CCIE Routing Switching
Course Contents

Learn , Configure and define Layer 2 Technologies
Configuration and verifcation of switch administration like SDM templates, Managing MAC address table Troubleshoot Err-disable recovery
Describe,implement and Configure and verify Layer 2 protocols like CDP, lldpand UDLD
Define, Implement and Verify vlans , Access ports, VLAN database, Normal, extended VLAN, voice VLAN
Configuration and verifcation of trunking and its features
Configuration and verifcation of vtpv1, vtpv2, vtpv3, VTP pruning
Define, Implement and Verify dot1q , Native VLAN and Manual pruning
Configure and verify other LAN switching technologies like SPAN, RSPAN

Learn , Configure and define etherchannels
Describe,implement and Configure LACP, pagp, manual, Layer 2, Layer 3
Define, Implement and Verify Load balancing in etherchannels
Configuration and verifcation of etherchannel misconfiguration guard

Learn , Configure and define STP and its features
Define, Implement and Verify PVST+, RPVST+, MST
Define, Implement and Verify Switch priority, port priority, path cost, STP timers
Describe,implement and Configure portfast, bpduguard, bpdufilter
Describe,implement and Configure Loopguard and Rootguard

Configure and verify first-hop redundancy protocols
Configuration and verifcation of HSRP
Configuration and verifcation of VRRP
Configuration and verifcation of GLBP

Learn , Configure and Implement Layer 3 Technologies
Configuration , Implementation of ipv4 addressing and subnetting
Describe Unicast, broadcast, multicast, and VLSM ipv4 Address types
Define ipv4 ARP, ipv4 DHCP relay and server and DHCP protocol operations
Configuration , Implementation of ipv6 addressing and subnetting
Describe Unicast , EUI-64,ND, RS/RA , Autoconfig (SLAAC)
Configuration ,Implementaion and verification of static routing
Configuration ,Implementaion and verification of default routing
Describe Various Routing protocols like Distance vector, Link state, Path vector
Describe administrative distance
Define passive interfaces
Configuration ,Implementaion and verification of VRF lite
Configuration ,Implementaion and verification of filtering with any protocol
Configuration ,Implementaion and verification of redistribution between any routing protocols or routing sources
Configuration ,Implementaion and verification of manual and autosummarization with any routing protocol
Configuration ,Implementaion and verification of policy-based routing
Configuration ,Implementaion and verification of suboptimal routing
Configuration ,Implementaion and verification of ripv2
Configuration ,Implementaion and verification of ripng

Learn , Configure and Implement loop prevention mechanisms
Configuration ,Implementaion and verification of Route tagging and filtering

Configuration ,Implementaion and verification of Split-horizon
Configuration ,Implementaion and verification of Route poisoning

Learn , Configure and Implement Eigrp and its Features
Describe about EIGRP packet types
Configuration ,Implementaion and verification of EIGRP neighbor relationship and authentication
Configuration ,Implementaion and verification of EIGRP stubs
Configuration ,Implementaion and verification of EIGRP load balancing like equal and unequal Cost
Configuration ,Implementaion and optimization EIGRP metrics
Configuration ,Implementaion and verification of EIGRP for ipv6

Learn , Configure and Implement OSPF and its Features
Configuration ,Implementaion and verification of OSPF neighbor relationship and authentication
Configuration ,Implementaion and verification of network types, area types, and router types
Configuration ,Implementaion and verification Point-to-point, multipoint, broadcast, nonbroadcast Network
Describe LSA types, area type: backbone, normal, transit, stub, NSSA, totally stub
Describe Internal router, backbone router, ABR, ASBR
Configuration ,Implementaion and verificationof Virtual link
Configuration ,Implementaion and verification of OSPF path preference
Configuration ,Implementaion and verification of OSPF operations
Configuration ,Implementaion and verification of OSPF for ipv6

Learn , Configure and define peer relationships
Define, Implement and Verify Peer-group, template
Define, Implement and Verify Active, passive
Define, Implement and Verify BGP States and timers

Implement and troubleshoot IBGP and EBGP
Configuration and verifcation of EBGP, IBGP
Configuration and verifcation of attributes and best-path selection
Configuration verifcation and optimization of routing policies
Configuration verifcation and optimization of Attribute manipulation
Configuration verifcation and optimization of Conditional advertisement
Configuration verifcation and optimization of Outbound route filtering
Configuration verifcation and optimization of Communities, extended communities
Configuration and verifcation of Multi-homing
Configuration and verifcation of scalability
Configuration and verifcation of Route-reflector, cluster
Configuration and verifcation of Confederations
Configuration and verifcation of Aggregation, AS set
Implement and troubleshoot multi-protocol BGP
Describe,implement and configureipv4, ipv6, VPN address-family
Define, Implement and Verify AS path manipulations
Describe,implement and Configure Local AS, allow AS in, remove private AS

Describe,implement and Configure Other Features
Define, Implement and Verify Multipath
Describe,implement and Configure BGP synchronization
Define, Implement and Verify Soft reconfiguration, route refresh

Configure Implement and troubleshoot MPLS operations
Define the concepts of Label stack, LSR, LSP
Define the concepts of LDP
Describe MPLS ping, MPLS traceroute

Configure Implement and troubleshoot basic MPLS L3VPN
Describe the concepts of L3VPN, CE, PE, pconfigure the l3vpn via different Routing protocols
Describe and implement Extranet (route leaking)
Implement and troubleshoot encapsulation like GRE and Dynamic GRE

Learn, Implement and troubleshoot DMVPN (single hub)
Define the concepts of NHRP
Configuration and implementation of DMVPN with ipsec using preshared key
Implementation and verification of qos profile like Pre-classify

Implement and troubleshoot ipsec with preshared key
Configuration and implementation of ipv4 site to ipv4 site
Implementation and verification of ipv6 in ipv4 tunnels
Implementation and verification of Virtual tunneling interface (VTI)

Learn and Implement the Layer 3 Multicast
Configure and Troubleshoot reverse path forwarding
Configure and Troubleshoot RPF failure
Describe and implement RPF failure with tunnel interface

Implement and troubleshoot ipv4 protocol independent multicast
Describe and implement PIM dense mode, sparse mode, sparse-dense mode
Define Static RP, auto-RP, BSR
Configure Bidirectional PIM
Configuration and implementation of Source-specific multicast
Describe and implement Group to RP mapping
Define Multicast boundary

Implement and troubleshoot multicast source discovery protocol
Implementation and verification of Intra-domain MSDP (anycast RP)
Implementation and verification of SA filter

Learn and Implement Quality of service
Configure and Troubleshoot end to end qos
Configure and Troubleshoot cos and DSCP mapping

Describe and implement qos using MQC
Describe and implement Classification
Describe and implement Network based application recognition (NBAR)
Configuration and implementation of Marking using IP precedence, DSCP, cos, ECN
Define Policing, shaping
Configuration and implementation of Congestion management (queuing)
Define hqos, sub-rate ethernet link
mplementation and verification of Congestion avoidance (WRED)

Learn and Implement Network security
Configure and Troubleshoot switch security features
Configure and Troubleshoot VACL, PACL
Describe and implement Stormcontrol
Configuration and implementation of DHCP snooping
Configure and Troubleshoot IP source-guard
Describe and implement Dynamic ARP inspection
Configuration and implementation of Port-security
Configure and Troubleshoot Private VLAN

Implement and troubleshoot router security features
Configure and Troubleshoot ipv4 access control lists (standard, extended, time-based)

Describe and implement ipv6 traffic filter
Implementation and verification of Unicast reverse path forwarding

Implement and troubleshoot ipv6 first hop security
Configure and Troubleshoot RA guard
Describe and implement DHCP guard
Implementation and verification of Binding table
Configure and Troubleshoot Device tracking
Describe and implement ND inspection/snooping
Implementation and verification of Source guard
Configure and Troubleshoot PACL