

## Day 1: Data Center L2/L3 Technologies

- Traditional/Legacy L2 Technologies
  - VLANS
  - Trunks
  - Port-Channels
    - Load Sharing
    - Hashing Operations
  - Spanning-Tree
  - SPAN & ERSPAN
  - UDLD
  - BFD
- Complex Data Center Layer L2 Technologies and Features
  - vPC
  - “Back-to-Back” vPC
  - Fabric Extenders
  - eVPC
  - FabricPath
  - VPC+
  - OTV
  - FHRP
  - EVPN
  - VXLAN
  - PTP
  - NTP
  - DNS
  - DHCP
  - QoS
  - Layer 2 Security
    - Port Security
    - MACsec
    - ACL
    - Private VLANs
- Application Centric Infrastructure (ACI)
  - Layer 2 NVF

## Day 2: Data Center L2/L3 Technologies (Continued)

- Complex Data Center Layer 3 Technologies
  - OSPF
  - ISIS
  - MPBGP
  - PBR
  - BFD
  - OTV

- LISP
- Multicast Operations
  - PIM
  - IGMP
  - RP
  - BSR
- Layer 3 Security Features
  - CoPP
  - ACL's
  - DAI
  - IP Source Guard
  - Netflow
- External Fabric Connectivity
  - Policy Driven L2/L3 Connectivity
- Application Centric Infrastructure (ACI)
  - Layer 3 NFV

### **Day 3: Cisco Storage Networking Concepts**

- Data Center Storage Protocols
  - FC
  - FCoE
  - iSCSI
  - DCB
  - File Storage Protocols
    - NFS
    - CIFS
- Storage Networking Features
  - Zoning
  - Multi-Hop Technologies
- Compute Resources
  - SAN/LAN Policies
  - Boot Policies
  - Profiles
  - UCS Management Utilities
    - UCSM
    - UCS Central
    - UCS Director
- Compute Connectivity
  - SAN/LAN Uplinks
  - Server Ports
  - Monitor Ports
  - Appliance Ports
  - Fabric Ports
- Physical and Virtual Endpoint Connectivity

- Fabric Interconnects
- Nexus 1000v

#### **Day 4: Data Center Infrastructure & Network Services**

- Policy and Non-Policy Driven Internal Fabric Connectivity
  - ECMP
  - ISIS
  - In-band Management
  - VXLAN
- Infrastructure Policies and Management
  - Interface Policies
  - MGMT Policies
- Data Center Network Services
  - Service Insertion and Redirection
    - Load Balancing
    - vPATH
    - ITD
    - RISE
  - Policy Driven L4-L7 Services

#### **Day 5: Data Center Automation & Orchestration**

- Automation Methods
  - REST
  - Scripting Languages
    - Python
  - Open Source Orchestration
- Orchestration Tools
  - UCSD
  - UCS Central
  - CPO
- Cloud Integration
  - Cisco ONE Enterprise Cloud Suite
- Exam Planning
  - Strategy
  - Final Review QA

#### **Day 6: Advanced NX1000v**

- Deploying Nexus 1000v VSMs in L3 Mode
- Install VEMs in ESXi Hosts
- Port Profile Provisioning
- Migrating Physical Adapters to N1Kv DVS
- Migrating VM Guests to DVS
- vPC-HM

- QoS
- IGMP
- SPAN
- ERSPAN
- ACL
- Private VLANs
- DHCP Snooping
- DAI
- IP Source Guard
- Netflow

**Day 7: Advanced Nexus 9K in ACI mode**

- The 9K in ACI Mode
  - ACI Concepts and Principles
  - ACI Policy Model
  - Policy and Network Differences
  - Application Logic through Policy
  - Provider and Consumer Relationships
  - Automating Infrastructure through Policy
  - Policy Instantiation
  - Advantages of Policy-driven Data Center Design
  
- ACI Fabric
  - Spine/Leaf Single-site Topology
  - ACI Management Networks
  - Fabric Initialization and Discovery using LLDP
  - Extended VXLAN
  - Integrated Overlay with host/32 routing
  - Unicast Forwarding
  - Multicast Forwarding
  - Distributed Layer 3 Gateway
  - ACI as a Gateway
  - Flowlet Dynamic Load-balancing
  
- Configuring the APIC
  - Introduction to the APIC Endpoint Groups
  - Application Profiles
  - Contracts
  - Subjects and filters
  - Contexts
  - Bridge Domains
  - Tenants

**Day 8: Advanced Nexus 9K in ACI mode (Part 2)**

- Layer 4 through Layer 7 Services
  - Service Insertion and Redirection
  - Implementing Service Graphs
  - Configuring Application Profiles specific to Layer 4 to Layer 7 Services
  - Configuring ACI Programmability of Layer 4 to Layer 7 Services
  - Device Packages
  - OpFlex
- Individual ACI Student Labs

**Day 9:** Mock Lab (8 hour) [Students will be allowed to work to completion]

- Mock Lab Review
- Weak Spot Assessment

**Day 10:** Wrap up

- Mock Lab Review (continued)
- Q/A
- Lab Strategy
- Final Summation