Cisco CCNP Data Center Certification Prep: Designing Network Connectivity

This Cisco training covers how to feel perfectly comfortable with planning and implementing the connections that keep your Cisco data center working all the time. ⊠⊠Learn to evaluate all the options available for Layer 2 and Layer 3 connectivity while choosing the best options for speed, throughput, security, mobility and more.

CBT Nuggets course material →

STUDY PLAN

WEEK 1

Identify Data Center Principles — 160 min.

Intro	2
The Purpose of the Data Center	10
Where is the Data Center?	11
Data Center Availability	9
The Physical Data Center	12
Review and Quiz	4

Describe Data Center Networking

Overview	1
Intro	1
DC Network Technology	12
The Spine-Leaf Architecture	11
SDN and ACI	11
Data Center Interconnects	7
Cisco Hardware	8
Review and Quiz	4

Describe Data Center Solutions

Overview	1
Intro	1
Compute	11
Storage	14
Hyperconvergence	8
Cisco Hardware	6
Automation	14

WEEK 2

158 min.

Review and Quiz	3

Describe Redundancy and High Availability

Overview	1
Intro	1
Hardware Redundancy	12
Fabric Extenders	11
Switch Redundancy	8
Power Redundancy	9
Management Network	8
Review and Quiz	4

Evaluate Data Center L2 Connectivity

Overview	1
Intro	1
Endpoint Mobility	14
iSCSI Traffic	13
Data Center Pod Architecture	10
STP and VXLAN Fabrics	9
Review and Quiz	4

Describe Data Center Link Bundling

Overview	1
Intro	1
Standard Port Channels	12
Virtual Port Channels	10
Enhanced VPC (EVPC)	13
VPC+	9

WEEK 3

156 min.

Review and Quiz	3

Explain Spanning-Tree Protocol

Overview	1
Intro	1
PVST+	14
STP Port Blocking and TCNs	12
Rapid PVST+	9
Rapid STP Port Types	8
Multiple Spanning Tree	7
Review and Quiz	4

Design STP in the Data Center

Overview	1
Intro	1
Choosing STP Mode	9
Topology-based STP Extensions	10
Loop-prevention STP Extensions	11
Bridge Assurance	9
STP Design	8
Review and Quiz	4

Explain VXLAN and EVPN

Overview	1
Intro	1
VXLAN and VNIs	10
VXLAN and Spine-Leaf	7
VXLAN Data Plane	10

	VXLAN Control Plane - Flood and Learn	12
WEEK 4		**153 min.**
	VXLAN Control Plane - EVPN	9
	Review and Quiz	4

Evaluate Virtual Port-Channels

Overview	1
Intro	1
Introducing VPCs	8
VPC Anatomy	8
Building a VPC Domain	9
Type Inconsistencies	7
VPC Traffic Flow	8
Review and Quiz	7

Evaluate VPC Topologies

Overview	1
Intro	1
VPC and FHRPs	9
VPC and FHRP Design	8
VPC and STP	11
VPC L2 Topologies	9
VPC L3 Topologies	9
Review and Quiz	3

Explain VPC Configuration Options

Overview	1
Intro	1
Auto-Recovery	7
Delay Restore	7
ARP Synchronization and Peer Gateway	10
VPC Roles	11

WEEK 5		**155 min.**
	LACP Configuration	9
	Review and Quiz	4

Design Virtual Port-Channels

Overview	1
Intro	1
VPC Failure Scenarios	12
VPC Object Tracking	10
Designing VPC in the Data Center	19
Review and Quiz	5

Evaluating Data Center L3 Connectivity

Overview	1
Intro	1
IPv4 and IPv6	14
Hierarchical Network Design	10
L3 Connectivity	9
Data Center L3 Network Design	8
Review and Quiz	2

Evaluate Data Center L3 Routing and Forwarding

Overview	1
Intro	1
Data Center Routing	12
Scalable Data Center Routing	10
IP Mobility	12
Optimized L3 Forwarding	10

WEEK 6

156 min.

Review and Quiz	4

Evaluate Data Center L3 Services

Overview	1
Intro	1
Load Balancers	12
North-South Security	12
East-West Security	11
Services Insertion	11
Review and Quiz	4

Describe Data Center FHRPs

Overview	1
Intro	1
First Hop Redundancy Protocols	11
HSRPv1	13
HSRPv2	10
VRRP	8
FHRP Object Tracking	6
Review and Quiz	4

Describe L3 Multicast

Overview	1
Intro	1
Multicast Traffic	10
L2 and L3 Multicast	10
Multicast Routing	12
Multicast Trees	9

WEEK 7

159 min.

Review and Quiz	4

Explain Multicast Protocols

Overview	1
Intro	1
PIM Modes of Operation	14
IGMP and MLD	12
IGMP and MLD Snooping	11
PIM Roles	10
Review and Quiz	4

Explain Multicast in the Data Center

Overview	1
Intro	1
L2 Multicast Addressing	14
L2 Multicast	11
Multicast and VPCs	9
PIM and VXLAN	10
Review and Quiz	5

Describe ACI Concepts

Overview	1
Intro	1
ACI Foundations	12
ACI Resiliency and Simplicity	12
ACI Security	10
ACI Automation and Flexibility	12

WEEK 8 **151 min.**

Review and Quiz	3

Evaluate Data Center Interconnects

Overview	1
Intro	1
The Need for DCIs	8
DCI L2 Challenges	7
DCI L3 Challenges	6
DCI WAN Technologies	10
Pseudowire Technologies	8
Review and Quiz	5

Evaluate DCI Overlay Technologies

Overview	1
Intro	1
Overlay Transport Virtualization (OTV)	12
VXLAN as DCI	8
ACI Multipod	10
ACI Multisite	9
Review and Quiz	4

Explain OTV

Overview	1
Intro	1
OTV Control Plane	12
OTV Data Plane - Unicast	7
OTV Data Plane - Multidestination	9
Multihoming and Authoritative Edge Devices (AEDs)	8
OTV Design Considerations	9
Review and Quiz	4

Design Data Center Interconnects

Overview	1
Intro	1

WEEK 9 **151 min.**

OTV vs VXLAN	9
VPC as DCI	9
Multicast and DCIs	10
MACsec Encryption	11
VM Migrations	11
Review and Quiz	3

Evaluate Device and Routing Virtualization

Overview	1
Intro	1
VLANs and Bridge Domains	11
VRF Lite	12
Virtual Device Contexts (VDCs)	13
VXLAN	9

	Review and Quiz	3

Evaluate Data Center Management Options

Overview	1
Intro	1
Nexus Mgmt Interfaces	12
Connectivity Management Processor (CMP)	7
DCNM Overview	8
DCNM Modes of Operation	11
Review and Quiz	5

WEEK 10

Evaluate Redundancy Options — 109 min.

Overview	1
Intro	1
Backups	13
Disaster Recovery	7
Disaster Recovery Solutions	10
Backup vs Disaster Recovery	10
Failover Types	7
Review and Quiz	2

Design Data Center Redundancy

Overview	1
Intro	1
Hot, Warm, and Cold Failover	9
Cloud Failover and DRaaS	11
Recovery Point Objective (RPO)	9
Recovery Time Objective (RTO)	10
DCI Networking	12
Review and Quiz	3