack source code using common compression and archive utilities
- Understand basics of invoking make to compile programs
- Apply parameters to a configure script
- Know where sources are stored by default
- Knowledge about directories that have to be include in backups
- Awareness of network backup solutions such as Amanda, Bacula, Bareos and BackupPC
- Knowledge of the benefits and drawbacks of tapes, CDR, disk or other backup media
- Perform partial and manual backups.
- Verify the integrity of backup files.
- Partially or fully restore backups.
- ?Automate communication with users through logon messages
- Inform active users of system maintenance

Topic 202: System Startup

202.1 Customizing SysV-init system startup

Description: Candidates should be able to query and modify the behaviour of system services at various targets / run levels. A thorough understanding of the systemd, SysV Init and the Linux boot process is required. This objective includes interacting with systemd targets and SysV init run levels.

- mounting file systems
- Understanding of systemd mount units
- Tools and utilities to manipulate and ext2, ext3 and ext4
- Tools and utilities to perform basic Btrfs operations, including subvolumes and snapshots
- Tools and utilities to manipulate XFS
- Awareness of ZFS
- autofs configuration files
- Understanding of automount units
- UDF and ISO9660 tools and utilities
- Awareness of other CD-ROM filesystems (HFS)
- Awareness of CD-ROM filesystem extensions (Joliet, Rock Ridge, El Torito)
- Basic feature knowledge of data encryption (dm-crypt / LUKS)
- Software raid configuration files and utilities
- Tools and utilities to configure DMA for IDE devices including ATAPI and SATA
- Tools and utilities to configure Solid State Drives including AHCI and NVMe
- Tools and utilities to manipulate or analyse system resources (e.g. interrupts)
- Awareness of sdparm command and its uses
- Tools and utilities for iSCSI
- Awareness of SAN, including relevant protocols (AoE, FCoE)
- Tools in the LVM suite
- Resizing, renaming, creating, and removing logical volumes, volume groups, and physical volumes
- Creating and maintaining snapshots
- Activating volume groups
- Utilities to configure and manipulate ethernet network interfaces
- Configuring basic access to wireless networks
- Utilities to manipulate routing tables
- Utilities to configure and manipulate ethernet network interfaces
- Utilities to analyze the status of the network devices
- Utilities to monitor and analyze the TCP/IP traffic
- Location and content of access restriction files
- Utilities to configure and manipulate ethernet network interfaces
- Utilities to manage routing tables
- Utilities to list network states.
- Utilities to gain information about the network configuration
- Methods of information about the recognized and used hardware devices
- System initialization files and their contents (SysV init process)
- Awareness of NetworkManager and its impact on network configuration
- Unpack source code using common compression and archive utilities

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- Utilities to configure and manipulate ethernet network interfaces
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- Utilities to monitor and analyze the TCP/IP traffic
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- Utilities to gain information about the network configuration
- Methods of information about the recognized and used hardware devices
- System initialization files and their contents (SysV init process)
- Awareness of NetworkManager and its impact on network configuration
- Unpack source code using common compression and archive utilities
- Understand basics of invoking make to compile programs
- Apply parameters to a configure script
- Know where sources are stored by default
- Knowledge about directories that have to be include in backups
- Awareness of network backup solutions such as Amanda, Bacula, Bareos and BackupPC
- Knowledge of the benefits and drawbacks of tapes, CDR, disk or other backup media
- Perform partial and manual backups.
- Verify the integrity of backup files.
- Partially or fully restore backups.
- ?Automate communication with users through logon messages
- Inform active users of system maintenance

206.2 Backup operations

Description: Candidates should be able to use system tools to back up important system data.

Key Knowledge Areas:

- Measure CPU usage
- Measure memory usage
- Measure disk I/O
- Measure network I/O
- Measure firewalling and routing throughput

Key Knowledge Areas:

- Measure CPU usage
- Measure memory usage
- Measure disk I/O
- Measure network I/O
- Measure firewalling and routing throughput
- Map client bandwidth usage
- Match / correlate system symptoms with likely problems
- Estimate throughput and identify bottlenecks in a system including networking
- Use monitoring and measurement tools to monitor IT infrastructure usage.
- Predict capacity break point of a configuration
- Observe growth rate of capacity usage
- Graph the trend of capacity usage
- Awareness of monitoring solutions such as Icinga2, Nagios, collectd, MRTG and Cacti
- Kernel 2.6.x, 3.x and 4.x documentation
- /usr/src/linux/
- Kernel Makefiles
- Kernel 2.6.x/3.x make targets
- Customize the current kernel configuration.
- Build a new kernel and appropriate kernel modules.
- Install a new kernel and any modules.
- Ensure that the boot manager can locate the new kernel and associated files.
- Module configuration files
- Use DKMS to compile kernel modules.
- Awareness of dracut
- Use command-line utilities to get information about the currently running kernel and kernel modules
- Manually load and unload kernel modules
- Determine when modules can be unloaded
- Determine what parameters a module accepts
- Configure the system to load modules by names other than their file name.
- /proc filesystem
- Content of /, /boot/ , and /lib/modules/
- Tools and utilities to analyze information about the available hardware
- udev rules
- Systemd
- SysV init
- Linux Standard Base Specification (LSB)
- BIOS and UEFI
- NVMe booting
- GRUB version 2 and Legacy
- grub shell
- boot loader start and hand off to kernel
- kernel loading
- hardware initialisation and setup
- daemon/service initialisation and setup
- Know the different boot loader install locations on a hard disk or removable device.
- Overwrite standard boot loader options and using boot loader shells.
- Use systemd rescue and emergency modes.

- Understand basics of invoking make to compile programs
- Apply parameters to a configure script
- Know where sources are stored by default
- Knowledge about directories that have to be include in backups
- Awareness of network backup solutions such as Amanda, Bacula, Bareos and BackupPC
- Knowledge of the benefits and drawbacks of tapes, CDR, disk or other backup media
- Perform partial and manual backups.
- Verify the integrity of backup files.
- Partially or fully restore backups.
- ?Automate communication with users through logon messages
- Inform active users of system maintenance

Topic 204: Advanced Storage Device Administration

204.1 Configuring RAID

Description: Candidates should be able to configure and implement software RAID. This objective includes using and configuring RAID 0, 1 and 5.

Key Knowledge Areas:

- Measure CPU usage
- Measure memory usage
- Measure disk I/O
- Measure network I/O
- Measure firewalling and routing throughput
- Map client bandwidth usage
- Match / correlate system symptoms with likely problems
- Estimate throughput and identify bottlenecks in a system including networking
- Use monitoring and measurement tools to monitor IT infrastructure usage.
- Predict capacity break point of a configuration
- Observe growth rate of capacity usage
- Graph the trend of capacity usage
- Awareness of monitoring solutions such as Icinga2, Nagios, collectd, MRTG and Cacti
- Kernel 2.6.x, 3.x and 4.x documentation
- /usr/src/linux/
- Kernel Makefiles
- Kernel 2.6.x/3.x make targets
- Customize the current kernel configuration.
- Build a new kernel and appropriate kernel modules.

- Map client bandwidth usage
- Match / correlate system symptoms with likely problems
- Estimate throughput and identify bottlenecks in a system including networking
- Use monitoring and measurement tools to monitor IT infrastructure usage.
- Predict capacity break point of a configuration
- Observe growth rate of capacity usage
- Graph the trend of capacity usage
- Awareness of monitoring solutions such as Icinga2, Nagios, collectd, MRTG and Cacti
- Kernel 2.6.x, 3.x and 4.x documentation
- /usr/src/linux/
- Kernel Makefiles
- Kernel 2.6.x/3.x make targets
- Customize the current kernel configuration.
- Build a new kernel and appropriate kernel modules.
- Install a new kernel and any modules.
- Ensure that the boot manager can locate the new kernel and associated files.
- Module configuration files
- Use DKMS to compile kernel modules.
- Awareness of dracut
- Use command-line utilities to get information about the currently running kernel and kernel modules
- Manually load and unload kernel modules
- Determine when modules can be unloaded
- Determine what parameters a module accepts
- Configure the system to load modules by names other than their file name.
- /proc filesystem
- Content of /, /boot/ , and /lib/modules/
- Tools and utilities to analyze information about the available hardware
- udev rules
- Systemd
- SysV init
- Linux Standard Base Specification (LSB)
- BIOS and UEFI
- NVMe booting
- GRUB version 2 and Legacy
- grub shell
- boot loader start and hand off to kernel
- kernel loading
- hardware initialisation and setup
- daemon/service initialisation and setup
- Know the different boot loader install locations on a hard disk or removable device.
- Overwrite standard boot loader options and using boot loader shells.
- Use systemd rescue and emergency modes.
- SYSLINUX, ISOLINUX, PXELINUX
- Understanding of PXE for both BIOS and UEFI
- Awareness of systemd-boot and U-Boot
- The concept of the fstab configuration
- Tools and utilities for handling swap

- SYSLINUX, ISOLINUX, PXELINUX
- Understanding of PXE for both BIOS and UEFI
- Awareness of systemd-boot and U-Boot
- The concept of the fstab configuration
- Tools and utilities for handling swap partitions and files
- Use of UUIDs for identifying and mounting file systems
- Understanding of systemd mount units
- Tools and utilities to manipulate and ext2, ext3 and ext4
- Tools and utilities to perform basic Btrfs operations, including subvolumes and snapshots
- Tools and utilities to manipulate XFS
- Awareness of ZFS
- autofs configuration files
- Understanding of automount units
- UDF and ISO9660 tools and utilities
- Awareness of other CD-ROM filesystems (HFS)
- Awareness of CD-ROM filesystem extensions (Joliet, Rock Ridge, El Torito)
- Basic feature knowledge of data encryption (dm-crypt / LUKS)
- Software raid configuration files and utilities
- Tools and utilities to configure DMA for IDE devices including ATAPI and SATA
- Tools and utilities to configure Solid State Drives including AHCI and NVMe
- Tools and utilities to manipulate or analyse system resources (e.g. interrupts)
- Awareness of sdparm command and its uses
- Tools and utilities for iSCSI
- Awareness of SAN, including relevant protocols (AoE, FCoE)
- Tools in the LVM suite
- Resizing, renaming, creating, and removing logical volumes, volume groups, and physical volumes
- Creating and maintaining snapshots
- Activating volume groups
- Utilities to configure and manipulate ethernet network interfaces
- Configuring basic access to wireless networks
- Utilities to manipulate routing tables
- Utilities to configure and manipulate ethernet network interfaces
- Utilities to analyze the status of the network devices
- Utilities to monitor and analyze the TCP/IP traffic
- Location and content of access restriction files
- Utilities to configure and manipulate ethernet network interfaces
- Utilities to manage routing tables
- Utilities to list network states.
- Utilities to gain information about the network configuration
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- Install a new kernel and any modules.
- Ensure that the boot manager can locate the new kernel and associated files.
- Module configuration files
- Use DKMS to compile kernel modules.
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- Use command-line utilities to get information about the currently running kernel and kernel modules
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- Unpack source code using common compression and archive utilities
- Understand basics of invoking make to compile programs
- Apply parameters to a configure script
- Know where sources are stored by default
- Knowledge about directories that have to be include in backups
- Awareness of network backup solutions such as Amanda, Bacula, Bareos and BackupPC
- Knowledge of the benefits and drawbacks of tapes, CDR, disk or other backup media
- Perform partial and manual backups.
- Verify the integrity of backup files.
- Partially or fully restore backups.
- ?Automate communication with users through logon messages
- Inform active users of system maintenance

202.2 System Recovery

Description: Candidates should be able to properly manipulate a Linux system during both the boot process and during recovery mode. This objective includes using both the init utility and init-related kernel options. Candidates should be able to determine the cause of errors in loading and usage of bootloaders. GRUB version 2 and GRUB Legacy are the bootloaders of interest. Both BIOS and UEFI systems are covered.

- Software raid configuration files and utilities
- Tools and utilities to configure DMA for IDE devices including ATAPI and SATA
- Tools and utilities to configure Solid State Drives including AHCI and NVMe
- Tools and utilities to manipulate or analyse system resources (e.g. interrupts)
- Awareness of sdparm command and its uses
- Tools and utilities for iSCSI
- Awareness of SAN, including relevant protocols (AoE, FCoE)
- Tools in the LVM suite
- Resizing, renaming, creating, and removing logical volumes, volume groups, and physical volumes
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- Utilities to configure and manipulate ethernet network interfaces
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- Utilities to manipulate routing tables
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- Utilities to monitor and analyze the TCP/IP traffic
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- Perform partial and manual backups.
- Verify the integrity of backup files.
- Partially or fully restore backups.
- ?Automate communication with users through logon messages
- Inform active users of system maintenance

206.3 Notify users on system-related issues

Description: Candidates should be able to notify the users about current issues related to the system.

Key Knowledge Areas:

- Measure CPU usage
- Measure memory usage
- Measure disk I/O
- Measure network I/O
- Measure firewalling and routing throughput
- Map client bandwidth usage
- Match / correlate system symptoms with likely problems
- Estimate throughput and identify bottlenecks in a system including networking
- Use monitoring and measurement tools to monitor IT infrastructure usage.
- Predict capacity break point of a configuration
- Observe growth rate of capacity usage
- Graph the trend of capacity usage
- Awareness of monitoring solutions such as Icinga2, Nagios, collectd, MRTG and Cacti
- Kernel 2.6.x, 3.x and 4.x documentation
- /usr/src/linux/
- Kernel Makefiles
- Kernel 2.6.x/3.x make targets
- Customize the current kernel configuration.
- Build a new kernel and appropriate kernel modules.
- Install a new kernel and any modules.
- Ensure that the boot manager can locate the new kernel and associated files.
- Module configuration files
- Use DKMS to compile kernel modules.
- Awareness of dracut
- Use command-line utilities to get information about the currently running kernel and kernel modules
- Manually load and unload kernel modules

- Inform active users of system maintenance

204.2 Adjusting Storage Device Access

Description: Candidates should be able to configure kernel options to support various drives. This objective includes software tools to view ; modify hard disk settings including iSCSI devices.

Key Knowledge Areas:

- Measure CPU usage
- Measure memory usage
- Measure disk I/O
- Measure network I/O
- Measure firewalling and routing throughput
- Map client bandwidth usage
- Match / correlate system symptoms with likely problems
- Estimate throughput and identify bottlenecks in a system including networking
- Use monitoring and measurement tools to monitor IT infrastructure usage.
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- Awareness of monitoring solutions such as Icinga2, Nagios, collectd, MRTG and Cacti
- Kernel 2.6.x, 3.x and 4.x documentation
- /usr/src/linux/
- Kernel Makefiles
- Kernel 2.6.x/3.x make targets
- Customize the current kernel configuration.
- Build a new kernel and appropriate kernel modules.
- Install a new kernel and any modules.
- Ensure that the boot manager can locate the new kernel and associated files.
- Module configuration files
- Use DKMS to compile kernel modules.
- Awareness of dracut
- Use command-line utilities to get information about the currently running kernel and kernel modules
- Manually load and unload kernel modules
- Determine when modules can be unloaded
- Determine what parameters a module accepts
- Configure the system to load modules by names other than their file name.
- /proc filesystem
- Content of /, /boot/ , and /lib/modules/
- Tools and utilities to analyze information about the available hardware
- udev rules

- Determine when modules can be unloaded
- Determine what parameters a module accepts
- Configure the system to load modules by names other than their file name.
- /proc filesystem
- Content of /, /boot/ , and /lib/modules/
- Tools and utilities to analyze information about the available hardware
- udev rules
- Systemd
- SysV init
- Linux Standard Base Specification (LSB)
- BIOS and UEFI
- NVMe booting
- GRUB version 2 and Legacy
- grub shell
- boot loader start and hand off to kernel
- kernel loading
- hardware initialisation and setup
- daemon/service initialisation and setup
- Know the different boot loader install locations on a hard disk or removable device.
- Overwrite standard boot loader options and using boot loader shells.
- Use systemd rescue and emergency modes.
- SYSLINUX, ISOLINUX, PXELINUX
- Understanding of PXE for both BIOS and UEFI
- Awareness of systemd-boot and U-Boot
- The concept of the fstab configuration
- Tools and utilities for handling swap partitions and files
- Use of UUIDs for identifying and mounting file systems
- Understanding of systemd mount units
- Tools and utilities to manipulate and ext2, ext3 and ext4
- Tools and utilities to perform basic Btrfs operations, including subvolumes and snapshots
- Tools and utilities to manipulate XFS
- Awareness of ZFS
- autofs configuration files
- Understanding of automount units
- UDF and ISO9660 tools and utilities
- Awareness of other CD-ROM filesystems (HFS)
- Awareness of CD-ROM filesystem extensions (Joliet, Rock Ridge, El Torito)
- Basic feature knowledge of data encryption (dm-crypt / LUKS)
- Software raid configuration files and utilities
- Tools and utilities to configure DMA for IDE devices including ATAPI and SATA
- Tools and utilities to configure Solid State Drives including AHCI and NVMe
- Tools and utilities to manipulate or analyse system resources (e.g. interrupts)
- Awareness of sdparm command and its uses
- Tools and utilities for iSCSI

- Systemd
- SysV init
- Linux Standard Base Specification (LSB)
- BIOS and UEFI
- NVMe booting
- GRUB version 2 and Legacy
- grub shell
- boot loader start and hand off to kernel
- kernel loading
- hardware initialisation and setup
- daemon/service initialisation and setup
- Know the different boot loader install locations on a hard disk or removable device.
- Overwrite standard boot loader options and using boot loader shells.
- Use systemd rescue and emergency modes.
- SYSLINUX, ISOLINUX, PXELINUX
- Understanding of PXE for both BIOS and UEFI
- Awareness of systemd-boot and U-Boot
- The concept of the fstab configuration
- Tools and utilities for handling swap partitions and files
- Use of UUIDs for identifying and mounting file systems
- Understanding of systemd mount units
- Tools and utilities to manipulate and ext2, ext3 and ext4
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- Tools and utilities to manipulate or analyse system resources (e.g. interrupts)
- Awareness of sdparm command and its uses
- Tools and utilities for iSCSI
- Awareness of SAN, including relevant protocols (AoE, FCoE)
- Tools in the LVM suite
- Resizing, renaming, creating, and removing logical volumes, volume groups, and physical volumes
- Creating and maintaining snapshots
- Activating volume groups
- Utilities to configure and manipulate

- Awareness of SAN, including relevant protocols (AoE, FCoE)
- Tools in the LVM suite
- Resizing, renaming, creating, and removing logical volumes, volume groups, and physical volumes
- Creating and maintaining snapshots
- Activating volume groups
- Utilities to configure and manipulate ethernet network interfaces
- Configuring basic access to wireless networks
- Utilities to manipulate routing tables
- Utilities to configure and manipulate ethernet network interfaces
- Utilities to analyze the status of the network devices
- Utilities to monitor and analyze the TCP/IP traffic
- Location and content of access restriction files
- Utilities to configure and manipulate ethernet network interfaces
- Utilities to manage routing tables
- Utilities to list network states.
- Utilities to gain information about the network configuration
- Methods of information about the recognized and used hardware devices
- System initialization files and their contents (SysV init process)
- Awareness of NetworkManager and its impact on network configuration
- Unpack source code using common compression and archive utilities
- Understand basics of invoking make to compile programs
- Apply parameters to a configure script
- Know where sources are stored by default
- Knowledge about directories that have to be include in backups
- Awareness of network backup solutions such as Amanda, Bacula, Bareos and BackupPC
- Knowledge of the benefits and drawbacks of tapes, CDR, disk or other backup media
- Perform partial and manual backups.
- Verify the integrity of backup files.
- Partially or fully restore backups.
- ?Automate communication with users through logon messages
- Inform active users of system maintenance

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204.3 Logical Volume Manager

Description: Candidates should be able to create and remove logical volumes, volume groups, and physical volumes. This objective includes snapshots and resizing logical volumes.

Further Information:

For More information, or to book your course, please call us on 00 966 92000 9278

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