

CCNP(CORE) (350-401)



COURSE CURRICULUM

1.0 Architecture

1.1 Explain the different design principles used in an enterprise network

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

1.2 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

1.3 Differentiate between on-premises and cloud infrastructure deployments

1.4 Explain the working principles of the Cisco SD-WAN solution

- SD-WAN control and data planes elements
- Traditional WAN and SD-WAN solutions

1.5 Explain the working principles of the Cisco SD-Access solution

- SD-Access control and data planes elements
- Traditional campus interoperating with SD-Access

1.6 Describe concepts of wired and wireless QoS

- QoS components
- QoS policy

1.7 Differentiate hardware and software switching mechanisms

- Process and CEF
- MAC address table and TCAM
- FIB vs. RIB

2.0 Virtualization

2.1 Describe device virtualization technologies

- Hypervisor type 1 and 2
- Virtual machine
- Virtual switching

2.2 Configure and verify data path virtualization technologies

- VRF
- GRE and IPsec tunneling

2.3 Describe network virtualization concepts

- LISP
- VXLAN

3.0 Infrastructure

3.1 Layer 2

- Troubleshoot static and dynamic 802.1q trunking protocols
- Troubleshoot static and dynamic EtherChannels
- Configure and verify common Spanning Tree Protocols (RSTP and MST)

3.2 Layer 3

- Compare routing concepts of EIGRP and OSPF (advanced distance vector vs. linked state, load balancing, path selection, path operations, metrics)
- Configure and verify simple OSPF environments, including multiple normal areas, summarization, and filtering (neighbor adjacency, point-to-point and broadcast network types, and passive interface)
- Configure and verify eBGP between directly connected neighbors (best path selection algorithm and neighbor relationships)

3.3 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

3.4 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

4.0 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

5.0 Security

5.1 Configure and verify device access control

- Lines and password protection
- Authentication and authorization using AAA

5.2 Configure and verify infrastructure security features

- ACLs
- CoPP

5.3 Describe REST API security

5.4 Configure and verify wireless security features

- EAP
- WebAuth
- PSK

5.5 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

6.0 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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