

# CCIE Enterprise Infrastructure Outline

## Layer 2 Technologies

- Switching
  - VLAN
  - Trunking
  - Port-Channels
  - STP [CSTP, PVSTP+, Rapid-STP, MSTP]

## Interior Gateway Protocols [IGP]

- OSPF
  - Basic Initialization [Network Statement, DR/BDR Election]
  - Authentication [Clear Text, MD5]
  - LSA Types
  - Filtering [Prefix-Lists]
  - Manual Summarization
  - Area Types
  - Virtual Links
- EIGRP
  - Basic Initialization [Network Statement, Auto-Summary, Passive-Interfaces]
  - Authentication [MD5]
  - Filtering [ACL, Prefix-Lists]
  - Manual Summarization
  - Unequal Cost Load Balancing
  - Leak Maps
  - Named-Mode EIGRP

## Border Gateway Protocol [BGP]

- eBGP
- iBGP
  - Update-source
  - Next-hop-self
  - route-reflector
  - Authentication
- BGP Advanced Features
  - Filtering
  - Summarization / Aggregation
  - Confederations
  - Attributes
  - Conditional Advertisement
  - Load Balancing
  - Dynamic Neighbors

## IPv6

- Addressing
- EIGRP v6
- OSPFv3
- Tunneling

## Virtual Private Networks [VPNs]

- GRE/ GRE Over IPsec
- M-GRE
- DMVPN
- Flex VPN

## Multi-Protocol Label Switching [MPLS]

- MPLS Unicast Routing
- MPLS VPNs
  - VRF
  - Route Distinguisher
  - Route Target
- Inter-VRF Communications

## Software Defined WAN (SD-WAN)

- Designing SD-WAN Solution
- WAN Edge Deployment
  - Onboarding new edge routers
  - Orchestration with Zero-touch provisioning / Plug-n-Play
  - OMP
- Configuration template
- Centralized policies

## Software Defined Access (SDA)

- Designing SDA Solution Concept
- SDA Deployment
  - Cisco DNA Center device discovery and device management
  - Add edge node devices to an existing fabric
  - Host onboarding (wired endpoints only)
- Segmentation
- Assurance

## Security

- Zone-Based Firewall
- Basic AAA Services
- Port Security
- DHCP Security
- VLAN ACLs

## Quality of Service [QoS]

- Policing
- Shaping
- CB-WFQ
- CB-LLQ
- Nesting Class-Maps

## IP Services

- FHRP [HSRP, VRRP]
- IP SLA
- NTP
- DHCP
- NAT

## Multicast Routing

- Overview
- PIM Dense Mode
- PIM Sparse Mode
  - Static RP
  - Auto RP
  - BSR
- MSDP

## Automation & Programmability

- Python