

# CCNA

## Curriculum

Duration: 45 Days



## CISCO CERTIFIED NETWORK ASSOCIATE (200-125)

### 1. Network Fundamentals

- Compare and contrast OSI and TCP/IP models
- Compare and contrast TCP and UDP protocols
- Describe the impact of infrastructure components in an enterprise network
- Describe the effects of cloud resources on enterprise network architecture
- Compare and contrast collapsed core and three-tier architectures
- Compare and contrast network topologies
- Select the appropriate cabling type based on implementation requirements
- Apply troubleshooting methodologies to resolve problems
- Configure, verify, and troubleshoot IPv4 addressing and subnetting
- Compare and contrast IPv4 address types
- Describe the need for private IPv4 addressing
- Identify the appropriate IPv6 addressing scheme to satisfy addressing requirements in a LAN/WAN environment
- Configure, verify, and troubleshoot IPv6 addressing
- Configure and verify IPv6 Stateless Address Auto Configuration
- Compare and contrast IPv6 address types

### 2. LAN Switching Technologies

- Describe and verify switching concepts
- Interpret Ethernet frame format
- Troubleshoot interface and cable issues (collisions, errors, duplex, speed)
- Configure, verify, and troubleshoot VLANs (normal/extended range) spanning multiple switches
- Configure, verify, and troubleshoot interswitch connectivity
- Configure, verify, and troubleshoot STP protocols
- Configure, verify and troubleshoot STP related optional features
- Configure and verify Layer 2 protocols
- Configure, verify, and troubleshoot (Layer 2/Layer 3) Ether Channel
- Describe the benefits of switch stacking and chassis aggregation

## 3. Routing Technologies

- Describe the routing concepts
- Interpret the components of a routing table
- Describe how a routing table is populated by different routing information sources
- Configure, verify, and troubleshoot inter-VLAN routing
- Compare and contrast static routing and dynamic routing
- Compare and contrast distance vector and link state routing protocols
- Compare and contrast interior and exterior routing protocols
- Configure, verify, and troubleshoot IPv4 and IPv6 static routing
- Configure, verify, and troubleshoot single area and multi-area OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual link, and LSAs)
- Configure, verify, and troubleshoot single area and multi-area OSPFv3 for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual link, and LSAs)
- Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
- Configure, verify, and troubleshoot EIGRP for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub)
- Configure, verify, and troubleshoot RIPv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution)
- Troubleshoot basic Layer 3 end-to-end connectivity issues

## 4. WAN Technologies

- Configure and verify PPP and MLPPP on WAN interfaces using local authentication
- Configure, verify, and troubleshoot PPPoE client-side interfaces using local authentication
- Configure, verify, and troubleshoot GRE tunnel connectivity
- Describe WAN topology options
- Describe WAN access connectivity options
- Configure and verify single-homed branch connectivity using e-BGP IPv4 (limited to peering and route advertisement using Network command only)
- Describe basic QoS concepts

## 5. Infrastructure Services

- Describe DNS lookup operation
- Troubleshoot client connectivity issues involving DNS
- Configure and verify DHCP on a router (excluding static reservations)
- Troubleshoot client- and router-based DHCP connectivity issues
- Configure, verify, and troubleshoot basic HSRP
- Configure, verify, and troubleshoot inside source NAT

- Configure and verify NTP operating in a client/server mode

## 6. Infrastructure Security

- Configure, verify, and troubleshoot port security
- Describe common access layer threat mitigation techniques
- Configure, verify, and troubleshoot IPv4 and IPv6 access list for traffic filtering
- Verify ACLs using the APIC-EM Path Trace ACL Analysis tool
- Configure, verify, and troubleshoot basic device hardening
- Describe device security using AAA with TACACS+ and RADIUS

## 7. Infrastructure Management

- Configure and verify device-monitoring protocols
- Troubleshoot network connectivity issues using ICMP echo-based IP SLA
- Configure and verify device management
- Configure and verify initial device configuration
- Perform device maintenance
- Use Cisco IOS tools to troubleshoot and resolve problems
- Describe network programmability in enterprise network architecture



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