

DAY 1

Layer 2 Technologies

- LAN switching technologies
 - VLANs
 - Trunks
 - VTP
 - Ether Channels
 - Chassis Virtualization
 - vPC
 - VSS
 - Stackwise
 - Spanning-Tree
 - Root Bridge
 - Root Ports
 - Port Roles
 - STP Timers
 - STP Optimizations
 - 802.1w
 - 802.1s
- Layer 2 multicast
 - IGMP
- Layer 2 WAN circuit technologies
 - HDLC
 - PPP
 - Ethernet WAN
 - DMVPN

Layer 3 Technologies

- Addressing technologies
 - IPv4 Routing
 - ARP
 - Routing
 - Next-Hop
 - IPv6
 - EUI-64
 - Temporary Addresses
 - Link-Local
 - Global Aggregatable
 - ND
 - Default Routing
 - SLAAC
 - DHCP
 - Static Routing

Day 2

- Layer 3 multicast
 - Static RP
 - Dynamic RP Assignment
 - Auto RP
 - BSR
- Fundamental routing concepts
 - Static Routing
 - RIB
 - FIB
 - IP CEF
 - VRFs
- RIP [v2 and v6]
 - Basic Features
 - RIPng Operations
 - DMVPN Behavior
- EIGRP [for IPv4 and IPv6]
 - Basic Features
 - DUAL
 - Adjacencies
 - Tables
 - Loop Prevention
 - Successors
 - Feasible Successor
 - Re-convergence
 - Classic EIGRP
 - Name Mode
 - DMVPN Behavior
- OSPF [v2 and v3]
 - Basic Features
 - SPF Algorithm
 - Adjacencies
 - Hello Packets
 - ASM
 - Best Path Selection
 - LSA
 - OSPFv3
 - Virtual Links
 - Authentication
 - DMVPN Behavior

Day 3

- BGP
 - Basic Features
 - Peering
 - iBGP
 - eBGP
 - Valid Route Determination
 - Best Path Selection
 - Manipulating Best Path Selection
 - Inbound Forwarding
 - Outbound Forwarding
 - BGP Communities
 - Filtering
 - Regular Expressions
 - Conditional Advertisement
 - BGP Fast Convergence
 - Auto Neighbor Discovery
 - Aggregation
 - MP-BGP
 - DMVPN Behavior

- ISIS [for IPv4 and IPv6]
 - Basic Features
 - Network Entity Titles
 - Adjacencies
 - Levels
 - Integrated ISIS
 - Multi-Topology
 - DMVPN Behavior

VPN Technologies

- L2 VPNs
 - L2TPv3
 - AToM
 - VPLS
 - OTV

Day 4

- MPLS
 - Basic Features
 - LDP
 - Labels
 - Advertisement
 - Filtering
 - Integrating VRF
 - MPLS Layer 3 VPNs
- Tunneling
 - VPNv4 Addressing
 - L3VPN
 - Transport Labels
 - VPN Labels
- Encryption
 - IPsec VPNs
 - Over Site to Site
 - Over DMVPN
 - Crypto Maps
 - Virtual Tunnel Interfaces
 - GETVPN

Infrastructure Security

- Device security
 - AAA
 - SNMP
 - Management Plane Protection
 - Password Encryption
 - Control Plane Policing
 - TACACS+
 - RADIUS
 - Fallback
- Network security
 - ACLs
 - VACLs
 - PACLs
 - Storm Control
 - DHCP Snooping
 - IP Source-Guard
 - DAI
 - Port Security
 - Private VLAN
 - IPV6 First Hop Security
 - RA Guard

- DHCP Guard
- Binding Table
- Device Tracking
- ND inspection/Snooping
- Source Guard
- PACL
- 802.1x, EAP, RADIUS
- MAC authentication Bypass

Day 5

Infrastructure Services

- System management
 - HTTP
 - HTTPS
 - SSH
 - SCP
 - TFTP
 - SNMP
 - Timestamp
- Quality of service
 - COS
 - DSCP
 - MQC
 - Classification
 - NBAR
 - Marking
 - Policing
 - Shaping
 - Queuing
 - HQoS
 - WRED
 - Layer 2 QoS
 - Queuing
 - Scheduling
 - Classification
 - Marking
- Network services
 - FHRP
 - HSRP
 - GLBP
 - VRRP
 - IPv6 RS/RA
 - NTP

- DHCP
 - DHCP Client
 - DHCP Server
 - Protocol Operations
 - Stateful/Stateless DHCPv6
- NAT
 - Static NAT
 - Dynamic NAT
 - Policy Based NAT
 - NAT ALG
 - NAT64
 - NPTv6
- Network optimization
 - IP SLA
 - Netflow
 - EEM
 - PfR

Day 6

Evolving Technologies

- Cloud Deployment
 - IaaS
 - PaaS
 - XaaS
- Cloud Implementation
 - Automation
 - Workload Mobility
 - Management
 - OpenStack
- SDN
 - Controllers
 - APIs
 - Scripting
 - Agents
 - North and Southbound Protocols
- Virtualization
 - DevOps
 - NFV
 - AFV
 - Service Function Chaining
 - Scaling
 - High Availability
- Internet of Things
 - Performance

- Reliability
- Scalability
- Security
- Standards and Compliance
- Migration
- Impacts on the network