MERCURY

CCNA Networking and Infrastructure Training Course

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Introduction:

Implementing and Administering Cisco Solutions is an all-encompassing entry-level training that provides IT personnel and those aspiring to venture into the field with a robust foundation in network essentials. Specifically, the CCNA networking and infrastructure course dives deep into various facets of networking, covering network fundamentals, network access, IP connectivity, IP services, security fundamentals, and the influence of automation and programmability on network administration.

This CCNA networking and infrastructure training lays the groundwork for attaining the widely recognized CCNA certification. Aligning with this training is crucial for those seeking a professional edge in networking. This certification is evidence of practical knowledge and skills with Cisco's network solutions, which are pertinent for efficient infrastructure management and maintenance.

Managing network infrastructure and ensuring its efficient operation is integral to the CCNA networking and infrastructure curriculum. Learners will gain insights into crucial infrastructure components, their proper maintenance, and current best practices for management within a networking context.

What is a CCNA:

CCNA Certified Network Associate is a prestigious IT certification demonstrating an individual's competency in network principles, operations, and troubleshooting. Gaining a CCNA certification validates one's skill set in managing and optimizing today's most modern network solutions.

Targeted Groups:

- IT Professionals.
- Network Administrators.
- Systems Engineers.
- Network Engineers.
- IT Managers.
- Computer Science Students.
- Entry-level IT Professionals.
- Career Changers.
- Small Business Owners.
- IT Enthusiasts.

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Course Objectives:

By the close of this CCNA networking and infrastructure course, participants will have the capacity to:

- Elucidate the role and functions of network components.
- Outline the distinguishing features of various network topology architectures.
- Execute and validate Interswitch connectivity.
- Set up and verify Layer 2 discovery protocols, including Cisco Discovery Protocol and LLDP.
- Interpret the components of routing tables.
- Configure and affirm the source NAT application using static assignments and pools.
- Define key security concepts, such as threats, vulnerabilities, exploits, and countermeasure techniques.
- Discuss the significance of automation in contemporary network management.

Targeted Competencies:

By the close of this CCNA networking and infrastructure training, participants' competencies will have the capacity to:

- A foundational understanding of networking concepts.
- Proficiency in routing and switching technologies.
- Knowledge of network security measures.
- Familiarity with WAN technologies.
- Skills in network automation using Python and Ansible.
- Ability to troubleshoot network issues effectively.
- Understanding of wireless networking principles.
- Proficiency in network management practices.
- Competence in IPv6 implementation.
- Integration of networking with cloud computing technologies.

Course Content:

Unit 1: Network Fundamentals:

- Describe the role and function of network components.
- Characterize network topology architectures.
- Differentiate between physical interface and cabling types.
- Troubleshoot interface and cable issues.
- Compare TCP to UDP in network communications.
- Implement and check IPv4 addressing and subnetting.
- Understand the requisites for private IPv4 addressing.
- Set up IPv6 addressing and prefixes.
- Contrast types of IPv6 addresses.
- Confirm IP parameters for various operating systems.
- Articulate foundational wireless principles.
- Define the basics of virtualization.
- Examine core switching concepts.

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Unit 2: Network Access:

- Implement VLANs across multiple switches.
- Assure Interswitch connectivity.
- Administer Layer 2 discovery protocols, like Cisco Discovery Protocol and LLDP.
- Orchestrate EtherChannel Layer 2/Layer 3 configuration using LACP.
- Understand the roles of Rapid PVST+ and other Spanning Tree Protocols.
- Distinguish between Cisco Wireless Architectures and access point modes.
- Outline WLAN components and their physical connections.
- Discuss management access connections for AP and WLC.
- Utilize GUI for configuring wireless LAN access, including WLAN creation and security settings.

Unit 3: IP Connectivity:

- Dissect the components of a routing table.
- Comprehend router forwarding decisions.
- Implement IPv4 and IPv6 static routing.
- Configure and validate single area OSPFv2.
- Grasp the concept and application of first-hop redundancy protocols.

Unit 4: IP Services:

- Set up source NAT with static routes and pools.
- Establish NTP in client and server modes.
- Clarify the roles of DHCP and DNS within networks.
- Illustrate how SNMP works in network operations.
- Leverage Syslog for monitoring and troubleshooting.
- Configure DHCP clients and relay agents.
- Discuss QoS per-hop behaviors such as classification and marking.
- Facilitate remote access to network devices using SSH.
- Unpack the functionalities of TFTP and FTP within the network.

Unit 5: Security Fundamentals:

- Define key security principles and their applications.
- Emphasize the importance of user awareness and training in security programs.
- Configure device access control using local passwords.
- Employ local passwords for device access control.
- Discern remote access and site-to-site VPNs.
- Deploy access control lists for network security.
- Implement Layer 2 security features, including DHCP snooping and port security.
- Distinguish between authentication, authorization, and accounting.
- Describe wireless security protocols WPA, WPA2, and WPA3.
- Configure WLAN using WPA2 PSK using the GUI.

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Unit 6: Automation And Programmability:

- Debate the influence of automation on network management.
- Compare traditional and controller-based networking paradigms.
- Examine software-defined networking architectures.
- Contrast Cisco DNA Center management with conventional campus device management.
- Describe REST-based APIs.
- Familiarize with configuration management mechanisms like Puppet, Chef, and Ansible.
- Interpret JSON formatted data.

Conclusion:

Delving into the realms of CCNA networking and infrastructure training, participants will acquire not only theoretical knowledge but also practical experiences that underpin the certification's value.

This CCNA networking and infrastructure training guarantees a holistic approach to understanding and mastering networking concepts by covering various core areas, from network basics to advanced IP services.

With this CCNA networking and infrastructure certification, individuals affirm their capability to handle complex network solutions and enhance their professional growth in information technology.