CS-CCNA

CCNA 200-301

DURATION	LEVEL	TECHNOLOGY	DELIVERY METHOD	TRAINING CREDITS
5 Days	Associate	Cisco	Instructor Led	N/A

INTRODUCTION

This new five day Cisco CCNA 200-301 course will provide delegates with the knowledge to install, operate, configure, and verify basic IPv4 and IPv6 networks, including configuring a LAN switch, configuring an IP router, a wireless LAN controller, managing network devices, and identifying basic security. In addition, the course will also cover and provide foundational knowledge on emerging technologies like: automation, SDN and network programmability.

AUDIENCE PROFILE

This course is primarily intended for:

- Network support technicians, Network Administrators or anyone involved in in the basic installation and operation of a Cisco configured network
- Individuals preparing for the new CCNA certification

PREREQUISITES

Delegates attending this course must have:

Basic computer skills, such as how to use a keyboard and how to work with a removable media such as Flash Drives.

The knowledge and skills that a learner must have before attending this course are as follows:

- To receive maximum value from our CCNA course, it is proposed for delegates attending to have basic computer literacy, basic operating system navigation skills, basic internet usage capabilities and basic IP knowledge.
- Willingness to attend training with extended training hours

COURSE OBJECTIVES

On completion of this course, participants should be familiar with:

Networking:

- The central ideas and terms used by TCP/IP, and contrasts the TCP/IP networking model with the OSI model.
- Concepts and terms used when building Ethernet LANs
- The basics of the data-link layer for WANs in the context of IP routing but emphasizes the main network layer protocol for TCP/IP
- The basics of IPv4, including IPv4 addressing and routing.

Implementing Ethernet LANs:

- How to access the textbased user interface of Cisco Catalyst LAN switches
- Using the Cisco CLI to verify the current status of an Ethernet LAN and how it switches Ethernet frames.
- Configuring Cisco switches for basic management features, such as remote access using Telnet and SSH
- Configuring a variety of switch features that apply to interfaces, including duplex/speed.

Implementing VLANs and STP:

- Concepts and configuration surrounding virtual LANs, including VLAN trunking.

- Concepts behind IEEE Spanning Tree Protocol (STP), including Rapid STP (RSTP) and how they make some switch interfaces block frames to prevent frames from looping continuously around a redundant switched LAN.
- Configuring and verifying RSTP and Layer 2 EtherChannels on Cisco switchesIPv4 Addressing:
- Concepts of subnetting, from starting with a Class A, B, or C network to a completed subnetting design as implemented in an enterprise IPv4 network
- How IPv4 addresses originally fell into several classes, with unicast IP addresses being in Class A, B, and C - All things related to address classes and the IP network concept created by those classes.
- The mask and IP network to determine the size of each subnet and the number of subnets
- How most troubleshooting of IP connectivity problems starts with an IP address and mask. Then, how to take those two facts and find key facts about the IP subnet in which that host resides.

IPv4 Routing:

- Basic device management, focusing more on routers instead of switches.
- IPv4 address configuration to router interfaces and how to configure static IPv4 routes
- Configuring and troubleshooting different methods of routing between VLANs, including Router-on-a-Stick (ROAS), Layer 3 switching with SVIs, Layer 3 switching with routed ports, and using Layer 3 EtherChannels.
- Using two key troubleshooting tools to find routing problems: the ping and traceroute commands.

OSPF:

- The fundamental operation of the Open Shortest Path First (OSPF) protocol, focusing on link-state fundamentals, neighbour relationships, flooding link state data, and calculating routes based on the lowest cost metric. Then, to configure and verify these features.
- Taking the next steps in OSPF configuration and verification by looking in more depth at the concepts of how routers enable OSPF on interfaces, and the conditions that must be true before two routers will succeed in becoming OSPF neighbours

IPv6:

- Basic concepts of IP version 6, focusing on the rules for writing and interpreting IPv6 addresses.
- Configuring IPv6 routing and addresses on routers, while discussing a variety of special IPv6 addresses.
- Adding static routes to an IPv6 router's routing table.

Wireless LANs:

- Concepts of wireless 802.11 LANs, including wireless topologies and basic wireless radio communications protocols.
- Systematic and architectural issues surrounding how to build wireless LANs and explains the primary options available for use.
- The unique security challenges that exist in a wireless LAN and the protocols and standards used to prevent different kinds of attacks.
- Configuring and securing a wireless LAN using a Wireless LAN Controller (WLC)

IP Access Control Lists:

- The upper two layers of the TCP/IP model (transport and application), focusing on TCP and applications.
- How standard IP ACLs can filter packets based on the source IP address so that a router will not forward the packet
- Examining both named and numbered ACLs, and both standard and extended IP ACLs.

Security Services:

- A wide range of fundamental concepts in network security
- Using the router and switch CLI and the concepts behind firewalls and intrusion prevention systems (IPSs).
- The concepts as well as how to configure and verify switch port security, a switch feature that does basic MAC-based monitoring of the devices that send data into a switch.
- How hosts can be configured with their IPv4 settings and how they can learn those settings with DHCP.
- Implementing two related switch security features, with one focusing on reacting to suspicious DHCP messages and the other reacting to suspicious ARP messages.

IP Services:

- The concepts and configuration of some common network management tools: Syslog, NTP, CDP, and LLDP.
- The complete concept, configuration, verification, and troubleshooting sequence for the router NAT feature, including how it helps conserve public IPv4 addresses.
- A wide variety of concepts all related to the broad topic of QoS.
- FHRPs (including HSRP), SNMP, TFTP, and FTP. (conceptual knowledge but no configuration knowledge,)

- Network Architecture:
- Various ways to design Ethernet LANs, discussing the pros and cons, and explains common design terminology, including Power over Ethernet (PoE).
- The concepts behind three WAN alternatives: Metro Ethernet, MPLS VPNs, and Internet VPNs.
- The impact that cloud-computing has on a typical enterprise network, including the foundational concepts of server virtualization. (Basic Concepts)

Network Automation:

- Concepts and terms related to how Software-Defined Networking (SDN) and network programmability are impacting typical enterprise networks.
- Cisco's Software-Defined Networking (SDN) offering for the enterprise, including the DNA Center controller.
- The foundational concepts of REST APIs, data structures, and how JSON can be useful for exchanging data using APIs.
- The basics of Ansible, Puppet and Chef. As well as understanding the need for configuration management software

COURSE CONTENT

Lesson 1: Introduction to Networking
- Introduction to TCP/IP Networking
- Fundamentals of Ethernet LANs
- Fundamentals of WANs and IP Routing

Lesson 2: Implementing Ethernet LANs
- Using the command-line Interface
- Analyzing Ethernet LAN Switching
- Configuring Basic Switch Management
- Configuring and Verifying Switch Interfaces

Lesson 3: Implementing VLANs and STP
- Implementing Ethernet Virtual LANs
- Spanning Tree Protocol Concepts
- RSTP and EtherChannel Configuration

Lesson 4: IPv4 Addressing
- Perspectives on IPv4 Subnetting
- Analyzing Classful IPv4 Networks
- Analyzing Subnet Masks
- Analyzing Existing Subnets

Lesson 5: IPv4 Routing
- Operating Cisco Routers
- Configuring IPv4 Addresses and Static Routes
- IP Routing in the LAN
- Troubleshooting IPv4 Routing

Lesson 6: OSPF
- Understanding OSPF Concepts
- Implementing OSPF
- OSPF Network Types and Neighbors

Lesson 7: IP version 6
- Fundamentals of IPv6
- IPv6 Addressing and Subnetting
- Implementing IPv6 Addressing on Routers
- Implementing IPv6 Routing

Lesson 8: Wireless LANs
- Fundamentals of Wireless Networks
- Analyzing Cisco Wireless Architecture
- Securing Wireless Networks
- Building a Wireless LAN

Lesson 9: IP Access Control Lists
- Introduction to TCP/IP Transport and Applications
- Basic IPv4 Access Control Lists
- Advanced IPv4 Access Control Lists

Lesson 10: Security Services
- Security Architectures
- Securing Network Devices
- Implement Switch Port Security
- Implementing DHCP
- DHCP Snooping and ARP Inspection

Lesson 11: IP Services
- Device Management Protocols
- Network Address Translation
- Quality of Service
- Miscellaneous IP Services

Lesson 12: Network Architecture
- LAN Architecture
- WAN Architecture
- Cloud Architecture

Lesson 13: Network Automation
- Introduction to Controller-Based Networking
- Cisco Software-Defined Access (SDA)
- Understand REST and JSON
- Understanding Ansible, Puppet and Chef

Lesson 14: Final Review

ASSOCIATED CERTIFICATIONS & EXAM

Exam #200-301 is associated with the new CCNA certification and will test a candidate's knowledge and skills on Network fundamentals, Network access, IP connectivity, IP services, Security fundamentals and Automation and programmability.