NETLOGIC TRAINING CENTER

Course Training

Cisco Certificated Network Associated Data Center – CCNA Data Center (DCICN and DCICT) version 6.2

Course Content

Cisco Data Center Technologies v6.2 prepares students for the Cisco CCNA Data Center certification and for associate-level data center roles. The course covers foundational knowledge, skills, and technologies including networking technologies, data center network virtualization, unified computing, data center automation and orchestration, and Cisco Application Centric Infrastructure (ACI). The hands-on lab exercises focus on configuring features in Cisco NX-OS Software, Cisco Unified Computing System (UCS), UCS Manager (UCSM) and Cisco UCS Director.

Course Objective

Upon completing this course, you will have the skills and knowledge to:

- Install, operate, and troubleshoot a physical network data center
- Install, Operate, and troubleshoot a virtualization network data center
- Management traffic flow east to west, north to south in data center
- Describe the NX-OS operation and configuration
- Describe the UCS Server operation and configuration
- Describe the UCS Management, UCS Director, UCS Central operation and configuration
- Describe ACI operation

Course Prerequisite

Before taking the CCNA Data Center course, learners should be familiar with:

- CCNA (Cisco Certificated Network Associated version 3.0)

Course Pre-Test

Not Required

Course Details

Day 1

Item	Subject	Details	Personal Lap and devices	Workgroup Lab and Devices
1	Data Center Physical Infrastructure	-Describe different types of cabling, uses, and limitations -Describe different types of transceivers, uses, and limitations -Identify physical components of a server and perform basic troubleshooting -Identify physical port roles -Describe power redundancy modes	Lecture	
		Break		
2	Basic Data Center Networking Concept	-Compare and contrast the OSI and the TCP/IP models -Describe classic Ethernet fundamentals - Forward - Filter - Flood - MAC address table -Describe switching concepts and perform basic configuration - STP 802.1q - Port channels - Neighbor discovery CDP LLDP - Storm control	Lecture	
	summary challenge advance lab for factory default and basic networking Data Center infrastructure	Lab 1 -Factory default networking devices - UCS Server - Fabric Inter-Connect - Nexus Switch - Catalyst Switch Lab 2 -Configuration Network Devices Basic - Configuration Basic network information - Testing connectivity for network devices - Testing basic all network device operation	(Lab 1 and Lab 2) **Real Devices** Cisco UCS C-Series 1 Unit Cisco Fabric inter-connect 1 Unit Nexus Switch 5020 1 Unit Nexus switch FEX 2048 1 Unit Catalyst Switch 3560-CX 1 Unit VMWare ESXi (Trial) Virtual Machine Manager (Trial) Storage (Share Pool)	

Day 2

Item	Subject	Details	Personal Lap and devices	Workgroup Lab and Devices
1	Advanced Data Center Networking Concepts	-Basic routing operations -Explain and demonstrate IPv4/IPv6 addressing -Compare and contrast static and dynamic routing -Perform basic configuration of SVI/routed interfaces -Compare and contrast the First Hop Redundancy Protocols VRRP • GLBP • HSRP -Compare and contrast common data center network architectures • 2Tier • 3Tier • Spine-leaf -Describe the use of access control lists to perform basic traffic filtering -Describe the basic concepts and components of authentication, authorization, and accounting	Lecture	
		Break		
2	Basic Data Center Storage	-Differentiate between file and block based storage protocols -Describe the roles of FC/FCoE port types -Describe the purpose of a VSAN -Describe the addressing model of block based storage protocols • FC • iSCSI	Lecture	
	summary challenge advance lab for factory default and basic networking Data Center infrastructure	Lab 1 -Configuration First Hop Redundancy Protocol (FHRP) • Configure HSRP • Configure GLBP Lab2 -Configuration Storage networking • Configure iSCSi • Testing connectivity server and storage	(Lab 1 and Lab 2) **Real Devices** Cisco UCS C-Series 1 Unit Cisco Fabric inter-connect 1 Unit Nexus Switch 5020 1 Unit Nexus switch FEX 2048 1 Unit Catalyst Switch 3560-CX 1 Unit VMWare ESXi (Trial) Virtual Machine Manager (Trial) Storage (Share Pool)	

Day 3

Item	Subject	Details	Personal Lap and devices	Workgroup Lab and Devices
5	Advanced Data Center Storage	-Describe FCoE concepts and operations • Encapsulation • DCB • vFC • Topologies Single Hop Multi Hop Dynamic -Describe Node Port Virtualization -Describe zone types and their uses -Verify the communication between the initiator and target • FLOGI • FCNS • active zone set	Lecture	
		Break		
6	Unified Computing	-Describe common server types and connectivity found in a data center -Describe the physical components of the Cisco UCS -Describe the concepts and benefits of Cisco UCS hardware abstraction -Perform basic Cisco UCS configuration • Cluster high availability • Port roles • Hardware discovery -Describe server virtualization concepts and benefits Hypervisors • Virtual switches • Shared storage • Virtual Machine components • Virtual Machine Manager	Lecture	
	summary challenge advance lab for Virtual Machine and UCS Server management	Lab 1 -Configuration UCS Basic parameter • Configure CIMC parameter • Configure UCS and CIMC Management • Fine tune and Monitoring UCS Server operation Lab2 -Install and configure VMWare ESXi • Installation and configuration VMWare ESXi on UCS server • Install and configure ESXi and Storage • Configure VM Manager • Synchronization Virtual network with Physical network • Fine tune and monitoring North to South traffic	(Lab 1 and Lab 2) **Real Devices** Cisco UCS C-Series 1 Unit Cisco Fabric inter-connect 1 Unit Nexus Switch 5020 1 Unit Nexus switch FEX 2048 1 Unit Catalyst Switch 3560-CX 1 Unit VMWare ESXi (Trial) Virtual Machine Manager (Trial) Storage (Share Pool)	

Day 4

Item	Subject	Details	Personal Lap and devices	Workgroup Lab and Devices

7	Network Virtualization	-Describe the components and operations of Cisco virtual switches
		-Describe the concepts of overlays
		   • OTV
		   • NVGRE
		   • VXLAN
		-Describe the benefits and perform simple troubleshooting of VDC STP
		-Compare and contrast the default and management VRFs
		-Differentiate between the data, control, and management planes
			Lecture	

		Break		
8	Cisco Data Center Networking Technologies	-Describe, configure, and verify FEX connectivity -Describe, configure, and verify basic vPC features -Describe, configure, and verify FabricPath -Describe, configure, and verify unified switch ports -Describe the features and benefits of Unified Fabric -Describe and explain the use of role-based access control within the data center infrastructure	Lecture	

	summary challenge advance lab for Virtual Machine and UCS Server management	Lab 1
		-Configuration Data Center Interconnect (DCI) and Network Virtualiztaion
		   • Configure VXLAN on NX-OS
		   • Configure VDC on NX-OS
		   • Configure and fine tune Data Center Interconnect (DCI)
		
		Lab2
		-Configure vPC and FEX
		   • Configure FEX with Nexus 2025
		   • Configure FEX with Cisco Catalyst 3560-CX
		
		Lab 3
		-Prepared Fabric interconnect
		   • Factory default Fabric interconnect 6020
		   • Basic configuration Fabric interconnect 6020
			(Lab 1 , 2 and 3)
			
			Real Devices
			Cisco UCS C-Series 1 Unit
			Cisco Fabric inter-connect 1 Unit
			Nexus Switch 5020 1 Unit
			Nexus switch FEX 2048 1 Unit
			Catalyst Switch 3560-CX 1 Unit
			VMWare ESXi (Trial)
			Virtual Machine Manager (Trial)
			Storage (Share Pool)	

Day 5

Item	Subject	Details	Personal Lap and devices	Workgroup Lab and Devices
9	Automation and Orchestration	-Explain the purpose and value of using APIs -Describe the basic concepts of cloud computing -Describe the basic functions of a Cisco UCS Director -Describe the basic functions of a Cisco UCS Central • Management • Orchestration • Multitenancy • Chargeback • Service offerings • Catalogs -Interpret and troubleshoot a Cisco UCS Director workflow	Lecture	
		Break		
10	Application Centric Infrastructure	-Describe the architecture of an ACI environment • Basic policy resolution • APIC controller • Spine leaf • APIs -Describe the fabric discovery process -Describe the policy-driven, multitier application deployment model and its benefits -Describe the ACI logical model • Tenants • Context • Bridge domains • EPG • Contracts	Lecture	
	summary challenge advance lab for Data Center infrastructure integrated with virtualization environment	Lab 1 (Full Function Lab) -Configuration Data Center Infrastructure integration • Configure UCS Manager integrated CIMC • Configure Fabric Interconenct port profile • Configure Virtual Interface Card (VIC) and port profile on UCS Server • Configure UCS Central for management UCS manager (on premise) • Configure VMWare port group integrate with Cisco Fabric interconnect	(Lab 1) **Real Devices** Cisco UCS C-Series 1 Unit Cisco Fabric inter-connect 1 Unit Nexus Switch 5020 1 Unit Nexus switch FEX 2048 1 Unit Catalyst Switch 3560-CX 1 Unit VMWare ESXi (Trial) Virtual Machine Manager (Trial) Storage (Share Pool)	

Course Post-Test

   Not required

Course Materials

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

Course Devices Training (Per Personal)

Switch 3560-CX (Layer 3)

Cisco Nexus 2048p FEX

Cisco Nexus 5020

Cisco UCS C-Series

Cisco Fabric InterConnect 6248

QNAP Storage