



Lab – CCIE Data Center



**Online
Course**

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Course Modules

1. Data centre L2/L3 Connectivity

- Layer 2 technologies
 - o Link aggregation
 - Virtual PortChannel
 - PortChannel
 - o Tagging/trunking
 - o Static path binding
 - o Spanning Tree Protocol
 - PVST and Rapid PVST
 - MST
 - Route protocols and features
 - o OSPF (v2 and v3)
 - Authentication
 - Adjacencies
 - Network types and area types
 - LSA types
 - Route aggregation/summarization
 - Route redistribution
 - o ISIS
 - Adjacencies
 - Single area, single topology
 - Network types, levels, and router types
 - NSAP addressing



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- ☒ BGP
- ☒ Path selection
- ☒ External and internal peering
- ☒ Route reflector and route server
- ☒ Peer templates
- ☒ Multihop EBGp
- ☒ Route aggregation/summarization
- ☒ Route redistribution
- ☒ Local-AS number
- ☒ BFD
- ☒ FHRP
 - o Multicast protocols
- ☒ PIM
- ☒ Sparse mode
- ☒ BIDIR
- ☒ Static RP, BSR, Auto-RP, phantom RP
- ☒ IPv4 PIM Anycast
- ☒ IPv4 Anycast-RP using MSDP
- ☒ IGMP
- ☒ IGMPv2, IGMPv3
- ☒ ICMP snooping
- ☒ IGMP querier



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2.Data Center Fabric Infrastructure

- Physical fabric components
 - o Fabric discovery
 - o Controllers
 - o Switches
 - o Multi-tier architecture
- ACI policies
 - o Access policies
 - o Fabric policies
 - o Multi-tenancy
- Overlay policies
 - o Tenants, application profiles, EPGs and ESGs
 - o Networking (VRFs, bridge domains)
 - o Security (contracts, filters, vzAny)
- Fabric monitoring
 - o Faults
 - o Events
 - o Health indicators
 - o Audit logs
- Virtual networking
 - o vSphere VDS with or without VMM integration



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3.Data Center Fabric Connectivity

- Overlay fabrics
 - o ACI
 - o VXLAN EVPN
- External connectivity
 - o VRF Lite
 - o OSPF
 - ☒ Authentication
 - ☒ Adjacencies
 - ☒ Network types and area types
 - ☒ Route redistribution
 - o BGP
 - ☒ AS manipulation
 - ☒ External and internal peering
 - ☒ Route reflectors
 - ☒ Route redistribution
 - o Transit routing
- Inter-fabric connectivity
 - o Multi-Site: ACI or VXLAN EVPN
 - o ACI Multi-Pod
 - o ACI remote leaf



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- VRF lite
- L3Out
- OSPF
- Authentication
- Adjacencies
- Network types and Area Types
- Route Redistribution
- BGP
- AS manipulation
- External and Internal Peering
- Route reflectors
- Route Redistribution
- Transit Routing
- Inter Fabric connectivity
- Multi-Pod
- Multi-Site
- Virtual POD
- Remote Leaf
- Overlays
- VXLAN EVPN



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4.Data Center Compute

- Compute resources
 - o Compute policies, profiles, and templates
 - o Nutanix
- Compute connectivity
 - o SAN/LAN uplinks
 - o Rack server integration
 - o Port modes
- Compute management
 - o UCS Manager
 - o Intersight



5.Data Center Storage Protocols and Features

- FC and FCoE
 - o Zoning
 - o NPV/NPIV
 - o Trunking
 - o Port Channel
 - o Load balancing
- RoCE v2 transport for high performance networks
 - o DCQCN congestion control
- ☒ PFC
- ☒ ECN

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7.Data Center Security and Network Services

- Security features
 - o ACLs
 - o First Hop Security
 - o Port security
 - o Private VLANs
 - o Contracts
- RBAC
 - o RADIUS
 - o TACACS+
 - o LDAP
 - o AAA
- Network services insertion and redirection
 - o Policy-based routing
 - o Policy-based redirect
 - o Inter VRF communication
 - o Route targets
 - o Prefix lists
- Services
 - o Flow/telemetry export
 - o (R)SPAN/ERSPAN
 - o SNMP
 - o Syslog
 - o DHCP
 - o NTP/PTP





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in terms of time management,
flexibility, and the ability
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