CompTIA Server+ SK0-004

Duration 5 Days

Course Description

This course builds on existing professional experience with personal computer hardware support to present the next tier of skills & concepts students will use on the job when administering any type of network server. If your job duties include server troubleshooting, installation, or maintenance, or if you are preparing for any type of network server-related career, it provides the primary knowledge and skills you will require to be successful. The CompTIA® Server+® (Exam SK0-004) course can also benefit you if you are preparing to take the CompTIA Server+ examination (Exam SK0-004).

Learning Objectives

Upon successful completion of this course, you will be able to perform the duties of a server administrator.

In this course, you will:

- Manage server hardware.
- Install server hardware and operating systems.
- Configure networking hardware and protocols.
- Create a virtual server environment.
- Perform basic server configuration tasks.
- Administer servers.
- Implement server storage solutions.
- Secure the server.
- Plan and test disaster recovery.
- Troubleshoot server issues.

Prerequisites

To get the most out of the CompTIA Server+ Certification Study Guide and be able to prepare for your exam you should have successfully earned the CompTIA A+ Certification or have at least 1 year of experience of working in IT support. Specifically, it is recommended that you have the following skills and knowledge before starting this course:

- Taken and passed both CompTIA A+ Certification exams or have equivalent knowledge and experience.
- 6 months to one year of post-A+ Certification support experience.
- Extensive experience of supporting end-users and PC-based systems.

Course Outline

1.0 Server Architecture

1.1 Explain the purpose and function of server form factors

- Rack mount
- Tower
- Blade technology

1.2 Given a scenario, install, configure and maintain server components

- CPU
- RAM
- Bus types, bus channels and expansion slots
- NICs
- Hard drives
- Riser cards
- RAID controllers
- BIOS/UEFI
- Firmware
- USB interface/port
- Hotswap vs. non-hotswap components

1.3 Compare and contrast power and cooling components

- Power
- Cooling

2.0 Server Administration

2.1 Install and configure server operating systems

- Determine server role/purpose
- Update firmware
- BIOS/UEFI configuration
- Disk preparation
- Configure host name
- Local account setup
- Connect to network
- Join domain/directory
- Address security concerns
- Enable services
- Install features/roles/applications/drivers
- Performance baseline
- Unattended/remote installations

2.2 Compare and contrast server roles and requirements for each

- Web server
- Application server
- Directory server
- Database server
- File server
- Print server
- Messaging server
- Mail server
- Routing and remote access server
- Network services server

2.3 Given a scenario, use access and control methods to administer a server

- Local hardware administration

- Network-based hardware administration
- Network-based operating system administration

2.4 Given a scenario, perform proper server maintenance techniques

- Change management
- Patch management
- Outages & Service Level Agreements
- Performance monitoring
- Hardware maintenance
- Fault tolerance and high availability techniques

2.5 Explain the importance of asset management and documentation

- Asset management
- Documentation
- Secure storage of sensitive documentation

2.6 Explain the purpose and operation of virtualization components

- Hosts and guests
- Management interface for virtual machines
- Hypervisor
- Hardware compatibility list
- Resource allocation between Guest and Host

3.0 Storage

3.1 Given a scenario, install and deploy primary storage devices based on given specifications and interfaces

- Disk specifications
- Interfaces
- Hard drive vs. SSD

3.2 Given a scenario, configure RAID using best practices

- RAID levels and performance considerations
- Software vs. hardware RAID
- Configuration specifications
- Hotswap support and ramifications
- Hot spare vs. cold spare
- Array controller

3.3 Summarize hardware and features of various storage technologies

- DAS
- NAS
- SAN
- JBOD
- Tape
- Optical drive
- Flash, Compact Flash and USB drive

3.4 Given a scenario, calculate appropriate storage capacity and plan for future growth

- Base10 vs. Base2 disk size calculation (1000 vs. 1024)
- Disk quotas
- Compression
- Capacity planning considerations:

4.0 Security

4.1 Compare and contrast physical security methods and concepts

- Multifactor Authentication
- Security concepts

4.2 Given a scenario, apply server hardening techniques

- OS hardening
- Application hardening
- Endpoint security
- Remediate security issues based on a vulnerability scan
- Hardware hardening

4.3 Explain basic network security systems and protocols

- Firewall
- Port security / 802.1x / NAC
- Router access list
- NIDS
- Authentication protocols
- VPN
- IPSEC
- VLAN
- Security zones

4.4 Implement logical access control methods based on company policy

- Access control lists
- Permissions

4.5 Implement data security methods and secure storage disposal techniques

- Storage encryption
- Storage media

4.6 Given a scenario, implement proper environmental controls and techniques

- Power concepts and best practices
- Safety
- HVAC

5.0 Networking

5.1 Given a scenario, configure servers to use IP addressing and network infrastructure services

- IPv4 vs. IPv6
- Default gateway
- CIDR notation and subnetting
- Public and private IP addressing
- Static IP assignment vs. DHCP
- DNS

- WINS
- NetBIOS
- NAT/PAT
- MAC addresses
- Network Interface Card configuration

5.2 Compare and contrast various ports and protocols

- TCP vs. UDP
- SNMP 161
- SMTP 25
- FTP 20/21
- SFTP 22
- SSH 22
- SCP 22
- NTP 123
- HTTP 80
- HTTPS 443
- TELNET 23
- IMAP 143
- POP3 110
- RDP 3389
- FTPS 989/990
- LDAP 389/3268
- DNS 53
- DHCP 68

5.3 Given a scenario, install cables and implement proper cable management procedures

- Copper
- Fiber
- Connectors
- Cable placement and routing
- Labeling
- Bend radius
- Cable ties

6.0 Disaster Recovery

6.1 Explain the importance of disaster recovery principles

- Site types
- Replication methods
- Continuity of Operations

6.2 Given a scenario, implement appropriate backup techniques

- Methodology
- Backup media
- Media and restore best practices
- Media storage location

7.0 Troubleshooting

7.1 Explain troubleshooting theory and methodologies

- Identify the problem and determine the scope
- Establish a theory of probable cause (question the obvious)
- Test the theory to determine cause
- Establish a plan of action to resolve the problem and notify impacted users
- Implement the solution or escalate as appropriate
- Verify full system functionality and if applicable implement preventative measures
- Perform a root cause analysis
- Document findings, actions and outcomes throughout the process

7.2 Given a scenario, effectively troubleshoot hardware problems, selecting the appropriate tools and methods

- Common problems
- Causes of common problems
- Environmental issues
- Hardware tools

7.3 Given a scenario, effectively troubleshoot software problems, selecting the appropriate tools and methods

- Common problems
- Cause of common problems
- Software tools

7.4 Given a scenario, effectively diagnose network problems, selecting the appropriate tools and methods

- Common problems
- Causes of common problems
- Networking tools

7.5 Given a scenario, effectively troubleshoot storage problems, selecting the appropriate tools and methods

- Common problems
- Causes of common problems
- Storage tools

7.6 Given a scenario, effectively diagnose security issues, selecting the appropriate tools and methods

- Common problems
- Causes of common problems
- Security tools