Designing Cisco Enterprise Networks v1.0 (300-420)

Exam Description: Designing Cisco Enterprise Networks v1.0 (ENSLD 300-420) is a 90-minute exam associated with the CCNP Enterprise Certification. This exam certifies a candidate's knowledge of enterprise design including advanced addressing and routing solutions, advanced enterprise campus networks, WAN, security services, network services, and SDA. The course, Designing Cisco Enterprise Networks, helps candidates to prepare for this exam.

The following topics are general guidelines for the content likely to be included on the exam. However, other related topics may also appear on any specific delivery of the exam. To better reflect the contents of the exam and for clarity purposes, the guidelines below may change at any time without notice.

25% 1.0 Advanced Addressing and Routing Solutions

- 1.1 Create structured addressing plans for IPv4 and IPv6
- 1.2 Create stable, secure, and scalable routing designs for IS-IS
- 1.3 Create stable, secure, and scalable routing designs for EIGRP
- 1.4 Create stable, secure, and scalable routing designs for OSPF
- 1.5 Create stable, secure, and scalable routing designs for BGP
  - 1.5.a Address families
  - 1.5.b Basic route filtering
  - 1.5.c Attributes for path preference
  - 1.5.d Route reflectors
  - 1.5.e Load sharing
- 1.6 Determine IPv6 migration strategies
  - 1.6.a Overlay (tunneling)
  - 1.6.b Native (dual-stacking)
  - 1.6.c Boundaries (IPv4/IPv6 translations)

25% 2.0 Advanced Enterprise Campus Networks

- 2.1 Design campus networks for high availability
  - 2.1.a First Hop Redundancy Protocols
  - 2.1.b Platform abstraction techniques
  - 2.1.c Graceful restart
  - 2.1.d BFD

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2.2 Design campus Layer 2 infrastructures
- 2.2.a STP scalability
- 2.2.b Fast convergence
- 2.2.c Loop-free technologies
- 2.2.d PoE and WoL

2.3 Design multicampus Layer 3 infrastructures

- 2.3.a Convergence
- 2.3.b Load sharing
- 2.3.c Route summarization
- 2.3.d Route filtering
- 2.3.e VRFs
- 2.3.f Optimal topologies
- 2.3.g Redistribution

2.4 Describe SD-Access Architecture (underlay, overlay, control and data plane, automation, wireless, and security)

2.5 Describe SD-Access fabric design considerations for wired and wireless access (overlay, fabric design, control plan design, border design, segmentation, virtual networks, scalability, over the top and fabric for wireless, multicast)

20% 3.0 WAN for Enterprise Networks

3.1 Compare WAN connectivity options
- 3.1.a Layer 2 VPN
- 3.1.b MPLS Layer 3 VPN
- 3.1.c Metro Ethernet
- 3.1.d DWDM
- 3.1.e 4G/5G
- 3.1.f SD-WAN customer edge

3.2 Design site-to-site VPN
- 3.2.a Dynamic Multipoint VPN (DMVPN)
- 3.2.b Layer 2 VPN
- 3.2.c MPLS Layer 3 VPN
- 3.2.d IPsec
- 3.2.e Generic Routing Encapsulation (GRE)
- 3.2.f Group Encrypted Transport VPN (GET VPN)

3.3 Design high availability for enterprise WAN
- 3.3.a Single-homed
- 3.3.b Multihomed
- 3.3.c Backup connectivity
- 3.3.d Failover

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3.4 Describe Cisco SD-WAN Architecture (orchestration plane, management plane, control plane, data plane, on-boarding and provisioning, security)

3.5 Describe Cisco SD-WAN design considerations (control plane design, overlay design, LAN design, high availability, redundancy, scalability, security design, QoS and multicast over SD-WAN fabric)

20% 4.0 Network Services

4.1 Select appropriate QoS strategies to meet customer requirements (DiffServ, IntServ)

4.2 Design end-to-end QoS policies

- 4.2.a Classification and marking
- 4.2.b Shaping
- 4.2.c Policing
- 4.2.d Queuing

4.3 Design network management techniques

- 4.3.a In-band vs. out-of-band
- 4.3.b Segmented management networks
- 4.3.c Prioritizing network management traffic

4.4 Describe multicast routing concepts (source trees, shared trees, RPF, rendezvous points)

4.5 Design multicast services (SSM, PIM bidirectional, MSDP)

10% 5.0 Automation

5.1 Choose the correct YANG data model set based on requirements

5.2 Differentiate between IETF, Openconfig, and Cisco native YANG models

5.3 Differentiate between NETCONF and RESTCONF

5.4 Describe the impact of model-driven telemetry on the network

- 5.4.a Periodic publication
- 5.4.b On-change publication

5.5 Compare dial-in and dial-out approaches to model-driven telemetry

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