

## Exam Questions 300-515

Implementing Cisco Service Provider VPN Services (SVPI)

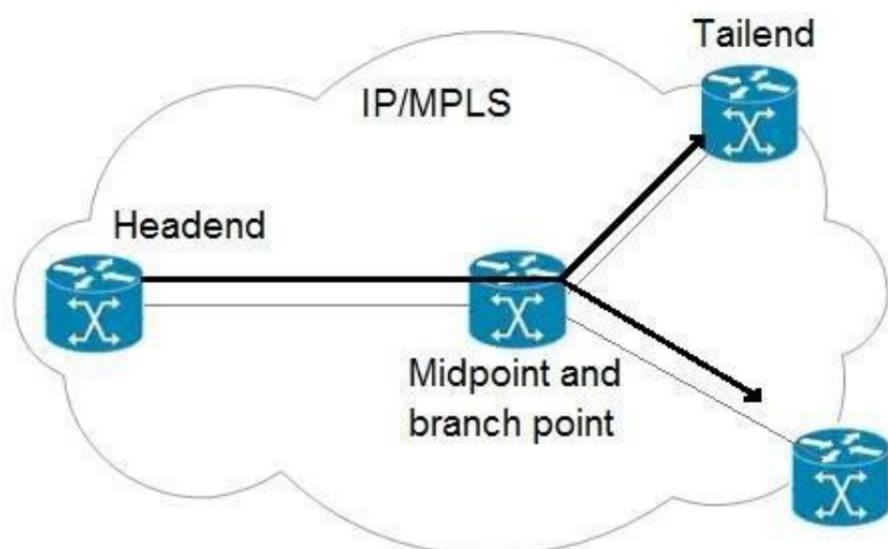
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**NEW QUESTION 1**

- (Exam Topic 1)

Refer to the exhibit.



An engineer is implementing an MPLS P2MP TE solution. Which type of router can serve as the midpoint router and the tailend router in this P2MP TE network implementation?

- A. headend
- B. source
- C. transit
- D. bud

**Answer: D**

**Explanation:**

[https://www.cisco.com/c/en/us/td/docs/routers/asr920/configuration/guide/mpls/mp-te-path-setup-xe-3s-asr920-book/mp-te-path-setup-xe-3s-asr920-book\\_chapter\\_01.html](https://www.cisco.com/c/en/us/td/docs/routers/asr920/configuration/guide/mpls/mp-te-path-setup-xe-3s-asr920-book/mp-te-path-setup-xe-3s-asr920-book_chapter_01.html)

**NEW QUESTION 2**

- (Exam Topic 1)

Which tool identifies the point of failure in a P2MP LSP from the ingress LSR?

- A. Jitter TLV
- B. SPAN
- C. P2MP traceroute
- D. P2MP ping

**Answer: C**

**Explanation:**

Reference: [https://www.cisco.com/c/en/us/td/docs/routers/asr9000/software/asr9k\\_r5-3/mpls/configuration/guide/b-mpls-cg53x-asr9k/b-mpls-cg53x-asr9k\\_chapter\\_01000.html](https://www.cisco.com/c/en/us/td/docs/routers/asr9000/software/asr9k_r5-3/mpls/configuration/guide/b-mpls-cg53x-asr9k/b-mpls-cg53x-asr9k_chapter_01000.html)

**NEW QUESTION 3**

- (Exam Topic 1)

Which two BGP attributes prevent loops in a route reflector environment? (Choose two.)

- A. cluster ID
- B. local preference
- C. origin
- D. originator ID
- E. AS\_PATH

**Answer: AD**

**Explanation:**

Reference: <https://www.ciscopress.com/articles/article.asp?p=2756480&seqNum=10>

**NEW QUESTION 4**

- (Exam Topic 1)

Refer to the exhibit.

```
Router# show mpls forwarding-table
```

Local label	Outgoing label or VC	Prefix or Tunnel Id	Bytes label switched	Outgoing interface	Next Hop
29	Pop tag	10.22.22.22/32	0	Gi1/1/0	172.32.0.1
32	0	10.24.24.24/32	0	Gi1/0/0	192.168.1.2
33	0	172.24.24.24/32	0	Gi1/0/0	192.168.1.2
34	0	192.168.0.0/8	0	Gi1/0/0	192.168.1.2
35	0	10.25.25.25/32	0	Gi1/0/0	192.168.1.2
36	0	172.16.0.0/8	0	Gi1/0/0	192.168.1.2
37	25	10.26.26.26/32	0	Gi1/0/0	192.168.1.22
38	0	10.34.34.34/32	0	Gi1/0/0	192.168.1.2

Which statement about this output is true?

- A. The router IP 192.168.1.2 sent an implicit null, and the output is from the penultimate LSR.
- B. The adjacent router is the egress LSR and has mpls ldp explicit-null configured.
- C. The adjacent LSR router configured mpls label range 0.
- D. The zero in the second column is the normal behavior of an egress router LSR.

Answer: B

**NEW QUESTION 5**

- (Exam Topic 1)

What is the primary function of a VRF on a router?

- A. It enables the router to support multiple separate routing tables, which allows the device to handle overlapping IP addresses.
- B. It enables a router to run BGP and a distance vector routing protocol at the same time, which allows it to serve as a VPN endpoint between remote sites.
- C. It enables a router to configure VLANs locally, which provides segregation between networks.
- D. It enables the router to provide faster switching through the network by using labels to identify the input and output interfaces for neighbor routers.

Answer: A

**NEW QUESTION 6**

- (Exam Topic 1)

Refer to the exhibit.

```
RP/0/0/CPU0:PE1#show run
evpn
no evi 100
no advertise-mac
!
!
vrf EVPN
address-family ipv4 unicast
import route-target
133:100
export route-target
133:100
!
!
interface BVI651
vrf EVPN
ipv4 address 192.168.100.1 255.255.255.0
mac-address 1337.1337.1337
```

A network operator is implementing EVPN IRB on PE1. Which two command placements enable the advertisement of Type 2 routes and what information do Type 2 routes contain? (Choose two.)

- A. The operator adds in "host-routing" under the VRF EVPN.
- B. Type 2 routes contain MAC/IP information.
- C. Type 2 routes contain Ethernet Auto-Discovery information.
- D. The operator adds in "host-routing" under the BVI651 interface.
- E. Type 2 routes contain inclusive source-specific multicast route information.

Answer: BD

**Explanation:**

Reference: [https://www.cisco.com/c/en/us/td/docs/iosxr/ncs5500/vpn/61x/b-ncs5500-l2vpn-configuration-guide-61x/b-ncs5500-l2vpn-configuration-guide-61x\\_chapter\\_01010.html](https://www.cisco.com/c/en/us/td/docs/iosxr/ncs5500/vpn/61x/b-ncs5500-l2vpn-configuration-guide-61x/b-ncs5500-l2vpn-configuration-guide-61x_chapter_01010.html)

**NEW QUESTION 7**

- (Exam Topic 1)

Which utility can you use to validate an LSP in an MPLS environment?

- A. uRPF
- B. MPLS LSP ping
- C. logging
- D. RSVP

**Answer:** B

#### NEW QUESTION 8

- (Exam Topic 1)

While configuring the VRF Selection feature, you get an error message after typing the below statement: Router(config)#no vrf selection source 172.16.0.0 255.255.0.0 vrf VRF1

Which action caused this message?

- A. the entry of an inconsistent IP address and mask for VRF Selection
- B. an attempt to configure a VRF instance on an interface that already has VRF Selection configured
- C. an attempt to remove a VRF Selection entry that does not exist
- D. an attempt to configure a VRF Selection table that does not exist

**Answer:** C

#### Explanation:

Reference: [https://www.cisco.com/c/en/us/td/docs/ios/12\\_2/12\\_2sz/feature/guide/122szvrf.html](https://www.cisco.com/c/en/us/td/docs/ios/12_2/12_2sz/feature/guide/122szvrf.html)

#### NEW QUESTION 9

- (Exam Topic 1)

An engineer is investigating an EVPN traffic flow issue. Which type of traffic should the engineer allow in an EVPN Tree Service in order to fix this issue?

- A. known unicast from a leaf to another leaf
- B. unknown unicast from a leaf to another leaf
- C. multicast from a leaf to another leaf
- D. known unicast from a root to another root

**Answer:** D

#### Explanation:

Reference: <https://tools.ietf.org/html/draft-ietf-bess-evpn-etree-14>

#### NEW QUESTION 10

- (Exam Topic 1)

You try to configure MPLS VPN VRF Selection based on a source IP address on an interface that has VRF configured, but you receive an error. Which action must you take to correct the problem?

- A. Change the source IP address.
- B. Add the IP address to the VRF table.
- C. Remove the VRF from the interface.
- D. Configure static routes for the VRF.

**Answer:** C

#### Explanation:

Reference: [https://www.cisco.com/c/en/us/td/docs/ios/12\\_0s/feature/guide/vrfselec.html](https://www.cisco.com/c/en/us/td/docs/ios/12_0s/feature/guide/vrfselec.html)

#### NEW QUESTION 10

- (Exam Topic 1)

The CTO of a company requires the support of a network consultant to deliver an MPLS solution without resigning to a certain degree of redundancy and scalability. Which solution effectively scales to hundreds or thousands of sites?

- A. L2VPN with the broadcast traffic processed at the ingress PE.
- B. L3VPN with direct LSP connectivity between all PEs.
- C. L2VPN by encapsulating multiple frame formats with interworking.
- D. L3VPN using a hierarchical topology of N-PEs and U-PEs.

**Answer:** D

#### NEW QUESTION 15

- (Exam Topic 1)

Refer to the exhibit.

<pre>PE1 ip vrf CE1  rd 101:1  route-target export 100:1  route-target import 200:2</pre>	<pre>PE2 ip vrf CE2  rd 202:2  route-target export 200:2  route-target import 100:1</pre>
<pre>PE3 ip vrf CE3  rd 303:3  route-target export 300:3  route-target import 400:4</pre>	<pre>PE4 ip vrf CE4  rd 404:4  route-target export 400:4  route-target import 300:3</pre>

A network engineer has been called to configure the four PE devices in order to enable full communication among the four CE devices connected to them. While starting to configure, he experienced a connectivity issue. Which two tasks should the engineer perform in order to begin the process correctly? (Choose two.)

- A. Configure PE3 to export route-targets 100:1 and 200:2.
- B. Configure PE3 to import route-targets 100:1 and 200:2.
- C. Configure PE4 to import route-targets 101:1 and 202:2.
- D. Configure PE2 to export route-targets 300:3 and 400:4.
- E. Configure PE1 to import route-targets 300:3 and 400:4.

Answer: AB

**NEW QUESTION 19**

- (Exam Topic 2)

A network architect is troubleshooting the L2TPv3 tunneling security due to the untrusted nature of the underlying network. Which two L2TPv3 features does the architect deploy to address the ongoing issues? (Choose two.)

- A. TCP MD5 authentication
- B. control message hashing
- C. CHAP authentication
- D. control message rate limiting
- E. asymmetric mutual authentication with PSK

Answer: BC

**NEW QUESTION 21**

- (Exam Topic 2)

Refer to the exhibit.

```
interface GigabitEthernet0/1
switchport trunk allowed vlan none
switchport mode trunk
service instance 2 ethernet
 encapsulation dot1q 10
 xconnect 192.168.2.2 22 encapsulation mpls
```

Drag and drop the EVC configuration items from the left onto the correct descriptions on the right.

switchport mode trunk	It denies globally defined VLANs from egressing and ingressing the port.
service instance 2 ethernet	It allows the port to operate as an 802.1q trunk.
switchport trunk allowed vlan none	It classifies traffic under a defined process.
xconnect 192.168.2.2 22 encapsulation mpls	It allows the port to process VLAN 10 traffic in Service Instance 2.
encapsulation dot1q 10	It defines the pseudowire parameters.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

switchport mode trunk	switchport trunk allowed vlan none
service instance 2 ethernet	switchport mode trunk
switchport trunk allowed vlan none	service instance 2 ethernet
xconnect 192.168.2.2 22 encapsulation mpls	encapsulation dot1q 10
encapsulation dot1q 10	xconnect 192.168.2.2 22 encapsulation mpls

**NEW QUESTION 23**

- (Exam Topic 2)

Drag and drop the EVPN components from the left onto the correct planes on the right.

PBB	Control Plane
EVPN MP-BGP	Data Plane
MPLS	
NVO	
VPWS	

- A. Mastered
- B. Not Mastered

**Answer:** A

**Explanation:**

Reference:

[https://www.cisco.com/c/dam/m/en\\_us/network-intelligence/service-provider/digital-transformation/knowledge-network-webinars/pdfs/0420-epn-ckn.pdf](https://www.cisco.com/c/dam/m/en_us/network-intelligence/service-provider/digital-transformation/knowledge-network-webinars/pdfs/0420-epn-ckn.pdf) slide 8

**NEW QUESTION 28**

- (Exam Topic 2)

```

configure
router bgp 64520
 address-family 12vpn evpn
  neighbor 192.168.1.1

configure
12vpn
 xconnect group evpn-test
 p2p evpn12
 interface TenGigE0/1/0/1
 neighbor evpn evi 12 target 10 source 11
    
```

Which effect of this configuration is true?

- A. It configures VPWS multihomed.
- B. It configures VPWS single homed.
- C. It configures an IPv4 peering with 192.168.1.1
- D. It configures MPLS traffic engineering.

**Answer:** B

**Explanation:**

Reference: <https://www.ciscolive.com/c/dam/r/ciscolive/emea/docs/2019/pdf/BRKSPG-2798.pdf>

**NEW QUESTION 33**

- (Exam Topic 2)

What must match in the EVPN and L2VPN configuration mode when configuring EVPN native in a router?

- A. interface
- B. address family
- C. bridge domain
- D. EVI

**Answer: D**

**Explanation:**

Reference: [https://www.cisco.com/c/en/us/td/docs/routers/asr9000/software/asr9k-r6-2/lxvpn/configuration/guide/b-l2vpn-cg-asr9000-62x/b-l2vpn-cg-asr9000-62x\\_chapter\\_01011.html](https://www.cisco.com/c/en/us/td/docs/routers/asr9000/software/asr9k-r6-2/lxvpn/configuration/guide/b-l2vpn-cg-asr9000-62x/b-l2vpn-cg-asr9000-62x_chapter_01011.html)

**NEW QUESTION 37**

- (Exam Topic 2)

Which mechanism reduces the network flooding caused by host ARP learning behavior?

- A. ARP suppression
- B. storm control
- C. root guard
- D. BPDU guard

**Answer: A**

**Explanation:**

Reference: <https://www.cisco.com/c/en/us/products/collateral/switches/nexus-7000-series-switches/white-paper-c11-735015.html>

**NEW QUESTION 38**

- (Exam Topic 2)

```
interface Loopback0
 ip address 1.1.1.1 255.255.255.255
 ip ospf 1 area 0
!
interface GigabitEthernet0/1/0
 ip address 10.0.2.1 255.255.255.252
!
service instance 101 ethernet
 encapsulation dot1q 101
 rewrite ingress tag pop 1 symmetric

12vpn evpn instance 100 point-to-point
!
vpws context vc100
 service target 2 source 1
 member GigabitEthernet0/1/0 service-instance 101
!
interface GigabitEthernet0/1/1
 ip address 10.0.1.1 255.255.255.0
 ip ospf 1 area 0
 mpls ip
!
router bgp 65500
 bgp router-id 1.1.1.1
 neighbor 2.2.2.2 remote-as 65501
 neighbor 2.2.2.2 update-source Loopback0
!
 address-family ipv4
  neighbor 2.2.2.2 activate
 exit-address-family
!
 address-family 12vpn evpn
  neighbor 2.2.2.2 activate
 exit-address-family
!
12vpn evpn instance 100 point-to-point
!
vpws context vc100
 service target 2 source 1
 member GigabitEthernet0/0/0
!
```

An engineer is trying to configure an EVPN VWPS. What is the issue with this configuration?

- A. The member in the VPWS context should be the PE-facing interface.
- B. The 12vpn evpn command should be instance 101.
- C. Interface GigabitEthernet0/1/0 should not have any IP address.
- D. The service instance and the EVPN instance are different.

**Answer:** C

**Explanation:**

Reference: [https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/mp\\_l2\\_vpns/configuration/xr-3s/asr903/16-7-1/b-mpls-l2-vpns-xr-16-7-asr900/epvn\\_vpws\\_single\\_homed.pdf](https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/mp_l2_vpns/configuration/xr-3s/asr903/16-7-1/b-mpls-l2-vpns-xr-16-7-asr900/epvn_vpws_single_homed.pdf)

**NEW QUESTION 41**

- (Exam Topic 3)

```
R1

router bgp 65010
 no bgp default ipv4-unicast
 neighbor 192.168.1.1 remote-as 65010
 address-family ipv4
 neighbor 192.168.1.1 activate
```

Which statement describes the result of this BGP configuration?

- A. R1 operates using IPv4 and VPNv4 address families.
- B. R1 operates on IPv6 only because the `bgp default ipv4-unicast` command is missing.
- C. R1 establishes a VPNv4 eBGP relationship with neighbor 192.168.1.1.
- D. R1 establishes an iBGP relationship with peer 192.168.1.1.

**Answer:** D

#### NEW QUESTION 46

- (Exam Topic 3)

Refer to the exhibit.

```
mdt default mpls mldp 2.2.2.2
```

Which statement about this command is true?

- A. It must be configured on each PE router to enable the PE routers to receive multicast traffic for this particular MVRP.
- B. It is used to set the designated router on a link using PIM-SM.
- C. It must be configured on the PE and CE router to enable MP-BGP to send labels for CSC.
- D. It is used to set the router that will server as the root bridge for STP.

**Answer:** A

#### Explanation:

Reference: <https://www.cisco.com/c/en/us/td/docs/routers/asr1000/configuration/guide/chassis/asrswcfg/lsmldp.html>

#### NEW QUESTION 48

- (Exam Topic 3)

Refer to the exhibit.

```
PE(config-router-af)#neighbor 10.10.10.1 local-as 100
PE(config-router-af)#neighbor 10.10.10.1 remote-as 65000
PE(config-router-af)#neighbor 10.10.10.1 as-override

PE#show ip bgp vpnv4 vrf BLUE 10.10.10.10/32
BGP routing table entry for 111:1234:10.10.10.10/32, version 624
Paths: (1 available, best #2, table BLUE)
  Advertised to update-groups:
    38      39
 65000 65100 65222 65000
 192.168.40.1 (metric 31410) from 192.168.10.1 (192.168.10.1)
  Origin incomplete, localpref 100, valid, internal, best
  Extended Community:  RT:111:1234
  Originator: 192.168.20.1, Cluster list: 192.168.30.1
  mpls labels in/out nolabel/1146
```

While provisioning a new BGP session between the PE and CE router, you issue the `as-override` command. Which statement describes modification of the prefix before being sent to the CE router (10.10.10.1)?

- A. The fourth AS changes, but no other autonomous systems change.
- B. The first and fourth autonomous systems change.
- C. The second and third autonomous systems change.
- D. The first AS changes, but no other autonomous systems change.

**Answer:** D

#### NEW QUESTION 49

- (Exam Topic 3)

Which is the primary function of a MPLS L3 VPN route target?

- A. It imports and exports identified routes into selected VRFs.
- B. It uniquely identifies NLRIs that have the same numeric value.
- C. It imports the external routes it identifies into VRFs that support Internet traffic
- D. It supports QoS by classifying traffic by file type when it applies MPLS EXP bits to each packet.

**Answer:** A

#### NEW QUESTION 53

- (Exam Topic 4)

Refer to the exhibit:

```
R1
interface FastEthernet0/0
ip address 10 1 12 1 255 255 255 0
duplex full
end
!
!
!
R1(config)#interface FastEthernet0/0
R1(config-if)#ospfv3 1 area 1 ipv4
% IPv6 routing not enabled
```

A network engineer is implementing an OSPF configuration Based on the output, which statement is true?

- A. In the ospfv3 1 area 1 ipv4 command, area 0 must be configured instead of area 1.
- B. OSPFv3 does not run for IPv4 on FastEthernet0/0 until IPv6 is enabled on the router and IPv6 is enabled on interface FastEthernet0/0
- C. OSPFv3 cannot be configured for IPv4; OSPFv3 works only for IPv6.
- D. "IPv6 routing not enabled" is just an informational message and OSPFv3 runs for IPv4 on interface FastEthernet0/0 anyway

Answer: B

**NEW QUESTION 56**

- (Exam Topic 4)

What do routers on the network use to avoid routing loops when OSPF is running as the PE-CE routing protocol on a service provider network?

- A. the AS-Override feature
- B. the DN bit with type 3, 5, or 7 LSA
- C. the domain tag for type 2 LSA
- D. sham links to create a super backbone over the service provider network

Answer: B

**NEW QUESTION 58**

- (Exam Topic 4)

How do Ethernet virtual circuits provide a way for service providers to maximize the use of VLAN tags?

- A. They add an additional tag to VLANs that allows up to two switch ports to use the same globally configured VLAN ID.
- B. They redefine the VLAN tag to include classification, forwarding, and QoS using MPLS labels and EXP bits
- C. They separate the classification and forwarding concepts for VLAN tagging which allows multiple switch ports to use the same VLAN ID without it being configured globally.
- D. They assign VLAN IDs to VTP domains so that the same VLAN ID are used more than once globally.

Answer: C

**NEW QUESTION 63**

- (Exam Topic 4)

How do PE routers exchange CE routes between remote sites?

- A. by converting CE routes into VPNv4 routes and exchanging them using MP-BGP
- B. by establishing BGP neighbor relationships between all connected CEs to exchange routing information
- C. by learning IPv4 routes from connected CEs and redistributing them into the global IGP
- D. by converting CE routes into VPNv4 routes and exchanging them using the global IGP

Answer: A

**NEW QUESTION 68**

- (Exam Topic 4)

Refer to the exhibit.

```
PE1#show mpls forwarding
```

Local Label	Outgoing Label	Prefix or ID	Outgoing Interface	Next Hop	Bytes Switched
22095	Pop	192.168.10.1/32	Hu0/0/0/2	192.168.1.2	100000
22096	22286	192.168.20.1/32	Hu0/0/0/2	192.168.1.2	1000
22098	22288	192.168.30.1/32	Hu0/0/0/2	192.168.1.2	250000

<output omitted>

What is shown in this output?

- A. local and outgoing labels are updated in hardware
- B. BGP is used between neighbors that are exchanging MPLS labels
- C. LDP neighbor statuses
- D. the labels received and advertised on PE1

Answer: D

**NEW QUESTION 70**

- (Exam Topic 4)

What is a requirement to share VRF reachability information to all members of a VPN when using IPv6?

- A. PE and CE routers must be running BGP as the PE-CE routing protocol
- B. PE routers must have MPLS disabled and be running MP-BGP between all P and PE routers.
- C. PE routers must be running MP-BGP and bgp default ipv4-unicast must be disabled
- D. All PEs must have the same VRFs configured.

Answer: D

**NEW QUESTION 74**

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