NETLOGIC TRAINING CENTER

Course Training

Cisco Certificated Design Associated – CCDA (200-310 DESGN) version 3.0

Course Content

In addition to general approaches and technologies for network design, this course promotes Cisco solutions in designing and implementing scalable internetworks. Among specific goals is the promotion of the modular approach to network design. The early modular approaches to network design divided networks into access, distribution and core layers only, separately for the campus and the WAN module. The Enterprise Composite Model facilitates designing, planning, implementing, operating and optimizing (PDIOO) networks by concentration on a certain module and on relations between the modules.

Taking into account that most network solutions today (e.g. voice, video, storage networking, content networking) are typically overlay solutions spanning several modules, the composite modular approach seems even more relevant and is the main focus of this course. In addition, services virtualization and the SONA architecture are presented. The general course objectives remain the same, because ultimately - the tasks a designer must perform did not change, however, the products, technologies, services and solutions did change. There is also a lesson on SDN.

Course Objective

Upon completing this course, students will be able to:

- Describe and apply network design methodologies
- Describe and apply network design concepts of modularity and hierarchy
- Design a resilient and scalable Campus network
- Design a resilient and scalable connectivity between parts of your Enterprise network
- Design connectivity to the Internet and internal routing for your network
- Integrate collaboration and wireless infrastructure into your core network
- Create scalable IPv4 and IPv6 addressing
- Describe what software defined networks are and describe example solutions

Course Prerequisite

It is strongly recommended, but not required, that students have the following knowledge and skills:

A Cisco CCNA Routing and Switching certification and practical experience with deploying and operating networks based on Cisco network devices and Cisco IOS software Implementing Cisco Wireless Network Fundamentals (WIFUND) level knowledge of wireless topics complete the Implementing Cisco IP Switched Networks (SWITCH) course

Course Pre-Test

Recommend pre-test before training

Course Details

Day 1

Item	Subject	Details	Personal Lab	Workgroup Lab
1	Design Methodologies	• Describe the Cisco Design lifecycle – PBM (plan, build, manage) • Describe the information required to characterize an existing network as part of the planning for a design change	Lecture	None
		Break		
		• Describe the use cases and benefits of network characterization tools (SNMP, NBAR, NetFlow) • Compare and contrast the top-down and bottom-up design approaches	Lecture	None

Day 2

Item	Subject	Details	Personal Lab	Workgroup Lab
2	Design Objectives	• Describe the importance and application of modularity in a network • Describe the importance and application of hierarchy in a network • Describe the importance and application of scalability in a network	Lecture	None
		Break		
		• Describe the importance and application of resiliency in a network • Describe the importance and application of concept of fault domains in a network	Lecture	None

Day 3

Item	Subject	Details	Personal Lab	Workgroup Lab
3	Addressing and Routing Protocols in an Existing Network	• Describe the concept of scalable addressing a Hierarchy b Summarization c Efficiency • Design an effective IP addressing scheme a Subnetting b Summarization c Scalability d NAT	Lecture	None
		Break		
		• Identify routing protocol scalability considerations a Number of peers b Convergence requirements c Summarization boundaries and technique d Number of routing entries e Impact of routing table of performance f Size of the flooding domain g Topology • Design a routing protocol expansion a IGP protocols (EIGRP, OSPF, ISIS) b BGP (eBGP peering, iBGP peering	Lecture	None

Day 4

Item	Subject	Details	Personal Lab	Workgroup Lab
4	Enterprise Network Design	• Design a basic campus a Layer 2/Layer 3 demarcation b Spanning tree c Ether channels d First Hop Redundancy Protocols (FHRP) e Chassis virtualization	Lecture	None
		• Design a basic branch network a Redundancy a(i) Connectivity a(ii) Hardware a(iii) Service provider b Link capacity b(i) Bandwidth b(ii) Delay	Lecture	None
		Break		
		• Design a basic enterprise network a Layer 3 protocols and redistribution b WAN connectivity b (i) Topologies (hub and spoke, spoke to spoke, point to point, full/partial mesh) b(ii) Connectivity methods (DMVPN, get VPN, MPLS Layer 3 VPN, Layer 2 VPN, static IPsec, GRE,VTI) b(iii) Resiliency (SLAs, backup links, QoS) c Connections to the data center d Edge connectivity d(i) Internet connectivity d(ii) ACLs and firewall placements d(iii) NAT placement	Lecture	None

Day 5

Item	Subject	Details	Personal Lab	Workgroup Lab

5	Considerations for Expanding an Existing Network	• Describe design considerations for wireless network architectures
		   a Physical and virtual controllers
		   b Centralized and decentralized designs
			Lecture	None

		• Identify integration considerations and requirements for controller-based wireless networks
		   a Traffic flows
		   b Bandwidth consumption
		   c AP and controller connectivity
		   d QoS
			Lecture	None

		• Describe security controls integration considerations
		   a Traffic filtering and inspection
		   b Firewall and IPS placement and functionality
			Lecture	None

		• Identify traffic flow implications as a result of security controls
		   a Client access methods
		   b Network access control
			Lecture	None

		Break		

		• Identify high-level considerations for collaboration (voice, streaming video, interactive video) applications
		   a QoS (shaping vs. policing, trust boundaries, jitter, delay, loss)
		   b Capacity
		   c Convergence time
		   d Service placement
			Lecture	None

		• Describe the concepts of virtualization within a network design	Lecture	None

		• Identify network elements that can be virtualized
		   a Physical elements (chassis, VSS, VDC, contexts)
		   b Logical elements (routing elements, tunneling, VRFs, VLANs)
			Lecture	None

Course Post-Test

Recommend post-test after training

Course Materials

Not include in this class training (but you can requested from sale team)

Course Devices Training

None