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Cisco Certified Network Associate (CCNA)

Course Number:	#MDTS-758
Course Length:	5 days
Number of Exams:	1
Certifications:	CCNA 200-125
Class Price:	[Cisco CCNA Training Quote](#)

Cisco Certified Network Associate (CCNA) Routing and Switching is a certification program for entry-level network engineers that helps maximize your investment in foundational networking knowledge and increase the value of your employer's network. CCNA Routing and Switching is for Network Specialists, Network Administrators, and Network Support Engineers with 1-3 years of experience. The CCNA Routing and Switching validates the ability to install, configure, operate, and troubleshoot medium-size routed and switched networks.

Course Outline

The Cisco Certified Network Associate (CCNA) Routing and Switching composite **Exam (200-125)** is an assessment that is associated with the **CCNA Routing and Switching certification**. This exam tests a candidate's knowledge and skills related to network fundamentals, LAN switching technologies, IPv4 and IPv6 routing technologies, WAN technologies, infrastructure services, infrastructure security, and infrastructure management.

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

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) EtherChannel
- Describe the benefits of switch stacking and chassis aggregation

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

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 eBGP IPv4 (limited to peering and route advertisement using Network command only)

- Describe basic QoS concepts

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