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CCNP

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About Course

Having a Cisco Certified Network Professional (CCNP) certification validates your ability to implement and troubleshoot both LAN and WAN networks.
In addition, you will be recognized as a person who can collaborate with specialists on issues related to voice, wireless, advanced security, and video solutions

CCNP(ADVANCE)

CURRICULUM

1 Layer 3 Technologies

- Troubleshoot administrative distance (all routing protocols)
- Troubleshoot route map for any routing protocol (attributes, tagging, filtering)
- Troubleshoot loop prevention mechanisms (filtering, tagging, split horizon, route poisoning)
- Troubleshoot redistribution between any routing protocols or routing sources
- Troubleshoot manual and auto-summarization with any routing protocol
- Configure and verify policy-based routing
- Configure and verify VRF-Lite
- Describe Bidirectional Forwarding Detection
- Troubleshoot EIGRP (classic and named mode)
- Address families (IPv4, IPv6)
- Neighbor relationship and authentication
- Loop-free path selections (RD, FD, FC, successor, feasible successor, stuck in active)
- Stubs

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- Load balancing (equal and unequal cost)
- Metrics

② Troubleshoot OSPF (v2/v3)

- Address families (IPv4, IPv6)
- Neighbor relationship and authentication
- Network types, area types, and router types
- Point-to-point, multipoint, broadcast, nonbroadcast
- Area type: backbone, normal, transit, stub, NSSA, totally stub
- Internal router, backbone router, ABR, ASBR
- Virtual link
- Path preference

③ Troubleshoot BGP (Internal and External)

- Address families (IPv4, IPv6)
- Neighbor relationship and authentication (next-hop, mulithop, 4-byte
- AS, private
- AS, route refresh, operation, states and timers)
- Path preference (attributes and best-path)
- Policies (inbound/outbound filtering, path manipulation)

④ VPN Technologies

- Describe MPLS operations (LSR, LDP, label switching, LSP)
- Configure and verify DMVPN (single hub)
- GRE
- NHRP
- IPsec
- Dynamic neighbor
- Spoke-to-spoke

5 Infrastructure Security

- Troubleshoot device security using IOS AAA (TACACS+, RADIUS,)
- Troubleshoot router security features
- Pv4 access control lists (standard, extended, time-based)
- Pv6 traffic filter
- Unicast reverse path forwarding (uRPF)

6 Troubleshoot control plane policing (Telnet, SSH, HTTP(S), SNMP, EIGRP, OSPF, BGP)

- Describe IPv6 First Hop security features (RA guard, DHCP guard, binding table, source guard)

7 Infrastructure Services

- Troubleshoot device management
- Console and VTY

Telnet, HTTP, HTTPS, SSH
(T)FTP

Troubleshoot network problems using logging
(local, syslog, debugs, conditional debugs, timestamps)

Troubleshoot IPv4 and IPv6 DHCP (DHCP client,
IOS DHCP server, DHCP relay, DHCP options)

Troubleshoot network performance issues using
IP SLA (jitter, tracking objects, delay, connectivity)

Troubleshoot network problems using Cisco DNA
Center assurance (connectivity, monitoring, de
vice health, network health)

CCNP(CORE)

CURRICULUM

1. Architecture

2. Explain the different design principles used in an enterprise network

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- Enterprise network design such as Tier 2, Tier 3, and Fabric Capacity planning
- High availability techniques such as redundancy, FHRP, and SSO

3 Analyze design principles of a WLAN deployment

- Wireless deployment models (centralized, distributed, controller-less, controller based, cloud, remote branch)
- Location services in a WLAN design

4 Differentiate between on-premises and cloud infrastructure deployments

5 Explain the working principles of the Cisco SD-WAN solution SD-WAN control and data planes elements

- Traditional WAN and SD-WAN solutions

6 Explain the working principles of the Cisco SD-Access solution SD-Access control and data planes elements

- Traditional campus interoperating with SD-Access

- Configure and verify eBGP between directly connected neighbors (best path selection algorithm and neighbor relationships)

13 Wireless

- Describe Layer 1 concepts, such as RF power, RSSI, SNR, interference noise, band and channels, and wireless client devices capabilities
- Describe AP modes and antenna types
- Describe access point discovery and join process (discovery algorithms, WLC selection process)
- Describe the main principles and use cases for Layer 2 and Layer 3 roaming
- Troubleshoot WLAN configuration and wireless client connectivity issues

14 IP Services

- Describe Network Time Protocol (NTP)
- Configure and verify NAT/PAT
- Configure first hop redundancy protocols, such as HSRP and VRRP
- Describe multicast protocols, such as PIM and IGMP v2/v3

15 Network Assurance

- Diagnose network problems using tools such as debugs, conditional debugs, trace route, ping, SNMP, and syslog
- Configure and verify device monitoring using syslog for remote logging
- Configure and verify NetFlow and Flexible NetFlow
- Configure and verify SPAN/RSPAN/ERSPAN
- Configure and verify IPSLA
- Describe Cisco DNA Center workflows to apply network configuration, monitoring, and management
- Configure and verify NETCONF and RESTCONF

16 Configure and verify device access control

- Lines and password protection
- Authentication and authorization using AAA

17 Configure and verify infrastructure security features

- ACLs
- CoPP

18 Describe REST API security

19 Configure and verify wireless security features

- EAP
- WebAuth
- PSK

20 Describe the components of network security design

- Threat defense
- Endpoint security
- Next-generation firewall
- TrustSec, MACsec
- Network access control with 802.1X, MAB, and WebAuth

21 Automation

- Interpret basic Python components and scripts
- Construct valid JSON encoded file
- Describe the high-level principles and benefits of a data modeling language, such as YANG
- Describe APIs for Cisco DNA Center and vManage
- Interpret REST API response codes and results in payload using Cisco DNA Center and RESTCONF

- Construct EEM applet to automate configuration, troubleshooting, or data collection
- Compare agent vs. agentless orchestration tools, such as Chef, Puppet, Ansible, and SaltStack

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