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## Implementing Cisco Service Provider VPN Services v1.0 (300-515)

**Exam Description:** The Implementing Cisco Service Provider VPN Solutions v1.0 (SPVI 300-515) is a 90-minute exam associated with the CCNP Service Provider Certification. This exam tests a candidate's knowledge of implementing service provider VPN services, including Layer 2, Layer 3, and IPv6. The course, Implementing Cisco Service Provider VPN Services, helps candidates to prepare for this exam.

The following topics are general guidelines for the content likely to be included on the exam. However, other related topics may also appear on any specific delivery of the exam. To better reflect the contents of the exam and for clarity purposes, the guidelines below may change at any time without notice.

- 25%**    **1.0**    **VPN Architecture**
  - 1.1    Compare VPN architecture
    - 1.1.a    Layer 2 and Layer 3 VPN
    - 1.1.b    Inter-AS and Intra-AS
  
  - 1.2    Troubleshoot underlay
    - 1.2.a    Core IGP
    - 1.2.b    LSP
  
  - 1.3    Describe Layer 2 service architecture
    - 1.3.a    IOS XR Ethernet Flowpoints
    - 1.3.b    IOS XE Ethernet Virtual Circuits
  
  - 1.4    Describe the L3VPN control plane operation
    - 1.4.a    MP-BGP
    - 1.4.b    Route distinguisher
    - 1.4.c    VPNv4 address
    - 1.4.d    Route target
    - 1.4.e    VPN label
    - 1.4.f    VRF routing instance
    - 1.4.g    PE-CE route advertisement
  
  - 1.5    Describe the L3VPN data plane operation
    - 1.5.a    Underlay label
    - 1.5.b    VRF forwarding instance
  
- 30%**    **2.0**    **Layer 2 VPNs**
  - 2.1    Troubleshoot L2VPN Services
    - 2.1.a    E-LAN
    - 2.1.b    E-Line
    - 2.1.c    E-Tree

- 2.2 Describe EVPN concepts
  - 2.2.a Data plane and control plane operation
  - 2.2.b Multihoming mechanisms
  - 2.2.c Suppression mechanisms
  - 2.2.d Traffic forwarding operation
- 2.3 Implement Ethernet Operations, Administration, and Maintenance (E-OAM)
- 2.4 Implementing EVPN
  - 2.4.a EVPN IRB
  - 2.4.b EVPN VPWS
  - 2.4.c EVPN native
- 35%** **3.0 Layer 3 VPNs**
  - 3.1 Describe routing requirements
    - 3.1.a MP-BGP
    - 3.1.b PE-CE routing protocol
  - 3.2 Troubleshoot Intra-AS L3VPNs
    - 3.2.a PE-CE
    - 3.2.b PE-PE
    - 3.2.c PE-RR
  - 3.3 Implement multicast VPN
    - 3.3.a Intranet MVPN
    - 3.3.b Extranet MVPN
    - 3.3.c MLDP
  - 3.4 Implement extranet/shared services
    - 3.4.a Import and export route targets
    - 3.4.b Route policy
  - 3.5 Describe Inter-AS L3VPNs
    - 3.5.a Option A
    - 3.5.b Option B
    - 3.5.c Option AB
    - 3.5.d Option C
  - 3.6 Describe CSC concepts
- 10%** **4.0 IPv6 VPNs**
  - 4.1 Describe routing requirements
    - 4.1.a MP-BGP
    - 4.1.b PE-CE routing protocol
  - 4.2 Troubleshoot IPv6 VPN provider edge
    - 4.2.a PE-PE
    - 4.2.b PE-CE