

Interconnecting Cisco Networking Devices: Accelerated (CCNAX) 2.0

Exam Code: 200-120

Duration: 40 Hrs

Operation of IP Data Networks

- Operation of IP Data Networks
- Recognize the purpose and functions of various network devices such as Routers, Switches, Bridges and Hubs.
- Select the components required to meet a given network specification.
- Identify common applications and their impact on the network
- Describe the purpose and basic operation of the protocols in the OSI and TCP/IP models.
- Predict the data flow between two hosts across a network.
- Identify the appropriate media, cables, ports, and connectors to connect Cisco network devices to other network devices and hosts in a LAN

LAN Switching Technologies

- Determine the technology and media access control method for Ethernet networks
- Identify basic switching concepts and the operation of Cisco switches.
 - Collision Domains
 - Broadcast Domains
 - Types of switching
 - CAM Table
- Configure and verify initial switch configuration including remote access management.
 - Cisco IOS commands to perform basic switch setup
- Verify network status and switch operation using basic utilities such as ping, telnet and ssh.
- Identify enhanced switching technologies
 - RSTP
 - PVSTP
 - Etherchannels
- Describe how VLANs create logically separate networks and the need for routing between them.
 - Explain network segmentation and basic traffic management concepts
- Configure and verify VLANs
- Configure and verify trunking on Cisco switches
 - DTP
 - Auto negotiation
- Configure and verify PVSTP operation
 - describe root bridge election
 - spanning tree mode

IP addressing (IPv4 / IPv6)

- Describe the operation and necessity of using private and public IP addresses for IPv4 addressing

- Identify the appropriate IPv6 addressing scheme to satisfy addressing requirements in a LAN/WAN environment.
- Identify the appropriate IPv4 addressing scheme using VLSM and summarization to satisfy addressing requirements in a LAN/WAN environment.
- Describe the technological requirements for running IPv6 in conjunction with IPv4 such as dual stack
- Describe IPv6 addresses
 - Global unicast
 - Multicast
 - Link local
 - Unique local
 - eui 64
 - autoconfiguration

IP Routing Technologies

- Describe basic routing concepts
 - CEF
 - Packet forwarding
 - Router lookup process
- Describe the boot process of Cisco IOS routers
 - POST
 - Router bootup process
- Configure and verify utilizing the CLI to set basic Router configuration
 - Cisco IOS commands to perform basic router setup
- Configure and verify operation status of a device interface, both serial and ethernet
- Verify router configuration and network connectivity
 - Cisco IOS commands to review basic router information and network connectivity
- Configure and verify routing configuration for a static or default route given specific routing requirements
- Manage Cisco IOS Files
 - Boot preferences
 - Cisco IOS image(s)
 - Licensing
 - Show license
 - Change license
- Differentiate methods of routing and routing protocols
 - Static vs. Dynamic
 - Link state vs. Distance Vector
 - Administrative distance
 - split horizon
 - metric
 - next hop
 - ip routing table
 - Passive Interfaces
- Configure and verify OSPF (single area)
 - Benefit of single area
 - neighbor adjacencies

- OSPF states
- Discuss Multi area
- Configure OSPF v2
- Configure OSPF v3
- Router ID
- Passive interface
- LSA types
- Configure and verify EIGRP (single AS)
 - Feasible Distance / Feasible Successors /Administrative distance
 - Feasibility condition
 - Metric composition
 - Router ID
 - Auto summary
 - Path selection
 - Load balancing
 - Equal
 - Unequal
 - Passive interface
- Configure and verify interVLAN routing (Router on a stick)
 - sub interfaces
 - upstream routing
 - encapsulation
- Configure SVI interfaces

IP Services

- Configure and verify DHCP (IOS Router)
 - configuring router interfaces to use DHCP
 - DHCP options
 - excluded addresses
 - lease time
- Describe the types, features, and applications of ACLs
 - Standard
 - Sequence numbers
 - Editing
 - Extended
 - Named
 - Numbered
 - Log option
- Configure and verify ACLs in a network environment
 - Named
 - Numbered
 - Log option
- Identify the basic operation of NAT
 - Purpose
 - Pool
 - Static
 - 1 to 1

- Overloading
- Source addressing
- One way NAT
- Configure and verify NAT for given network requirements
- Configure and verify NTP as a client
- Recognize High availability (FHRP)
 - VRRP
 - HSRP
 - GLBP
- Configure and verify Syslog
 - Utilize Syslog Output
- Describe SNMP v2 & v3

Network Device Security

- Configure and verify network device security features such as
 - Device password security
 - Enable secret vs enable
 - Transport
 - Disable telnet
 - SSH
 - VTYs
 - Physical security
 - Service password
 - Describe external authentication methods
- Configure and verify Switch Port Security features such as
 - Sticky MAC
 - MAC address limitation
 - Static / dynamic
 - Violation modes
 - Err disable
 - Shutdown
 - Protect restrict
 - Shutdown unused ports
 - Err disable recovery
 - Assign unused ports to an unused VLAN
 - Setting native VLAN to other than VLAN 1
- Configure and verify ACLs to filter network traffic
- Configure and verify an ACLs to limit telnet and SSH access to the router

Troubleshooting

- Identify and correct common network problems
- Utilize netflow data
- Troubleshoot and correct common problems associated with IP addressing and host configurations.
- Troubleshoot and Resolve VLAN problems
 - identify that VLANs are configured

- port membership correct
 - IP address configured
- Troubleshoot and Resolve trunking problems on Cisco switches
 - correct trunk states
 - correct encapsulation configured
 - correct vlans allowed
- Troubleshoot and Resolve Spanning Tree operation issues
 - root switch
 - priority
 - mode is correct
 - port states
- Troubleshoot and Resolve routing issues
 - routing is enabled
 - routing table is correct
 - correct path selection
- Troubleshoot and Resolve OSPF problems
 - neighbor adjancies
 - Hello and Dead timers
 - OSPF area
 - Interface MTU
 - Network types
 - Neighbor states
 - OSPF topology database
- Troubleshoot and Resolve EIGRP problems
 - neighbor adjancies
 - AS number
 - Load balancing
 - Split horizon
- Troubleshoot and Resolve interVLAN routing problems
 - Connectivity
 - Encapsulation
 - Subnet
 - Native VLAN
 - Port mode trunk status
- Troubleshoot and Resolve ACL issues
 - Statistics
 - Permitted networks
 - Direction
 - Interface
- Troubleshoot and Resolve WAN implementation issues
 - Serial interfaces
 - PPP
 - Frame relay
- Troubleshoot and Resolve Layer 1 problems
 - Framing
 - CRC
 - Runts
 - Giants

- Dropped packets
- Late collision
- Input / Output errors
- Monitor NetFlow statistics
- Troubleshoot etherchannel problems

WAN Technologies

- Identify different WAN Technologies
 - Metro Ethernet
 - VSAT
 - Cellular 3G / 4G
 - MPLS
 - T1 / E1
 - ISDN
 - DSL
 - Frame relay
 - Cable
 - VPN
- Configure and verify a basic WAN serial connection
- Configure and verify a PPP connection between Cisco routers
- Configure and verify Frame Relay on Cisco routers
- Implement and troubleshoot PPPoE