CCIE Service Provider Outline

OSPF

- Basic OSPF Implementations
- Advanced OSPF Implementation
  - OSPF Single Area Configuration
  - Authentication
  - Summarization
  - Filtering
  - OSPF Area Types

IS-IS

- Basic IS-IS Implementations
- Advanced IS-IS Implementation
  - IS-IS Level-1 Implementation
  - IS-IS Level-1-2 Implementation
  - IS-IS Multi-Area
  - IS-IS Metric Types
  - Authentication
  - Summarization
  - Route-Leaking with IS-IS

Redistribution Design & Implementation

- Static
- Connected
- RIPv2
- EIGRP
- Redistribution with Route Filtering
  - Manual
  - Route-Tagging

IPv6 Overview & Implementation

- Addressing
- EIGRP v6
- OSPF v3
- IS-IS
- Tunneling
- NAT64

BGP

- eBGP
- iBGP
  - Update-source
  - Next-hop-self
  - route-reflector
  - Authentication
- BGP Advanced Features
  - Filerting
  - Summarization / Aggregation
  - Confederations
  - Attributes

BFD Overview & Implementation

- Implementing BFD
  - OSPF
  - IS-IS
  - BGP

MPLS - Intra-AS Design & Implementation

- Overview
- MPLS Unicast Routing
- MPLS VPNs
  - PE-CE Routing Protocols [RIPv2,OSPF,EIGRP,BGP]
  - RD & RT
  - MPLS Extranet VPNs
  - Export Maps
- MPLS VPNs for IPv6 networks

MPLS - Inter-AS Design & Implementation

- Overview
- MPLS Inter-AS VPNs
  - Option A
  - Option B
  - Option C
  - Non-VPN Transit Provider

MPLS - Carrier-Supporting-Carrier (CSC) Models

- Overview
- IP-Only Customer-carrier
- MPLS-based Customer-carrier
- MPLS-VPN-based Customer-carrier

Large Scale MPLS

- Overview
- Segment Routing Control Plane Protocols
  - OSPF
  - IS-IS
  - BGP
- LDP & SR Interworking – Segment Routing Mapping Server
- Unified MPLS

Multicast Routing

- Multicast Overview
- PIM Sparse Mode
- Multicast over MPLS VPN [M-VPN]
  - PIM
  - mLDP

MPLS - Traffic Engineering

- Overview
- Design and Implementation
  - Static Tunnels
  - Dynamic Tunnel with OSPF/IS-IS
  - Dynamic Tunnel - Preemption
  - Configuring Fast-Reroute with MPLS-TE

Quality of Service [QoS]

- Overview
- QoS Type and Implementation
  - Policing
  - CB-WFQ
  - CB-LLQ
  - Shaping
  - RSVP
- MPLS QoS [Uniform & Pipe Modes]

MPLS - Layer 2 VPNs

- Overview
- Design and Implementation considerations
  - AToM [Ethernet, PPP, Interworking]
  - VPLS
  - EVPN