

Exam Questions 642-889

Implementing Cisco Service Provider Next-Generation Edge Network Services (SPEDGE)

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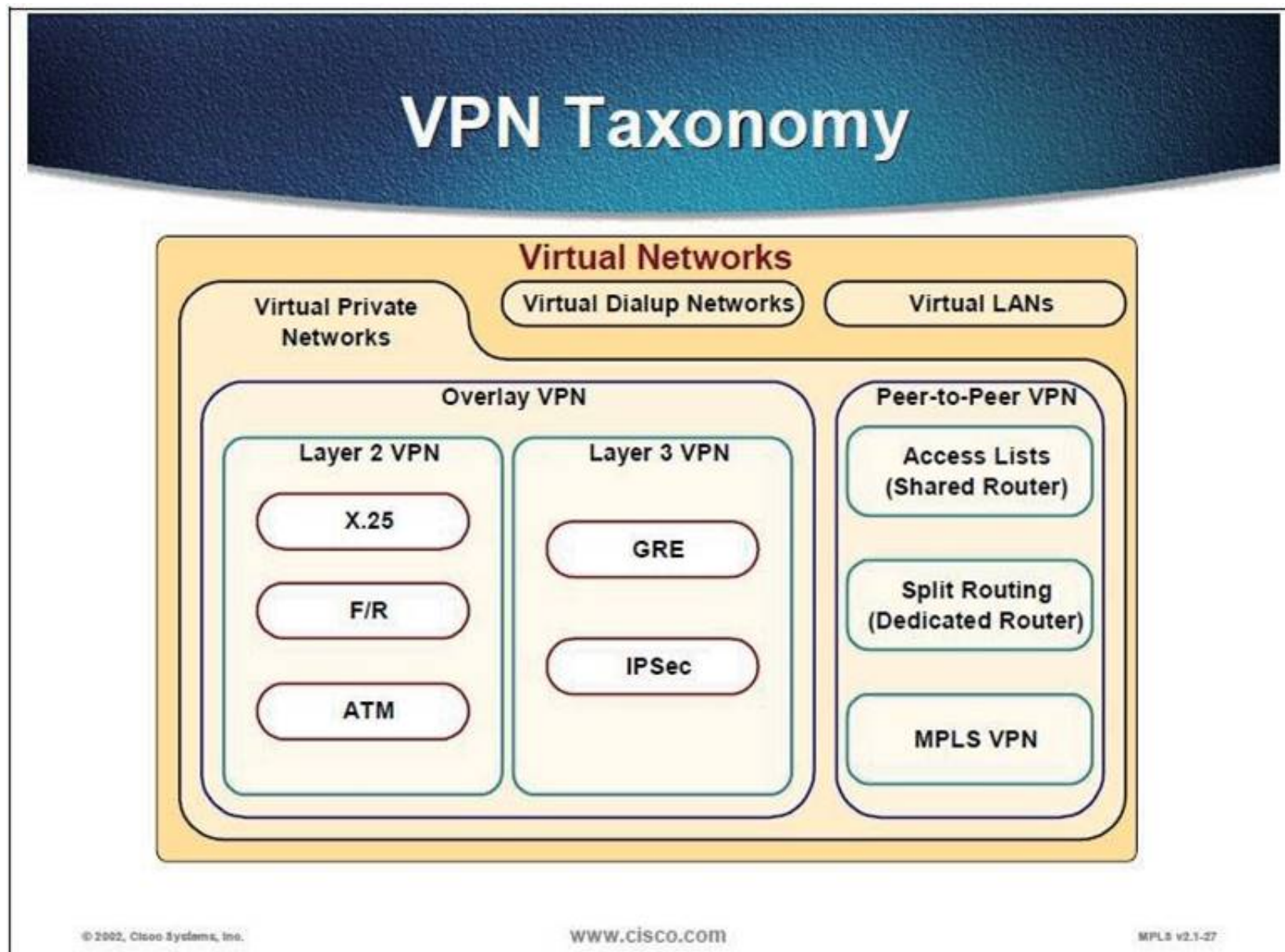
NEW QUESTION 1

Which type of VPN requires a full mesh of virtual circuits to provide optimal site-to-site connectivity?

- A. MPLS Layer 3 VPNs
- B. Layer 2 overlay VPNs
- C. GET VPNs
- D. peer-to-peer VPNs

Answer: B

Explanation:



<http://etutorials.org/Networking/MPLS+VPN+Architectures/Part+2+MPLSbased+Virtual+Private+Networks/Chapter+7.+Virtual+Private+Network+VPN+Implementa+tion+Options/Overlay+and+Peer-to-peer+VPN+Model/>

Two VPN implementation models have gained widespread use:

The overlay model, where the service provider provides emulated leased lines to the customer.

The service provider provides the customer with a set of emulated leased lines. These leased lines are called VCs, which can be either constantly available {PVCs} or established on demand {SVCs}. The QoS guarantees in the overlay VPN model usually are expressed in terms of bandwidth guaranteed on a certain VC {Committed Information Rate or CIR} and maximum bandwidth available on a certain VC {Peak Information Rate or PIR}. The committed bandwidth guarantee usually is provided through the statistical nature of the Layer 2 service but depends on the overbooking strategy of the service provider. The peer-to-peer model, where the service provider and the customer exchange Layer 3 routing information and the provider relays the data between the customer sites on the optimum path between the sites and without the customer's involvement. The peer-to-peer VPN model was introduced a few years ago to alleviate the drawbacks of the overlay VPN model. In the peer-to-peer model, the Provider Edge {PE} device is a router {PE-router} that directly exchanges routing information with the CPE router. The Managed Network service offered by many service providers, where the service provider also manages the CPE devices, is not relevant to this discussion because it's only a repackaging of another service. The Managed Network provider concurrently assumes the role of the VPN service provider {providing the VPN infrastructure} and part of the VPN customer role {managing the CPE device}. The peer-to-peer model provides a number of advantages over the traditional overlay model:

Routing {from the customer's perspective} becomes exceedingly simple, as the customer router exchanges routing information with only one {or a few} PE-router, whereas in the overlay VPN network, the number of neighbor routers can grow to a large number.

Routing between the customer sites is always optimal, as the provider routers know the customer's network topology and can thus establish optimum inter-site routing.

Bandwidth provisioning is simpler because the customer has to specify only the inbound and outbound bandwidths for each site {Committed Access Rate [CAR] and Committed Delivery Rate [CDR]} and not the exact site-to-site traffic profile.

The addition of a new site is simpler because the service provider provisions only an additional site and changes the configuration on the attached PE-router.

Under the overlay VPN model, the service provider must provision a whole set of VCs leading from that site to other sites of the customer VPN.

Prior to an MPLS-based VPN implementation, two implementation options existed for the peer-to-peer VPN model: The shared-router approach, where several VPN customers share the same PE-router.

The dedicated-router approach, where each VPN customer has dedicated PE-routers.

Overlay VPN paradigm has a number of drawbacks, most significant of them being the need for the customer to establish point-to-point links or virtual circuits between sites. The formula to calculate how many point-to-point links or virtual circuits you need in the worst case is $\frac{n(n-1)}{2}$, where n is the number of sites you need to connect. For example, if you need to have full-mesh connectivity between 4 sites, you will need a total of 6 point-to-point links or virtual circuits. To overcome this drawback and provide the customer with optimum data transport across the Service Provider backbone, the peer-to-peer VPN concept was introduced where the Service Provider actively participates in the customer routing, accepting customer routes, transporting them across the Service Provider backbone and finally propagating them to other customer sites.

NEW QUESTION 2

Which three Layer 3 VPN technologies are based on the overlay model? {Choose three.}

- A. ATM virtual circuits
- B. Frame Relay virtual circuits
- C. GRE/IPsec
- D. L2TPv3
- E. MPLS Layer 3 VPNs
- F. DMVPNs

Answer: CDF

Explanation: The overlay model, where the service provider provides emulated leased lines to the customer.

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The dedicated-router approach, where each VPN customer has dedicated PE-routers.

NEW QUESTION 3

Which flavor of MPLS Layer 3 VPN has MPLS enabled on PE-CE links?

- A. basic
- B. CSC
- C. inter-AS
- D. AToM
- E. VPLS

Answer: B

Explanation: http://www.cisco.com/en/US/docs/ios/12_0st/12_0st14/feature/guide/csc.html

CE router: A customer edge router is part of a customer network and interfaces to a provider edge (PE) router. In this document, the CE router sits on the edge of the customer carrier network.

PE router: A provider edge router is part of a service provider's network connected to a customer edge (CE) router. In this document, the PE routers sit on the edge of the backbone carrier network.

ASBR: In this document, an autonomous system boundary router connects one autonomous system to another.

See the [Glossary](#) for the complete definitions of these terms.

In this example, only the backbone carrier uses MPLS. The customer carrier (ISP) uses only IP. As a result, the backbone carrier must carry all the Internet routes of the customer carrier, which could be as many as 100,000 routes. This poses a scalability problem for the backbone carrier. To solve the scalability problem, the backbone carrier is configured as follows:

- The backbone carrier allows only internal routes of the customer carrier (IGP routes) to be exchanged between the CE routers of the customer carrier and the PE routers of the backbone carrier.
- MPLS is enabled on the interface between the CE router of the customer carrier and the PE router of the backbone carrier.

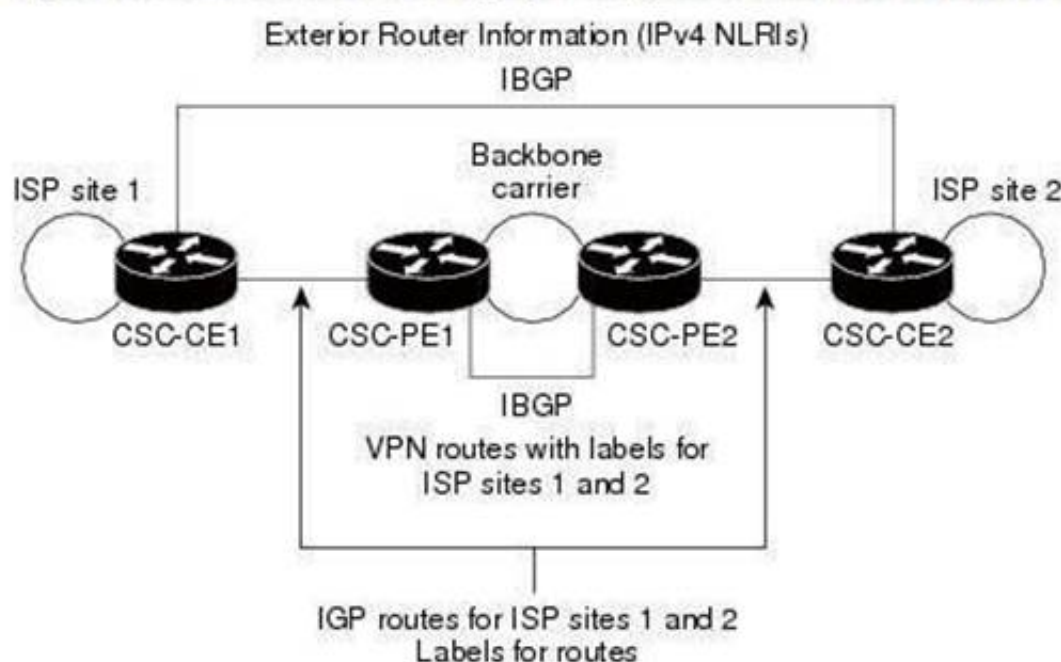
Internal and external routes are differentiated this way:

- Internal routes go to any of the routers within the ISP.
- External routes go to the Internet.

The number of internal routes is much smaller than the number of external routes. Restricting the routes between the CE routers of the customer carrier and the PE routers of the backbone carrier significantly reduces the number of routes that the PE router needs to maintain.

Since the PE routers do not have to carry external routes in the VRF routing table, they can use the incoming label in the packet to forward the customer carrier Internet traffic. Adding MPLS to the routers provides a consistent method of transporting packets from the customer carrier to the backbone carrier. MPLS allows the exchange of an MPLS label between the PE and the CE routers for every internal customer carrier route. The routers in the customer carrier have all the external routes either through IBGP or route redistribution to provide Internet connectivity. [Figure 2](#) shows how information is exchanged when the network is configured in this manner.

Figure 2 Backbone Carrier Exchanging Routing Information with a Customer Carrier Who Is an ISP



NEW QUESTION 4

Within the service provider IP/MPLS core network, what must be implemented to enable Layer 3 MPLS VPN services?

- A. IS-IS or OSPF on all the PE and P routers
- B. MP-BGP between the PE routers
- C. RSVP on all the PE and P routers
- D. targeted LDP between the PE routers
- E. LDP between the CE and PE routers

Answer: B

NEW QUESTION 5

In MPLS Layer 3 VPN implementations, which mechanism is used to control which routes are imported to a VRF?

- A. RT
- B. RD
- C. VC ID
- D. PW ID
- E. VRF ID

Answer: A

Explanation: <http://blog.initialdraft.com/archives/1537/>

NEW QUESTION 6

Which Cisco IOS XR BGP configuration command is required to enable MP-BGP to carry IPv6 VPN routes?

- A. address-family ipv4 unicast
- B. address-family ipv6 unicast
- C. address-family vpnv4 unicast
- D. address-family vpnv6 unicast

Answer: D

Explanation: http://www.cisco.com/en/US/tech/tk872/technologies_configuration_example09186a0080b3e11d.shtml

NEW QUESTION 7

Which statement regarding the Cisco IOS BGP configuration exhibit is correct?

```
router bgp 65101
no bgp default ipv4-unicast
neighbor 172.16.1.1 remote-as 65101
neighbor 172.16.2.1 remote-as 65101
neighbor 172.16.3.1 remote-as 65101
!
address-family ipv4
neighbor 172.16.1.1 activate
neighbor 172.16.3.1 activate
!
address-family vpnv4
neighbor 172.16.2.1 activate
neighbor 172.16.3.1 activate
```

- A. None of the routers will receive IPv4 BGP routes.
- B. Only the 172.16.2.1 and 172.16.3.1 neighbors will receive both VPNv4 routes and IPv4 BGP routes.
- C. Only the 172.16.3.1 neighbor will receive both VPNv4 routes and IPv4 BGP routes.
- D. All three neighbors {172.16.1.1, 172.16.2.1, and 172.16.3.1} will receive both VPNv4 routes and IPv4 BGP routes.
- E. All three neighbors {172.16.1.1, 172.16.2.1, and 172.16.3.1} will receive IPv4 BGP routes.

Answer: C

NEW QUESTION 8

When implementing MPLS Layer 3 VPNs with customers running OSPF as the CE-PE routing protocol, the service provider MPLS backbone looks like what to the CE routers?

- A. the backbone {Area 0}
- B. an external routing domain
- C. a superbackbone that is transparent to the CE OSPF routers
- D. a transit area {similar to a transit area for supporting virtual links}

Answer: C

NEW QUESTION 9

When implementing MPLS Layer 3 VPNs with customers running OSPF as the CE-PE routing protocol, which situation will require a sham link to be implemented in the MPLS backbone?

- A. to connect customer sites in different OSPF areas
- B. to connect customer sites in the same OSPF area
- C. to prevent OSPF routing loops when a customer site has redundant CE-PE connections
- D. if there is a backdoor link between the CE routers, to ensure that the backdoor link is used only to back up the primary connection through the MPLS VPN

Answer: D

Explanation: http://www.cisco.com/en/US/docs/ios/12_2t/12_2t8/feature/guide/ospfshmk.html

NEW QUESTION 10

On Cisco IOS and IOS XE Layer 3 MPLS VPN implementations, when redistributing the customer RIP routes into MP- BGP, the RIP metric is copied into which BGP attribute?

- A. local preference
- B. weight
- C. MED
- D. extended community

Answer: C

Explanation: <https://supportforums.cisco.com/thread/191993>

Use the red bgp <asn> metric transparent command to preserve the RIP metrics.

When RIP routes are redistributed into BGP, the route metric is stored in the BGP MED value. When BGP routes are redistributed into RIP, and the transparent keyword used, the MED value is copied back as the RIP metric. Without the transparent keyword, the metric value specified is applied to all the routes.

NEW QUESTION 10

Refer to the partial Cisco IOS XR PE router configuration exhibit for supporting a Layer 3 MPLS VPN customer using BGP as the CE-to-PE routing protocol.

```
router bgp 64500
address-family vpnv4 unicast
vrf Customer_A
address-family ipv4 unicast
!
neighbor 10.1.1.1
remote-as 64501
address-family ipv4 unicast
!
```

The service provider AS number is 64500, the customer AS number is 64501, and the customer CE router is 10.1.1.1. What is missing in the configuration?

- A. The route distinguisher has not been configured under router bgp 64500 vrf Customer_A.
- B. The import and export route targets have not been configured under router bgp 64500 vrf Customer_A.
- C. The 10.1.1.1 BGP neighbor has not been activated for IPv4 unicast routing.
- D. The 10.1.1.1 BGP neighbor has not been activated for the VPNv4 address family.

Answer: A

Explanation: http://www.cisco.com/en/US/docs/ios/12_2sr/12_2sra/feature/guide/srbgprid.html Route Distinguisher

A router distinguisher {RD} creates routing and forwarding tables and specifies the default route distinguisher for a VPN. The RD is added to the beginning of an IPv4 prefix to change it into a globally unique VPN-IPv4 prefix. An RD can be composed in one of two ways: with an autonomous system number and an arbitrary number or with an IP address and an arbitrary number. You can enter an RD in either of these formats:

- Enter a 16-bit autonomous system number, a colon, and a 32-bit number. For example: 45000:3
- Enter a 32-bit IP address, a colon, and a 16-bit number. For example: 192.168.10.15:1

	Command or Action	Purpose
Step 1	enable Example: Router> enable	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	configure terminal Example: Router# configure terminal	Enters global configuration mode.
Step 3	ip vrf vrf-name Example: Router(config)# ip vrf vrf_trans	Defines a VRF instance and enters VRF configuration mode.
Step 4	rd route-distinguisher Example: Router(config-vrf)# rd 45000:2	Creates routing and forwarding tables for a VRF and specifies the default RD for a VPN. • Use the <i>route-distinguisher</i> argument to specify the default RD for a VPN. There are two formats you can use to specify an RD. For more details, see the "Route Distinguisher" section . • In this example, the RD uses an autonomous system number with the number 2 after the colon.
Step 5	route-target {import both} route-target-ext-community Example: Router(config-vrf)# route-target import 55000:5	Creates a route-target extended community for a VRF. • Use the <i>import</i> keyword to import routing information from the target VPN extended community. • Use the <i>both</i> keyword to both import routing information from and export routing information to the target VPN extended community. • Use the <i>route-target-ext-community</i> argument to specify the VPN extended community.
Step 6	route-target {export both} route-target-ext-community Example: Router(config-vrf)# route-target export 55000:1	Creates a route-target extended community for a VRF. • Use the <i>export</i> keyword to export routing information to the target VPN extended community. • Use the <i>both</i> keyword to both import routing information from and export routing information to the target VPN extended community. • Use the <i>route-target-ext-community</i> argument to specify the VPN extended community.
Step 7	exit Example: Router(config-vrf)# exit	Exits VRF configuration mode and returns to global configuration mode.
Step 8	Repeat Step 3 through Step 7 for each VRF to be defined.	—

NEW QUESTION 14

Based on the Cisco IOS XR VRF configuration exhibit,

```
!
vrf CustomerA-C
description Customer A Central Site
address-family ipv4 unicast
import route-target
1:210
1:1000
export route-target
1:210
1:1000
!
vrf CustomerB-C
description Customer B Central Site
address-family ipv4 unicast
import route-target
1:220
1:1000
export route-target
1:220
1:1000
!
vrf CustomerA
description Customer A Site
address-family ipv4 unicast
import route-target
1:210
export route-target
1:210
!
vrf CustomerB
description Customer B Site
address-family ipv4 unicast
import route-target
1:220
export route-target
1:220
!
```

Which two data flows between the MPLS VPNs will be allowed? {Choose two.}

- A. The CustomerA central site can communicate with the CustomerB central site.
- B. The CustomerA central site can communicate with all CustomerA sites.
- C. The CustomerA central site can communicate with all CustomerB sites.
- D. The CustomerA sites can communicate with all CustomerB sites.

Answer: AB

NEW QUESTION 17

Refer to the partial Cisco IOS XR PE router VRF configuration exhibit.

```
vrf customer1
address-family ipv4 unicast
import route-target
1:1
2:1
export route-target
1:1
2:2
!
vrf customer2
address-family ipv4 unicast
import route-target
1:2
2:1
export route-target
1:2
2:2
!
```

To implement a central-service VPN supporting both customer1 and customer2, what will be the required corresponding VRF configuration on the central-service-server PE router?

- A. vrf central-service-server address-family ipv4 unicast import route-target 3:12:2 export route-target 3:12:1!
- B. vrf central-service-server address-family ipv4 unicast import route-target 3:12:1 export route-target 3:12:2!
- C. vrf central-service-server address-family ipv4 unicast import route-target 3:11:11:2 export route-target 3:11:11:2!
- D. vrf central-service-server address-family ipv4 unicast import route-target 3:11:11:22:12:2 export route-target 3:11:11:22:12:2!

Answer: A

NEW QUESTION 18

Which two statements about implementing a separate MPLS VPN to provide customers Internet access are correct? {Choose two.}

- A. The Internet gateway router will act as a CE router.
- B. Customers will use separate interfaces for VPN and Internet access.
- C. Customers are assigned to the Internet VPN.
- D. Internet routes will be leaked from the PE global routing table to the customer VRF.

Answer: AC

NEW QUESTION 21

In Layer 3 MPLS VPN implementations, if some of the VPNv4 routes on one PE router do not appear on another PE router, what could be the problem?

- A. RD mismatch between the PE routers
- B. RT export and import configuration errors
- C. RD export and import configuration errors
- D. VRF name mismatch between the PE routers

Answer: B

Explanation: <http://blog.initialdraft.com/archives/1537/>

NEW QUESTION 23

When verifying Layer 3 MPLS VPN operations, which Cisco IOS XR show command is best used to verify that the PE router is receiving the routes from the CE router?

- A. show route
- B. show route vrf vrf-name
- C. show bgp vpnv4 vrf vrf-name
- D. show bgp vpnv4 unicast ip-prefix

Answer: B

Explanation: http://www.cisco.com/en/US/docs/ios_xr_sw/iosxr_r3.7/routing/configuration/guide/rc37rib.html

NEW QUESTION 28

When implementing Layer 3 MPLS VPNs on Cisco IOS/IOS XE PE routers, which PE-to-CE routing protocol requires a separate routing process to be created for each VRF?

- A. EIGRP
- B. RIPv2
- C. OSPF
- D. BGP

Answer: C

NEW QUESTION 30

Which three functions are performed by the PE router in an MPLS Layer 3 VPN? {Choose three.}

- A. exchanges routing updates with the CE router
- B. translates the CE routing information into VPNv4 routes
- C. exchanges VPNv4 routes with other PE routers over MP-BGP
- D. imports and exports RTs that are received from the P routers
- E. exchanges RDs with the P routers
- F. exchanges VPN labels with the CE routers

Answer: ABC

Explanation: http://www.cisco.com/en/US/docs/routers/crs/software/crs_r4.1/lxvpn/configuration/guide/vc41v3.html How MPLS L3VPN Works
MPLS VPN functionality is enabled at the edge of an MPLS network. The PE router performs the following tasks:

- Exchanges routing updates with the CE router
- Translates the CE routing information into VPN version 4 {VPNv4} and VPN version 6 {VPNv6} routes
- Exchanges VPNv4 and VPNv6 routes with other PE routers through the Multiprotocol Border Gateway Protocol {MP- BGP}

NEW QUESTION 35

Which Layer 2 VPN technology is implemented over an IP core network without the need for MPLS?

- A. VPLS
- B. VPWS
- C. AToM
- D. L2TPv3

Answer: D

Explanation: http://www.cisco.com/en/US/docs/ios/12_3t/12_3t2/feature/guide/gtl2tpv3.html#wp1040784

The Layer 2 Tunnel Protocol Version 3 feature expands on Cisco support of the Layer 2 Tunnel Protocol Version 3 {L2TPv3}. L2TPv3 is an Internet Engineering Task Force {IETF} I2tpext working group draft that provides several enhancements to L2TP for the capability to tunnel any Layer 2 payload over L2TP.

Specifically, L2TPv3 defines the L2TP protocol for tunneling Layer 2 payloads over an IP core network using Layer 2 virtual private networks {VPNs}. Benefits of this feature include the following:

- L2TPv3 simplifies deployment of VPNs
- L2TPv3 does not require Multiprotocol Label Switching
- L2TPv3 supports Layer 2 tunneling over IP for any payload

NEW QUESTION 37

What are the two AToM interworking modes? {Choose two.}

- A. bridged {interworking ethernet}
- B. routed {interworking ip}
- C. label-switched {interworking mpls}
- D. transparent {interworking transparent}

Answer: AB

Explanation: http://www.cisco.com/en/US/docs/ios/ios_xe/mppls/configuration/guide/mp_l2vpn_intrntwkg_xe.html

Interworking is a transforming function that is required to interconnect two heterogeneous attachment circuits {ACs}. Several types of interworking functions exist. The function that is used would depend on the type of ACs being used, the type of data being carried, and the level of functionality required. The two main Layer 2 Virtual Private Network {L2VPN} interworking functions supported in Cisco IOS XE software are bridged and routed interworking.

Layer 2 {L2} transport over multiprotocol label switching {MPLS} and IP already exists for like-to-like ACs, such as Ethernet-to-Ethernet or Point-to-Point Protocol {PPP}-to-PPP. L2VPN Interworking builds on this functionality by allowing disparate ACs to be connected. An interworking function facilitates the translation between different L2 encapsulations.

NEW QUESTION 40

When implementing EoMPLS on Cisco IOS XR routers, which command under the l2vpn configuration mode is used to define the pseudowire?

- A. pbb
- B. xconnect
- C. connect
- D. bridge
- E. bridge-domain

Answer: B

Explanation: http://www.cisco.com/en/US/docs/wireless/asr_901/Configuration/Guide/eompls.html

Router(config-if-srv)# xconnect 11.205.1.1 141 encapsulation mpls	Binds the VLAN attachment circuit to an Any Transport over MPLS (AToM) pseudowire for EoMPLS.
xconnect peer-router-id vcid encapsulation mpls Example: Router(config)# xconnect 10.0.0.1 123 encapsulation mpls	Binds the attachment circuit to a pseudowire VC. The syntax for this command is the same as for all other Layer 2 transports.

NEW QUESTION 44

When configuring an EoMPLS PW on a Cisco IOS XR router, what are the two supported transport modes? {Choose two.}

- A. ethernet {Ethernet port mode}
- B. ip {routed mode}
- C. vlan {VLAN-tagged mode}
- D. transparent {bridged mode}

Answer: AC

Explanation: http://www.cisco.com/en/US/docs/ios_xr_sw/iosxr_r3.8/mppls/configuration/guide/gc38v2.html#wp1072883

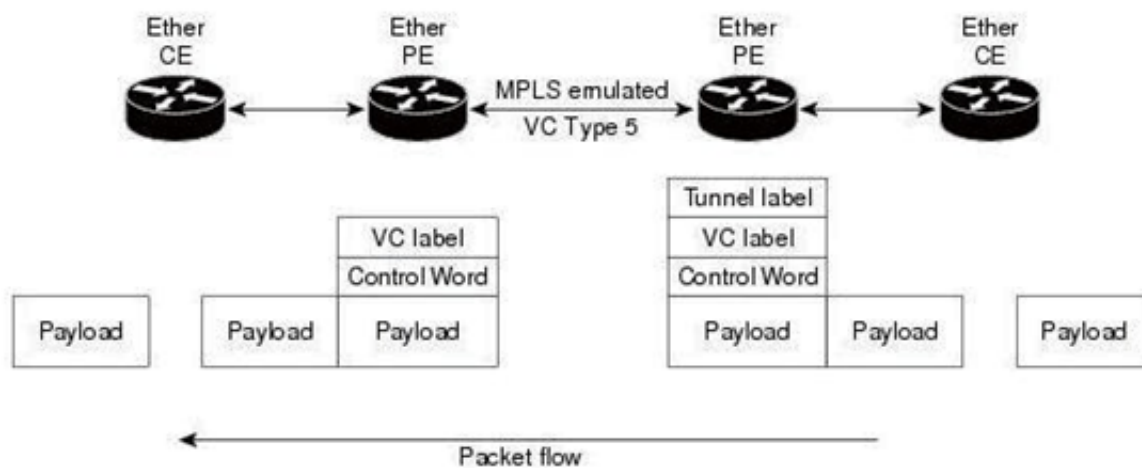
- Ethernet Port Mode
- Ethernet Remote Port Shutdown
- VLAN Mode
- Inter-AS Mode
- QinQ Mode
- QinAny Mode
- Mac-in-Mac Protocol {Provide Backbone Bridging}

Ethernet Port Mode

In Ethernet port mode, both ends of a pseudowire are connected to Ethernet ports. In this mode, the port is tunneled over the pseudowire or, using local switching (also known as an *attachment circuit-to-attachment circuit cross-connect*) switches packets or frames from one attachment circuit (AC) to another AC attached to the same PE node.

Figure 15 provides an example of Ethernet port mode.

Figure 15 Ethernet Port Mode Packet Flow

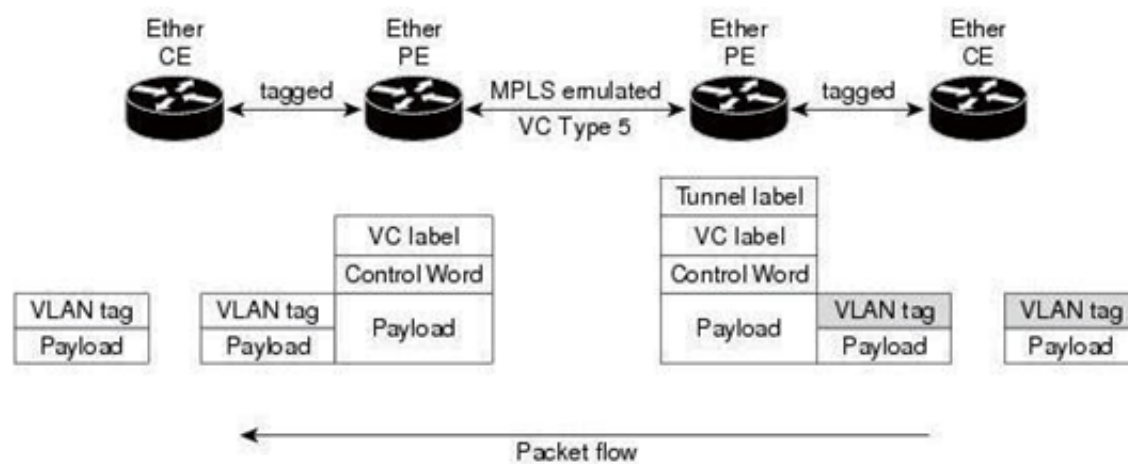


VLAN Mode

In VLAN mode, each VLAN on a customer-end to provider-end link can be configured as a separate L2VPN connection using virtual connection (VC) type 4 or VC type 5. VC type 4 is the default mode.

As illustrated in Figure 17, the Ethernet PE associates an internal VLAN-tag to the Ethernet port for switching the traffic internally from the ingress port to the pseudowire; however, before moving traffic into the pseudowire, it removes the internal VLAN tag.

Figure 17 VLAN Mode Packet Flow



At the egress VLAN PE, the PE associates a VLAN tag to the frames coming off of the pseudowire and after switching the traffic internally, it sends out the traffic on an Ethernet trunk port.

NEW QUESTION 47

Which method is used to provide inter-AS AToM services?

- A. back-to-back VRF
- B. targeted LDP
- C. pseudowire stitching
- D. AToM interworking
- E. Cisco MPLS TE tunnels
- F. autodiscovery

Answer: C

Explanation: http://www.cisco.com/en/US/docs/optical/cpt/r9_3/configuration/guide/cpt93_configuration_chapter_0111.html

Understanding L2VPN Pseudowire Stitching

L2VPN Pseudowire Stitching defines a static or dynamically configured set of two or more pseudowire segments that behave and function as a single point-to-point pseudowire. L2VPN Pseudowire Stitching enables L2VPN pseudowires to extend across two separate MPLS networks or across an inter-AS boundary, as shown in [Figure 1](#) and [Figure 2](#).

L2VPN Pseudowire Stitching connects two or more contiguous pseudowire segments to form an end-to-end multihop pseudowire. This end-to-end pseudowire functions as a single point-to-point pseudowire.

As shown in [Figure 2](#), L2VPN Pseudowire Stitching enables you to keep the IP addresses of the edge PE routers private across inter-AS boundaries. You can use the IP address of the Autonomous System Boundary Routers (ASBRs) and treat them as pseudowire aggregation (PE-agg) routers. The ASBRs join the pseudowires of the two domains.

Figure 7. L2VPN Pseudowire Stitching in an Intra-AS Topology

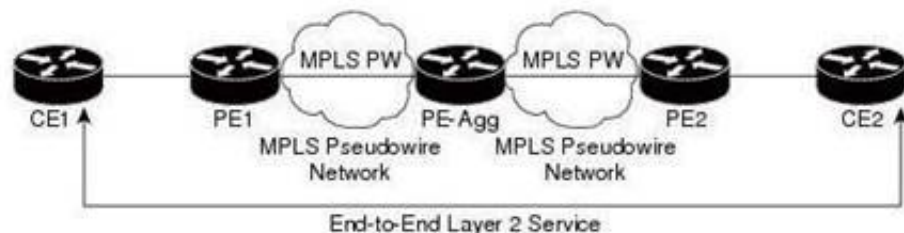
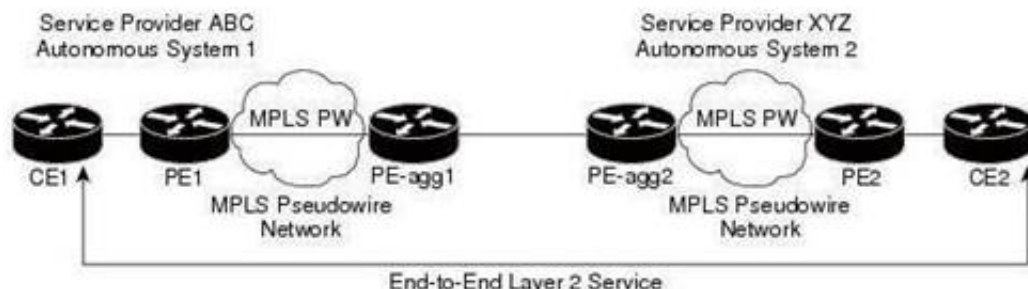


Figure 8. L2VPN Pseudowire Stitching in an Inter-AS Topology



Restrictions for L2VPN Pseudowire Stitching

- L2VPN Pseudowire Stitching is supported with AToM.
- Only static, on-box provisioning is supported.
- Sequencing numbers in AToM packets are not processed by L2VPN Pseudowire Stitching. The feature passes the sequencing data through the cross-connect packet paths, a process that is called transparent sequencing. The end point PE to CE connections enforce the sequencing.
- You can ping the adjacent next-hop PE router. End-to-end LSP pings are not supported.
- Do not configure IP or Ethernet interworking on a router where L2VPN Pseudowire Stitching is enabled. Instead, configure interworking on the routers at the edge PEs of the network.
- The control word negotiation results must match. If either segment does not negotiate the control word, the control word is disabled for both segments.
- AToM Graceful Restart is negotiated independently on each pseudowire segment. If there is a transient loss of the LDP session between two AToM PE routers, packets continue to flow.
- Per-pseudowire QoS is not supported. The TE tunnel selection is supported.
- Attachment circuit interworking is not supported.
- [NTP-J34 Configure the Pseudowire Stitching Using Cisco IOS Commands](#)

NTP-J34 Configure the Pseudowire Stitching Using Cisco IOS Commands

Purpose	This procedure configures L2VPN Pseudowire Stitching on each of the PE routers.
Tools/Equipment	None
Prerequisite Procedures	None
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	Provisioning or higher

NEW QUESTION 51

Which Layer 2 protocol parameters can be carried inside the control word when implementing AToM service?

- PW ID
- Frame Relay FECN, BECN, and DE bits
- encapsulation type
- VC type

Answer: B

Explanation: http://www.cisco.com/en/US/products/ps6603/products_qanda_item09186a008009d4e3.shtml#wp39173

Q. How does Frame Relay over MPLS work?

A. Traffic is encapsulated in MPLS packets and forwarded across the MPLS network. When encapsulating Frame Relay over MPLS, the Frame Relay header and the frame check sequence {FCS} are stripped from the packet. The bits for Backward Explicit Congestion Notification {BECN}, Forward Explicit Congestion Notification {FECN}, Discard Eligibility {DE} and Command/Response {C/R} are carried across the MPLS network in the "Control Word" header.

NEW QUESTION 53

When implementing VPLS on Cisco routers, which data structure resembles a virtual switch and is used for learning the MAC addresses?

- VRF
- VFI
- SVI
- BVI

Answer: B

Explanation: Restrictions for Implementing Virtual Private LAN Services on Cisco IOS XR Software

The following restrictions are listed for implementing VPLS:

- All attachment circuits in a bridge domain on an Engine 3 line card must be the same type (for example, port, dot1q, qinq, or qinany), value (VLAN ID), and EtherType (for example, 0x8100, 0x9100, or 0x9200). The Cisco CRS-1 router supports multiple types of attachment circuits in a bridge domain.
- The Engine 3 line cards, cannot simultaneously have attachment circuits and MPLS-enabled on any one of its interfaces. The line card cannot be Edge-facing and Core-facing at the same time. Line cards on the Cisco CRS-1 router can be Edge-facing and Core-facing at the same time.
- The line card requires ternary content addressable memory (TCAM) Carving configuration. The Cisco CRS-1 router however, does not require the TCAM Carving configuration.
- Virtual Forwarding Instance (VFI) names have to be unique, because a bridge domain can have only one VFI.
- On the Cisco CRS-1 router, a VPLS pseudowire (PW) can be configured only under VFI.
- The Cisco CRS-1 router does not support VPLS with TE core tunnels.
- A PW cannot belong to both a peer-to-peer (P2P) cross-connect group and a VPLS bridge-domain. This means that the neighboring IP address and the pseudowire ID have to be unique on the router, because the pseudowire ID is signaled to the remote provider edge.
- You cannot manually set up a PW on one PE and use auto-discovery on the other PE to configure the same PW in the other direction. The auto-discovery feature is supported only on the Cisco XR 12000 Series Router.

NEW QUESTION 57

Which two methods can be used for VPLS PW signaling? (Choose two.)

- A. static
- B. BGP
- C. IGP
- D. LDP
- E. RSVP

Answer: BD

Explanation: VPLS Discovery and Signaling

VPLS is a Layer 2 multipoint service and it emulates a LAN service across a WAN. VPLS enables service providers to interconnect several LAN segments over a packet-switched network and make them behave as a single LAN. Service providers can provide a native Ethernet access connection to customers using VPLS.

The VPLS control plane consists of two important components, autodiscovery and signaling:

- VPLS Autodiscovery eliminates the need to manually provision VPLS neighbors. VPLS Autodiscovery enables each VPLS PE router to discover other provider edge (PE) routers that are part of the same VPLS domain.
- Once the PEs are discovered, pseudowires (PWs) are signaled and established across pairs of PE routers, forming a full mesh of PWs across PE routers in a VPLS domain.

Figure 10 VPLS Autodiscovery and Signaling

L2-VPN	Multipoint	
Discovery	BGP	
Signaling Protocol	LDP	BGP
Tunneling Protocol	MPLS	

BGP-based VPLS Autodiscovery

An important aspect of VPN technologies, including VPLS, is the ability of network devices to automatically signal information to other devices, about any association with a particular VPN. Autodiscovery requires this information to be distributed to all members of a VPN. VPLS is a multipoint mechanism for which BGP is well-suited.

BGP-based VPLS autodiscovery eliminates the need to manually provision VPLS neighbors. VPLS autodiscovery enables each VPLS PE router to discover other provider edge (PE) routers that are part of the same VPLS domain. VPLS Autodiscovery also tracks occurrences when PE routers are added to, or removed from, the VPLS domain. When the discovery process is complete, each PE router has the information required to setup VPLS pseudowires (PWs).

BGP Auto Discovery With BGP Signaling

The implementation of VPLS in a network requires the establishment of a full mesh of PWs between the provider edge (PE) routers. The PWs can be signaled using BGP signaling.

NEW QUESTION 62

VPWS/EoMPLS offers which type of Ethernet services as defined by the MEF?

- A. E-Tree
- B. E-LAN
- C. E-Line
- D. E-Interworking

Answer: C

Explanation:

- E-Line is based on a point-to-point Ethernet Virtual Connection. Two E-Line services are defined:
 - Ethernet Private Line {EPL}: A very simple and basic point-to-point service characterized by low frame delay, frame delay variation, and frame loss ratio. No

service multiplexing is allowed, and other than a committed information rate {CIR} no class of service {CoS} {Bandwidth Profiling} is allowed.

- Ethernet Virtual Private Line {EVPL}: A point-to-point service wherein service multiplexing {more than one Ethernet Virtual Connection} is allowed. The individual Ethernet Virtual Circuits can be defined with a rich set of Bandwidth Profiles and Layer 2 Control Protocol Processing methods as defined by the Metro Ethernet Forum.

NEW QUESTION 63

When using the Cisco EVC software infrastructure, a double-tagged frame with a customer VLAN of 10 and a service provider VLAN of 150 will be best matched by which encapsulation configuration?

- A. encapsulation dot1q 10 second-dot1q any
- B. encapsulation dot1q 10 second-dot1q 150
- C. encapsulation dot1q 10 second-dot1q 50-200
- D. encapsulation dot1q 10
- E. encapsulation dot1q 150

Answer: E

NEW QUESTION 66

When implementing H-VPLS with QinQ access on Cisco Metro Ethernet switches, which two commands enable the QinQ tagging? {Choose two.}

- A. encapsulation dot1q {customer-vlan} second-tag {sp-vlan}
- B. encapsulation dot1q {sp-vlan} second-tag {customer-vlan}
- C. switchport mode dot1q-tunnel
- D. switchport mode trunk
- E. switchport access vlan {sp-vlan}
- F. switchport access vlan {customer-vlan}

Answer: CE

NEW QUESTION 68

Implementing H-VPLS instead of VPLS reduces which requirement?

- A. having a full mesh of PWs between all the PE routers in the service provider MPLS core
- B. having a full mesh of PWs between all the UPE routers
- C. having to implement QinQ tagging between the UPE and the NPE
- D. having to implement MPLS LDP between the UPE and the NPE
- E. the overhead of using BGP or LDP autodiscovery

Answer: A

Explanation: Hierarchical VPLS Overview

Hierarchical VPLS (H-VPLS) provides scaling by only interconnecting the core MPLS NPE routers with a full mesh of PWs. The many UPE VPLS devices are then connected hierarchically by PWs to the NPE devices, not to each other. When there is redundancy, as shown in Figure 4-12, the software in the UPE blocks the PWs to all but the highest NPE IP address. H-VPLS partitions the network into several edge domains that are interconnected using an MPLS core.

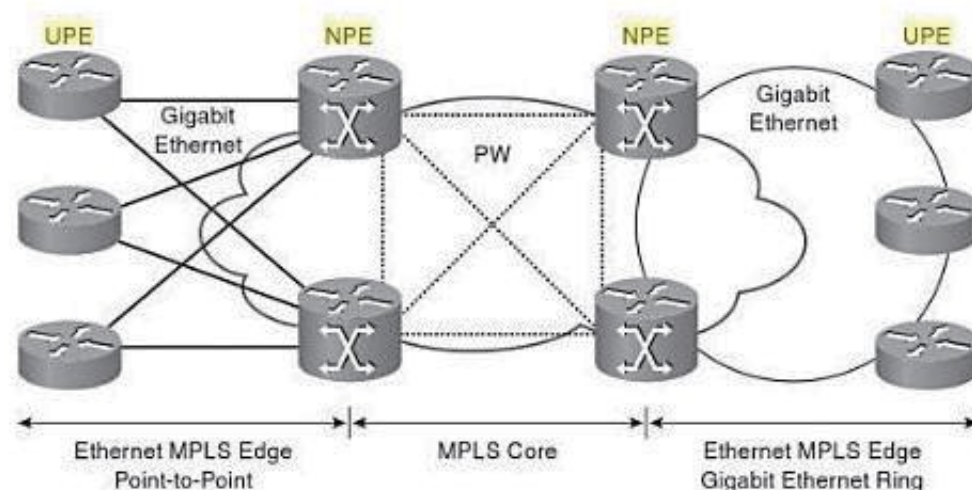


Figure 4-12 Hierarchical VPLS Overview

One advantage of the H-VPLS approach for the service provider is that the core of the network is an MPLS network, which may also be used for the transport of Layer 3 MPLS VPNs and other traffic. The MPLS core also serves to limit any edge spanning-tree domains, speeding up STP convergence and reducing any potential instability.

The physical topology of Ethernet edge H-VPLS (EE H-VPLS) can comprise point-to-point Ethernet connections, or Ethernet rings using an STP to provide redundancy and loop avoidance. Other edge architectures use an aggregation layer between the UPE and NPE, or use Ethernet over SONET/SDH (EoS), or RPR as a transport between the UPE and NPE.

NEW QUESTION 69

When implementing VPLS on Cisco IOS XR routers, the customer-facing subinterfaces on the PE routers are assigned to which Cisco EVC component?

- A. bridge group
- B. bridge domain
- C. VFI
- D. Layer 2 transport
- E. BVI

Answer: B

Explanation:

l2vpn Example: RP/0/RSP0/CPU0:router (config-subif)#l2vpn	Enters L2VPN configuration mode.
bridge group bridge-group-name Example: RP/0/RSP0/CPU0:router (config-l2vpn)#bridge group ce-doc-examples	Enters configuration mode for the named bridge group. This command creates a new bridge group or modifies the existing bridge group if it already exists. A bridge group organizes bridge domains.
bridge-domain domain-name Example: RP/0/RSP0/CPU0:router (config-l2vpn-bg)#bridge-domain ac-example	Enters configuration mode for the named bridge domain. This creates a new bridge domain modifies the existing bridge domain if it already exists.
interface [GigabitEthernet TenGigE] instance.subinterface Example: RP/0/RSP0/CPU0:router (config-l2vpn-bg-bd)#interface GigabitEthernet0/5/0/0.20	Assigns the matching VLAN Id and Ethertype to the interface.
interface [GigabitEthernet TenGigE] instance.subinterface Example: RP/0/RSP0/CPU0:router (config-l2vpn-bg-bd-ac)#interface GigabitEthernet0/5/0/1.15	Adds an interface to a bridge domain that allows packets to be forwarded and received from other interfaces that are part of the same bridge domain. The interface now becomes an attachment circuit on this bridge domain.
end or commit Example: RP/0/RSP0/CPU0:router (config-l2vpn-bg-bd-ac)# end or RP/0/RSP0/CPU0:router (config-l2vpn-bg-bd-ac)# commit	Saves configuration changes. <ul style="list-style-type: none"> When you issue the end command, the system prompts you to commit changes: Uncommitted changes found, commit them before exiting(yes/no/cancel)? [cancel]: Entering yes saves configuration changes to the running configuration file, exits the configuration session, and returns the router to EXEC mode. Entering no exits the configuration session and returns the router to EXEC mode without committing the configuration changes. Entering cancel leaves the router in the current configuration session without exiting or committing the configuration changes.

NEW QUESTION 73

What is an advantage of using the Cisco EVC infrastructure to implement carrier-class Ethernet services that are not available on non-EVC-capable platforms?

- A. PW redundancy
- B. interworking support
- C. PW stitching support
- D. flexible frame-matching support and VLAN tag manipulation
- E. local cross-connect support

Answer: D

Explanation: http://www.cisco.com/web/YU/events/expo_08/pdfs/Carrier_Ethernet_Marek_Moskal.pdf

EVC : Flexible Frame Matching

EVC stands for Ethernet Virtual Connection and in Cisco's platforms it's used to represent Cisco's software architecture to address Carrier Ethernet Services. In MEF (Metro Ethernet Forum) terminology EVC means "Ethernet Virtual Connection/Circuit", but here EVC represents also the whole Carrier Ethernet software infrastructure developed by Cisco.

EVC has many advantages (which i will try to describe in future posts), one of them being the Flexible Frame Matching. Flexible Frame Matching is a functionality that allows each service instance to match frames with either a unique single vlan, or a list/range of vlans. It can also match single/double tagged frames, untagged frames, or everything else that belongs to the default category.

NEW QUESTION 77

When implementing a Layer 2 transport subinterface on a Cisco IOS XR router, which encapsulation option is used to match any packets that are not matched by any other service instances?

- A. default
- B. untagged
- C. any
- D. tag

Answer: A

Explanation:

Command	Description
encapsulation dot1q	Defines the matching criteria to map 802.1Q frames ingress on an interface to the appropriate service instance.
encapsulation dot1ad dot1q	Defines the matching criteria to be used in order to map single-tagged 802.1ad frames ingress on an interface to the appropriate service instance.
encapsulation dot1q second-dot1q	Defines the matching criteria to map Q-in-Q ingress frames on an interface to the appropriate service instance.
encapsulation untagged	Defines the matching criteria to map untagged ingress Ethernet frames on an interface to the appropriate service instance.

encapsulation default

To configure the default service instance on a port, use the **encapsulation default** command in the interface configuration mode. To delete the default service instance on a port, use the **no** form of this command.

encapsulation default

no encapsulation default

Syntax Description

This command has no keywords or arguments.

Command Default

No default service instance is configured on the port.

Command Modes

Interface configuration

Command History

Release	Modification
Release 3.7.2	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

If the default service instance is the only one configured on a port, the **encapsulation default** command **matches** all ingress frames on that port. If the default service instance is configured on a port that has other non-default service instances, the **encapsulation default** command **matches** frames that are **unmatched** by those non-default service instances (anything that does not meet the criteria of other services instances on the same physical interface falls into this service instance).

Only a single default service instance can be configured per interface. If you attempt to configure more than one default service instance per interface, the **encapsulation default** command is rejected.

Only one encapsulation command must be configured per service instance.

NEW QUESTION 82

When configuring VPLS on the Cisco ASR 9000, which three configurations are required under the l2vpn configuration mode? {Choose three.}

- A. bridge-group
- B. bridge-domain
- C. xconnect
- D. vfi
- E. encapsulation

Answer: ABD

Explanation: l2vpn Example: RP/0/RSP0/CPU0:router (config-subif)#l2vpn	Enters L2VPN configuration mode.
bridge group bridge-group-name Example: RP/0/RSP0/CPU0:router (config-l2vpn)#bridge group ce-doc-examples	Enters configuration mode for the named bridge group. This command creates a new bridge group or modifies the existing bridge group if it already exists. A bridge group organizes bridge domains .
bridge-domain domain-name Example: RP/0/RSP0/CPU0:router (config-l2vpn-bd)#bridge-domain ac-example	Enters configuration mode for the named bridge domain . This creates a new bridge domain modifies the existing bridge domain if it already exists.
interface [GigabitEthernet TenGigE] instance.subinterface Example: RP/0/RSP0/CPU0:router (config-l2vpn-bd-ac)#inter face GigabitEthernet0/5/0/0.20	Assigns the matching VLAN Id and Ethertype to the interface.
interface [GigabitEthernet TenGigE] instance.subinterface Example: RP/0/RSP0/CPU0:router (config-l2vpn-bd-ac)#in terface GigabitEthernet0/5/0/1.15	Adds an interface to a bridge domain that allows packets to be forwarded and received from other interfaces that are part of the same bridge domain . The interface now becomes an attachment circuit on this bridge domain .
end Or commit Example: RP/0/RSP0/CPU0:router (config-l2vpn-bd-ac)# end Or RP/0/RSP0/CPU0:router (config-l2vpn-bd-ac)# commit	Saves configuration changes. <ul style="list-style-type: none"> When you issue the end command, the system prompts you to commit changes: Uncommitted changes found, commit them before exiting(yes/no/cancel)? [cancel]: <ul style="list-style-type: none"> Entering yes saves configuration changes to the running configuration file, exits the configuration session, and returns the router to EXEC mode. Entering no exits the configuration session and returns the router to EXEC mode without committing the configuration changes. Entering cancel leaves the router in the current configuration session without exiting or committing the configuration changes.

Restrictions for Implementing Virtual Private LAN Services on Cisco IOS XR Software

The following restrictions are listed for implementing VPLS:

- All attachment circuits in a bridge domain on an Engine 3 line card must be the same type (for example, port, dot1q, qinq, or qinany), value (VLAN ID), and EtherType (for example, 0x8100, 0x9100, or 0x9200). The Cisco CRS-1 router supports multiple types of attachment circuits in a bridge domain.
- The Engine 3 line cards, cannot simultaneously have attachment circuits and MPLS-enabled on any one of its interfaces. The line card cannot be Edge-facing and Core-facing at the same time. Line cards on the Cisco CRS-1 router can be Edge-facing and Core-facing at the same time.
- The line card requires ternary content addressable memory (TCAM) Carving configuration. The Cisco CRS-1 router however, does not require the TCAM Carving configuration.
- Virtual Forwarding Instance (**VFI**) names have to be unique, because a bridge domain can have only one **VFI**.
- On the Cisco CRS-1 router, a VPLS pseudowire (PW) can be configured only under **VFI**.
- The Cisco CRS-1 router does not support VPLS with TE core tunnels.
- A PW cannot belong to both a peer-to-peer (P2P) cross-connect group and a VPLS bridge-domain. This means that the neighboring IP address and the pseudowire ID have to be unique on the router, because the pseudowire ID is signaled to the remote provider edge.
- You cannot manually set up a PW on one PE and use auto-discovery on the other PE to configure the same PW in the other direction. The auto-discovery feature is supported only on the Cisco XR 12000 Series Router.

NEW QUESTION 85

Which option is the correct command to define an interface as Layer 2 on the Cisco ASR 9000?

- A. RP/0/RSP0/CPU0:R1(config)#int gigabitEthernet 0/6/0/0 l2transport
- B. RP/0/RSP0/CPU0:R1(config)#int gigabitEthernet 0/6/0/0 layer2
- C. RP/0/RSP0/CPU0:R1(config)#int gigabitEthernet 0/6/0/0 switchport
- D. RP/0/RSP0/CPU0:R1(config)#int gigabitEthernet 0/6/0/0 xconnect

Answer: A

Explanation:

Configuring Layer 2 Protocol Tunneling: Example

This section includes configuration examples for L2PT in the forward and reverse modes.

Configuring L2PT in forward mode

The following example shows how to configure L2PT in the forward mode:

At the customer facing router (encapsulation end):

```
!
interface GigabitEthernet0/1/0/1
 negotiation auto
!
interface GigabitEthernet0/1/0/1.1 l2transport
 encapsulation default
 l2protocol cpsv tunnel
!
interface GigabitEthernet0/1/0/2
 negotiation auto
!
interface GigabitEthernet0/1/0/2.1 l2transport
 encapsulation default
!
l2vpn
 xconnect group examples
  p2p rl-connect
   interface GigabitEthernet0/1/0/1.1
   interface GigabitEthernet0/1/0/2.1
!
!
```

NEW QUESTION 89

When implementing MPLS Layer 3 VPN services, which CE-PE routing method does not require the use of the redistribute command to enable the customer routes to be advertised through the MPLS cloud between the customer sites?

- A. EIGRP
- B. OSPF
- C. IS-IS
- D. BGP
- E. static routing
- F. OSPF or IS-IS

Answer: D

NEW QUESTION 90

In MPLS Layer 3 VPN implementations, what is used at the PEs to transform the customer IPv4 prefixes into a unique 96-bit prefix?

- A. RT
- B. RD
- C. VC ID
- D. PW ID
- E. AS number

Answer: B

NEW QUESTION 95

With Layer 3 MPLS VPN implementations on Cisco IOS XR PE routers, an interface is assigned to a VRF using the vrf command in which configuration mode?

- A. RP/0/RP0/CPU0:PE{config-vrf}#
- B. RP/0/RP0/CPU0:PE{config-if}#
- C. RP/0/RP0/CPU0:PE{config-bgp}#
- D. RP/0/RP0/CPU0:PE{config-bgp-af}#

Answer: B

Explanation:

	Command or Action	Purpose
Step 1	<code>configure</code> Example: RP/0/RP0/CPU0:router# configure	Enters global configuration mode.
Step 2	<code>interface type instance</code> Example: RP/0/RP0/CPU0:router (config)# interface pos 0/3/0/0	Enters interface configuration mode.
Step 3	<code>vrf vrf-name</code> Example: RP/0/RP0/CPU0:router (config-if)# vrf vrf_A	Configures a VRF instance and enters VRF configuration mode.
Step 4	<code>ipv4 address ipv4-address mask</code> Example: RP/0/RP0/CPU0:router (config-if)# ipv4 address 192.168.1.27 255.255.255.0	Configures a primary IPv4 address for the specified interface.
Step 5	<code>end</code> or <code>commit</code> Example: RP/0/RP0/CPU0:router (config-if)# end or RP/0/RP0/CPU0:router (config-if)# commit	Saves configuration changes. <ul style="list-style-type: none"> When you issue the end command, the system prompts you to commit changes: Uncommitted changes found, commit them before exiting (yes/no/cancel)? [cancel]: <ul style="list-style-type: none"> Entering yes saves configuration changes to the running configuration file, exits the configuration session, and returns the router to EXEC mode. Entering no exits the configuration session and returns the router to EXEC mode without committing the configuration changes. Entering cancel leaves the router in the current configuration session without exiting or committing the configuration changes. Use the commit command to save the configuration changes to the running configuration file and remain within the configuration session.

NEW QUESTION 97

In which Cisco IOS XR configuration mode is the redistribute static command applied to enable the redistribution of static VRF routes between the PE routers?

- A. RP/0/RP0/CPU0:PE{config-router}#
- B. RP/0/RP0/CPU0:PE{config-bgp}#
- C. RP/0/RP0/CPU0:PE{config-bgp-vrf}#
- D. RP/0/RP0/CPU0:PE{config-bgp-vrf-af}#

Answer: D

Explanation: http://www.cisco.com/en/US/docs/routers/asr9000/software/routing/configuration/guide/rcasr9kstat.html#wp1041_359

	Command or Action	Purpose
Step 1	<code>configure</code> Example: RP/0/RSP0/CPU0:router# configure	Enters global configuration mode.
Step 2	<code>router static</code> Example: RP/0/RSP0/CPU0:router(config)# router static	Enters static route configuration mode.
Step 3	<code>vrf vrf-name</code> Example: RP/0/RSP0/CPU0:router(config-static)# vrf vrf_A	(Optional) Enters VRF configuration mode. If a VRF is not specified, the static route is configured under the default VRF.
Step 4	<code>address-family {ipv4 ipv6} {unicast multicast}</code> Example: RP/0/RSP0/CPU0:router(config-static-vrf)# address family ipv6 unicast	Enters address family mode.
Step 5	<code>prefix mask [vrf vrf-name] {ip-address interface-type interface-instance} [distance] [description text] [tag tag] [permanent]</code> Example: RP/0/RSP0/CPU0:router(config-static-vrf-afi)# 2 001:0DB8::/32 2001:0DB8:3000::1 201	Configures an administrative distance of 201.
Step 6	<code>end</code> OR <code>commit</code> Example: RP/0/RSP0/CPU0:router(config-static-vrf-afi)# end OR RP/0/RSP0/CPU0:router(config-static-vrf-afi)# commit	Saves configuration changes. <ul style="list-style-type: none"> When you issue the end command, the system prompts you to commit changes: Uncommitted changes found, commit them before exiting(yes/no/cancel)? [cancel]: <ul style="list-style-type: none"> Entering yes saves configuration changes to the running configuration file, exits the configuration session, and returns the router to EXEC mode. Entering no exits the configuration session and returns the router to EXEC mode without committing the configuration changes. Entering cancel leaves the router in the current configuration session without exiting or committing the configuration changes. Use the commit command to save the configuration changes to the running configuration file and remain within the configuration session.

NEW QUESTION 101

What is required on a Cisco IOS XR router to assign an interface to a VRF?

- A. Assign the VRF to the interface, and then re-enable Cisco Express Forwarding on the interface.
- B. Assign the VRF to the interface, and then reset the CE-to-PE routing protocol process.
- C. Shut the interface, assign the VRF to the interface, and then no shut the interface.
- D. Remove the IP address configuration on the interface, assign the VRF to the interface, and then reconfigure the IP address on the interface.

Answer: D

Explanation: http://www.cisco.com/en/US/docs/ios_xr_sw/iosxr_r3.5/mpis/configuration/guide/gc35v3.html#wp1080845

Configuring VRF Interfaces on PE Routers for Each VPN Customer

Perform this task to associate a VPN routing and forwarding (VRF) instance with an interface or a subinterface on the PE routers.



Note You must remove IPv4/IPv6 addresses from an interface prior to assigning, removing, or changing an interface's VRF. If this is not done in advance, any attempt to change the VRF on an IP interface is rejected.

NEW QUESTION 105

When implementing VPLS on Cisco IOS XR routers, the VPLS PW neighbors can be statically defined under which configuration mode?

- A. bridge group
- B. bridge-domain
- C. vfi
- D. mpls ldp
- E. l2transport

Answer: C

Explanation:

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- On the Cisco CRS-1 router, a VPLS pseudowire (PW) can be configured only under VFI.
- The Cisco CRS-1 router does not support VPLS with TE core tunnels.
- A PW cannot belong to both a peer-to-peer (P2P) cross-connect group and a VPLS bridge-domain. This means that the neighboring IP address and the pseudowire ID have to be unique on the router, because the pseudowire ID is signaled to the remote provider edge.
- You cannot manually set up a PW on one PE and use auto-discovery on the other PE to configure the same PW in the other direction. The auto-discovery feature is supported only on the Cisco XR 12000 Series Router.

NEW QUESTION 106

In Layer 3 MPLS VPN implementations, which protocol is used to carry the VPNv4 routes from PE to PE?

- A. RSVP
- B. IGP
- C. MP-BGP
- D. LDP

Answer: C

NEW QUESTION 109

What happens if the destination MAC address is not present in the table for the packets that are received on one of the ACs in VPLS?

- A. Packets are switched only to the PW.
- B. Packets are flooded only to the other local ACs.
- C. Packets are flooded on all other ACs and on all PWs that are associated with the bridge domain.
- D. Packets are dropped.

Answer: C

NEW QUESTION 112

DRAG DROP

Drag the standard on the left to match the correct description on the right.

802.1ag	QinQ
802.1ad	PBB (also known as MAC-in-MAC)
802.1ah	Connectivity Fault Management

Answer:

Explanation: Benefits of IEEE 802.1ah standard

The benefits of IEEE 802.1ah provider backbone bridges are as follows:

- Increased service instance scalability
- MAC address scalability

IEEE 802.1ah Standard for Provider Backbone Bridging Overview

The IEEE 802.1ah Provider Backbone Bridge feature encapsulates or decapsulates end user traffic on a Backbone Edge Bridge {BEB} at the edge of the Provider Backbone Bridged Network {PBBN}. A Backbone Core Bridge {BCB} based network provides internal transport of the IEEE 802.1ah encapsulated frames within the PBBN.

Overview of OAM The advent of Ethernet as a metropolitan and wide-area networking technology has accelerated the need for a new set of OAM protocols.

Service provider networks are large and complex with a wide user base, and they often involve different operators that must work together to provide end-to-end services to enterprise customers. While enterprise end-customer demands continue to increase, so do the requirements for service provider Ethernet networks, particularly in the areas of availability and mean time to repair {MTTR}. Ethernet OAM addresses these challenges and more, thereby directly impacting the competitiveness of the service provider. Ethernet has been used as a LAN technology for many years, and enterprises have managed these networks effectively, primarily with the use of Internet protocols such as Simple Network Management Protocol {SNMP}, ICMP Echo {or IP Ping}, IP Traceroute, and Cisco

Unidirectional Link Detection Protocol {UDLD} and Layer 2 Traceroute

{supported in Cisco Catalyst® OS and some Cisco IOS® Software-based platforms}. In addition to these troubleshooting protocols, Cisco provides a wealth of other configuration, fault, network management, and performance management tools. Cisco also supports MPLS OAM capabilities such as Virtual Circuit Connectivity Verification {VCCV} and Label Switched Path {LSP} ping on the Carrier Ethernet platforms. To complement these OAM capabilities and to ensure that Ethernet can deliver the required customer service-level agreements {SLAs}, Cisco has developed comprehensive Ethernet and IP SLA agents, along with an embedded event manager {EEM}, and IPTV video quality tools for automated measurement and troubleshooting of Carrier Ethernet deployments.

Ethernet OAM addresses the following challenges:

- The existing protocols mentioned earlier will not work unless the Ethernet layer is operating properly, making Ethernet OAM a prerequisite.
- Many service providers do not want to overlay an IP infrastructure simply for management and troubleshooting of Layer 2 Ethernet services.

- The current management protocols lack the per-customer or per-service granularity that is required to manage the individual Layer 2 Ethernet services provided to enterprises.
 - The existing protocols do not assist with provisioning of Ethernet services, which is particularly difficult when the service provider and end customer must coordinate the configurations on their respective Ethernet equipment. Ethernet OAM is a broad topic, but this paper will focus on three main areas of Ethernet OAM that are most in need by service providers and are rapidly evolving in the standards bodies: Service Layer OAM {IEEE 802.1ag Connectivity Fault Management}, Link Layer OAM {IEEE 802.3ah OAM}, and Ethernet Local Management Interface {MEF-16 E-LMI}. Each of these different OAM protocols has unique objectives and is complementary to the others IEEE 802.1ad[note 1] is an Ethernet networking standard informally known as IEEE 802.1QinQ and is an amendment to IEEE standard IEEE 802.1Q-1998. The technique is also known as provider bridging, Stacked VLANs or simply QinQ or Q-in-Q.
- The original 802.1Q specification allows a single VLAN header to be inserted into an Ethernet frame. QinQ allows multiple VLAN headers to be inserted into a single frame, an essential capability for implementing Metro Ethernet network topologies. Just as QinQ extends 802.1Q, QinQ itself is extended by other Metro Ethernet protocols.[specify] In a multiple VLAN header context, out of convenience the term "VLAN tag" or just "tag" for short is often used in place of "802.1Q VLAN header". QinQ allows multiple VLAN tags in an Ethernet frame; together these tags constitute a tag stack. When used in the context of an Ethernet frame, a QinQ frame is a frame that has 2 VLAN 802.1Q headers {double-tagged}.
- There is a mild confusion regarding the naming because the 802.1ad standard was grown out of the 802.1QinQ protocol {which was developed based the trademarked method 802.1Q, with capital "Q" as a distinction instead of the 802.1q as the standardised protocol} which originally used 0x9100 as ethernet type instead of 0x88a8. While the network industry usually mix the naming the proper, standardised name is 802.1ad which sometimes gets appended by the other alternative names mentioned above; the plain "802.1QinQ" name usually refers to the old standard which is now considered obsolete

NEW QUESTION 117

DRAG DROP

Match the LAN type on the left to the correct MEF service type on the right.	
point-to-point	E-Tree
multipoint-to-multipoint	E-Line
rooted multipoint	E-LAN

Answer:

Explanation: Business subscribers are an important segment of many service providers' customer base. The main business services that must be provided by the network today are:

- MPLS VPN
- Carrier Ethernet connectivity
- Managed services

Carrier Ethernet connectivity services have been defined by the Metro Ethernet Forum {MEF} to include ELine, E-LAN, and E-Tree service types, which are defined as follows:

- E-Line is based on a point-to-point Ethernet Virtual Connection. Two E-Line services are defined:
 - Ethernet Private Line {EPL}: A very simple and basic point-to-point service characterized by low frame delay, frame delay variation, and frame loss ratio. No service multiplexing is allowed, and other than a committed information rate {CIR} no class of service {CoS} {Bandwidth Profiling} is allowed.
 - Ethernet Virtual Private Line {EVPL}: A point-to-point service wherein service multiplexing {more than one Ethernet Virtual Connection} is allowed. The individual Ethernet Virtual Circuits can be defined with a rich set of Bandwidth Profiles and Layer 2 Control Protocol Processing methods as defined by the Metro Ethernet Forum.
- E-LAN is based on a multipoint-to-multipoint Ethernet Virtual Connection. Service multiplexing {more than one Ethernet Virtual Circuit at the same UNI} is permitted, as is the rich set of performance assurances defined by the MEF such as CIR with an associated Committed Burst Size {CBS} and Excess Information Rate {EIR}.
- E-Tree is a point-to-multipoint ELAN service in which the spoke "leaves" can communicate with the hub or "root" location but not with each other. Typical application for E-Tree is in franchise operations.

NEW QUESTION 119

Refer the exhibit.

Instructions

Enter the proper CLI commands and analysis the outputs on the Cisco routers to answer the multiple-choice questions.

From the network topology diagram, click on the router icon to gain access to the console of the router.

No console or enable passwords are required.

There are four multiple-choice questions with this task. Be sure to answer all four questions before selecting the Next button.

Not all the CLI commands or commands options are supported or required for this simulation.

For example, the show running-config command is **NOT** supported in this simulation.

All the devices in this simulation have been pre-configured and you are not required to enter in any configurations.

Scenario

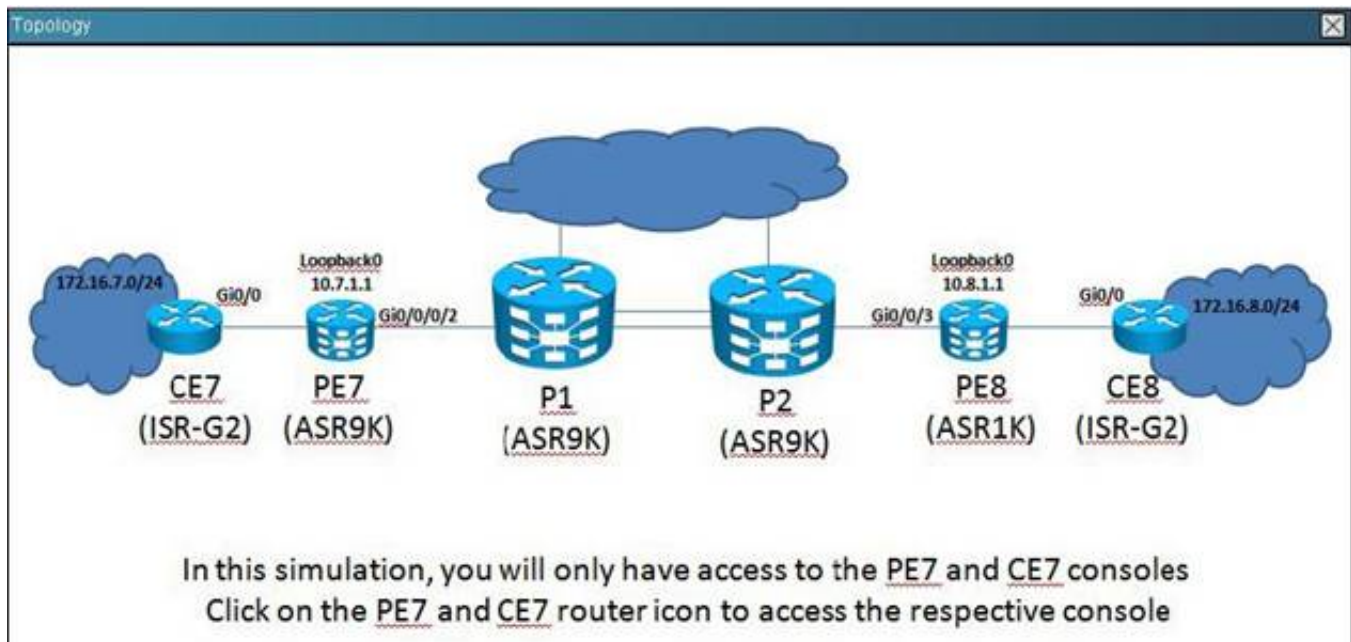
Referring to the network topology diagram shown in the exhibit, use the proper CLI commands on the CE7 and PE7 routers and interpret the supported CLI commands outputs to answer the four multiple choice questions.

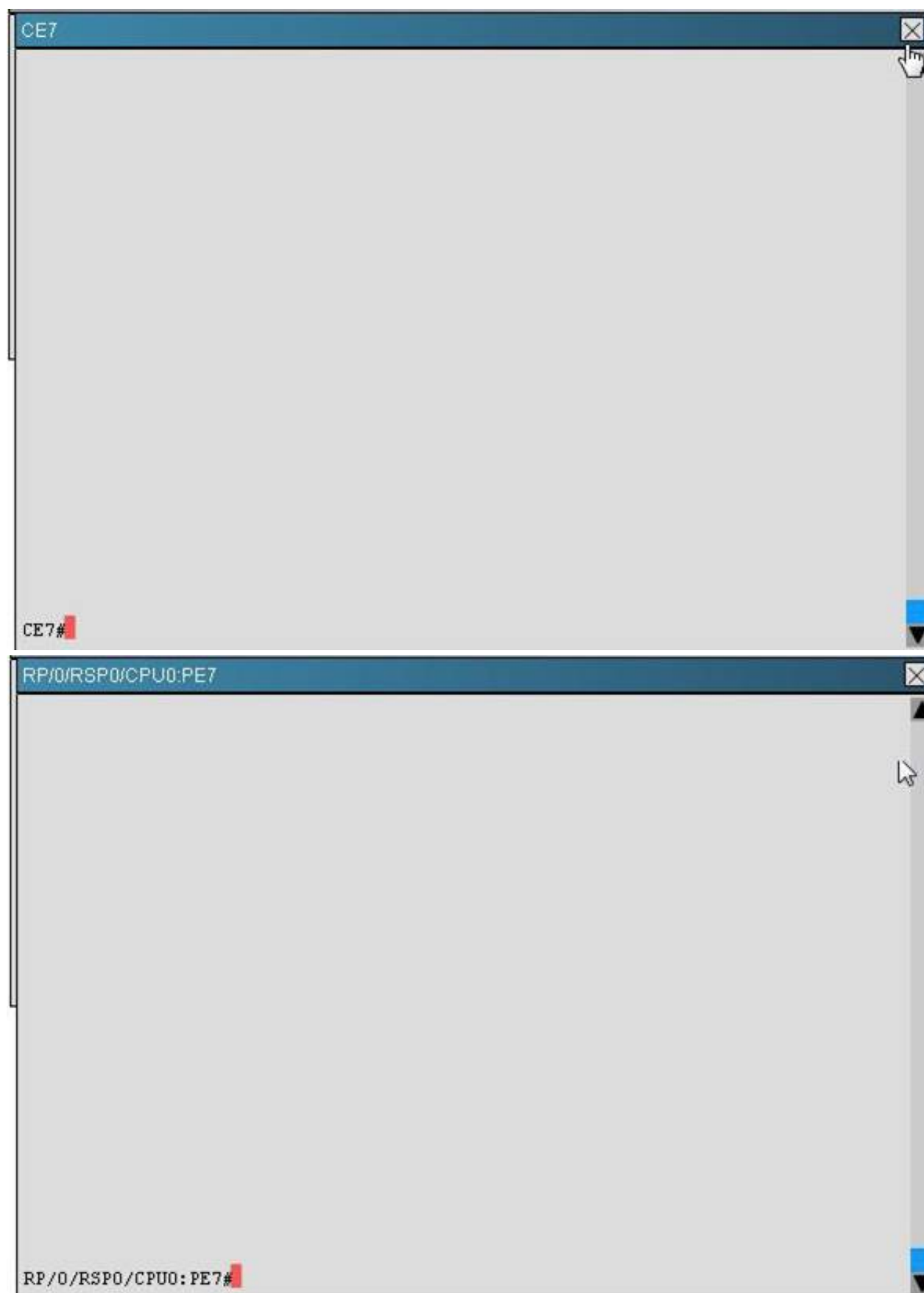
The CE7 router is an ISR-G2 router and the PE7 router is an ASR9K router.

OSPF is the IGP running between all the PE and P routers and LDP is also running between all the PE and P routers.

The questions in this simulation are regarding the MPLS layer 3 VPN configurations on the PE routers where CE7

Scenario	Instructions	Topology	CE7	RP/0/RSP0/CPU0:PE7	Questions
----------	--------------	----------	-----	--------------------	-----------





On PE7, which interface connects to the CE7 and what is the name of the VRF that interface is associated to? {Choose two.}

- A. Gi0/0/0/0
- B. Gi0/0/0/1
- C. Gi0/0/0/2
- D. Customer_1
- E. Customer_A
- F. Customer_CE7

Answer: BC

Explanation: # show ip vrf interfaces

NEW QUESTION 122

Refer the exhibit.

Instructions

Enter the proper CLI commands and analysis the outputs on the Cisco routers to answer the multiple-choice questions.

From the network topology diagram, click on the router icon to gain access to the console of the router.

No console or enable passwords are required.

There are four multiple-choice questions with this task. Be sure to answer all four questions before selecting the Next button.

Not all the CLI commands or commands options are supported or required for this simulation.

For example, the show running-config command is **NOT** supported in this simulation.

All the devices in this simulation have been pre-configured and you are not required to enter in any configurations.

Scenario

Referring to the network topology diagram shown in the exhibit, use the proper CLI commands on the CE7 and PE7 routers and interpret the supported CLI commands outputs to answer the four multiple choice questions.

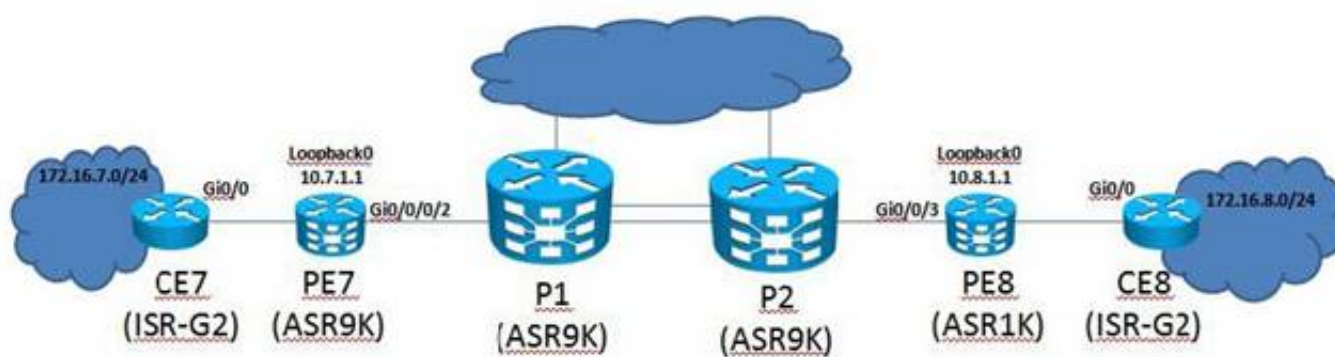
The CE7 router is an ISR-G2 router and the PE7 router is an ASR9K router.

OSPF is the IGP running between all the PE and P routers and LDP is also running between all the PE and P routers.

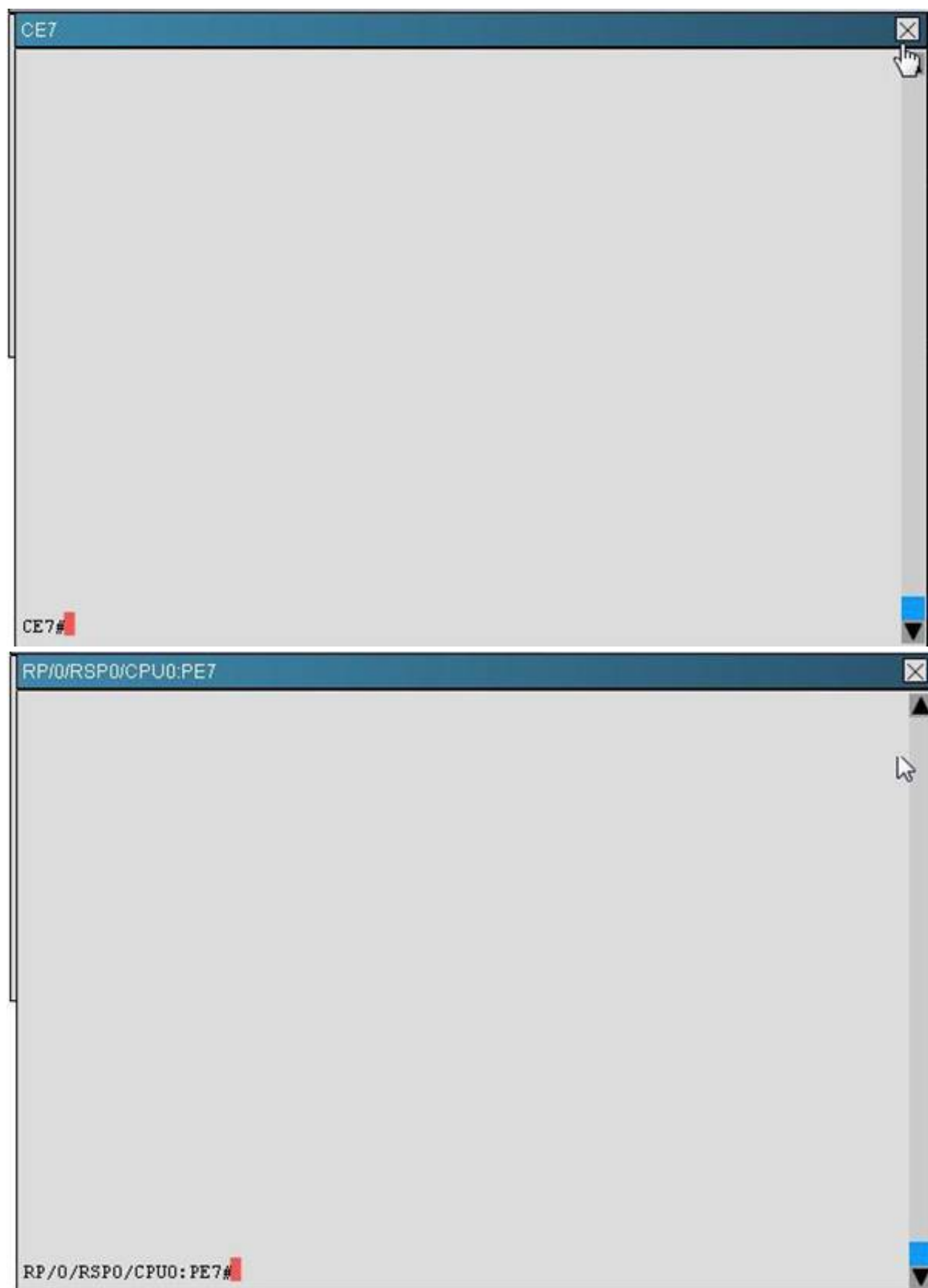
The questions in this simulation are regarding the MPLS layer 3 VPN configurations on the PE routers where CE7

Scenario	Instructions	Topology	CE7	RP/0/RSP0/CPU0:PE7	Questions
----------	--------------	----------	-----	--------------------	-----------

Topology



In this simulation, you will only have access to the PE7 and CE7 consoles
 Click on the PE7 and CE7 router icon to access the respective console



On PE7, how many multiprotocol IBGP routes are learned from PE8 and what is the next-hop IP address? {Choose two.}

- A. 1
- B. 2
- C. 3
- D. 10.8.1.1
- E. 172.16.8.1
- F. 192.168.108.81

Answer: BE

Explanation: Show ip bgp vpnv4 all --- i tag field is the answer

NEW QUESTION 127

Refer the exhibit.

Instructions

Enter the proper CLI commands and analysis the outputs on the Cisco routers to answer the multiple-choice questions.

From the network topology diagram, click on the router icon to gain access to the console of the router.

No console or enable passwords are required.

There are four multiple-choice questions with this task. Be sure to answer all four questions before selecting the Next button.

Not all the CLI commands or commands options are supported or required for this simulation.

For example, the show running-config command is **NOT** supported in this simulation.

All the devices in this simulation have been pre-configured and you are not required to enter in any configurations.

Scenario

Referring to the network topology diagram shown in the exhibit, use the proper CLI commands on the CE7 and PE7 routers and interpret the supported CLI commands outputs to answer the four multiple choice questions.

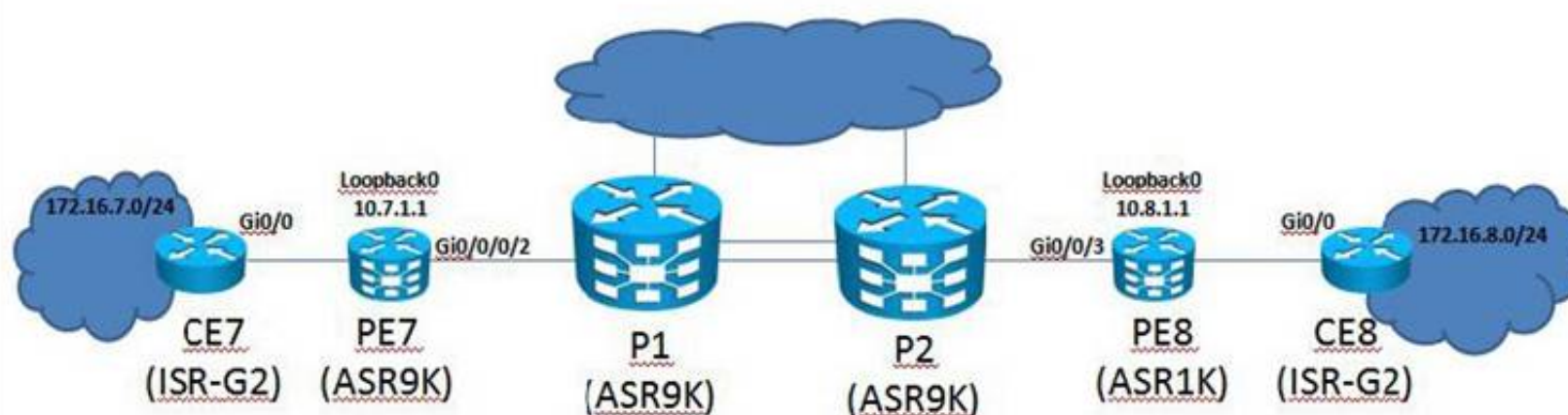
The CE7 router is an ISR-G2 router and the PE7 router is an ASR9K router.

OSPF is the IGP running between all the PE and P routers and LDP is also running between all the PE and P routers.

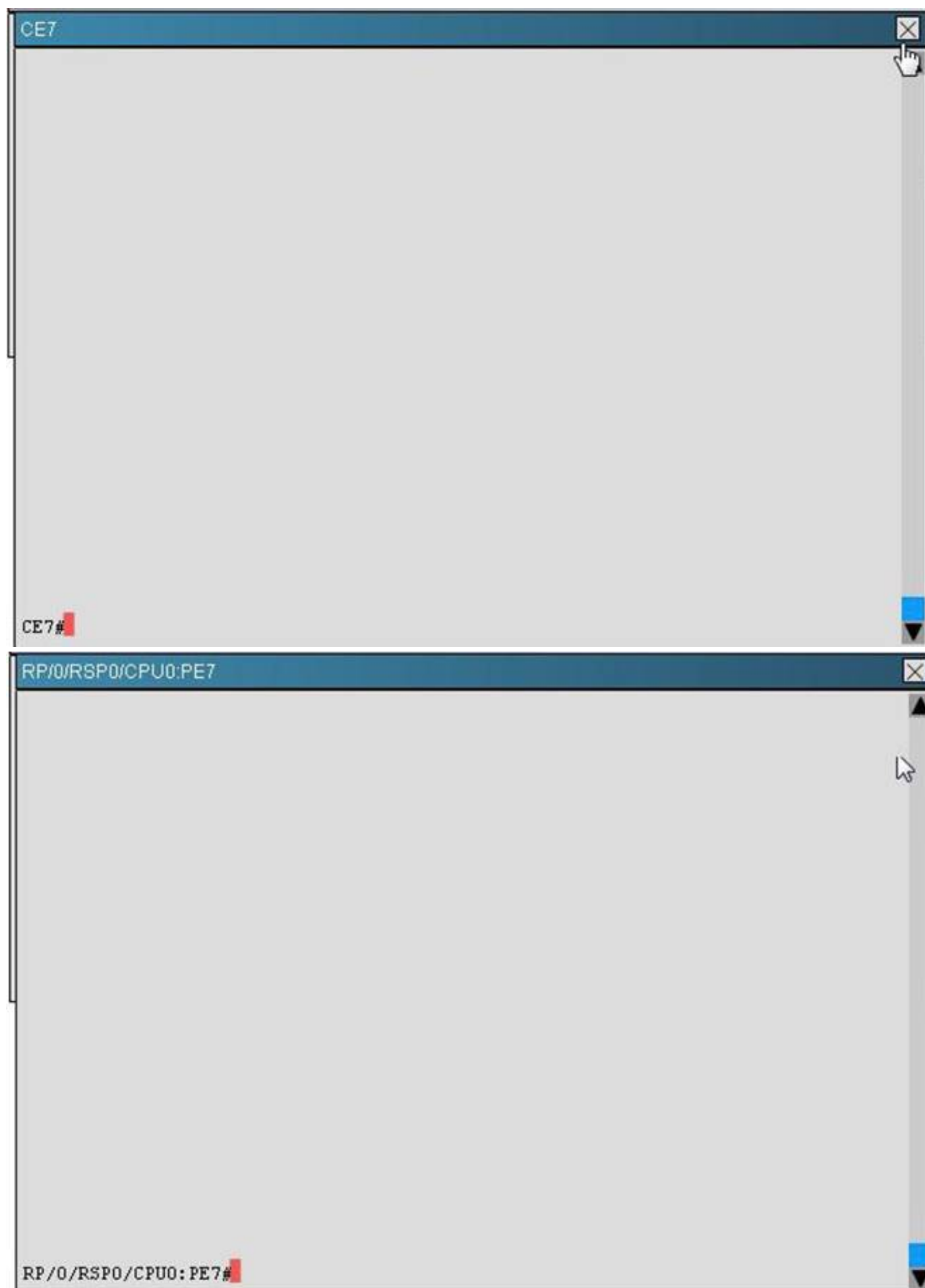
The questions in this simulation are regarding the MPLS layer 3 VPN configurations on the PE routers where CE7

Scenario	Instructions	Topology	CE7	RP/0/RSP0/CPU0:PE7	Questions
----------	--------------	----------	-----	--------------------	-----------

Topology



In this simulation, you will only have access to the PE7 and CE7 consoles
 Click on the PE7 and CE7 router icon to access the respective console



On PE7, which three statements are correct regarding the MPLS VPN configurations used to support the connectivity between the CE7 and CE8 sites? {Choose three.}

- A. The RD is 1:1
- B. The import and export RTs are 1:1
- C. Interface Gi0/0/0/0 is associated to the "default" VRF
- D. The network that connects PE7to CE7 is redistributed into multiprotocol IBGP
- E. The multiprotocol IBGP routes learned have a BGP origin code of "i"

Answer: BCE

Explanation: # show ip route show ip vrf
show ip vrf detail

NEW QUESTION 132

Refer the exhibit.

Instructions

Enter the proper CLI commands and analysis the outputs on the Cisco routers to answer the multiple-choice questions.

From the network topology diagram, click on the router icon to gain access to the console of the router.

No console or enable passwords are required.

There are four multiple-choice questions with this task. Be sure to answer all four questions before selecting the Next button.

Not all the CLI commands or commands options are supported or required for this simulation.

For example, the show running-config command is **NOT** supported in this simulation.

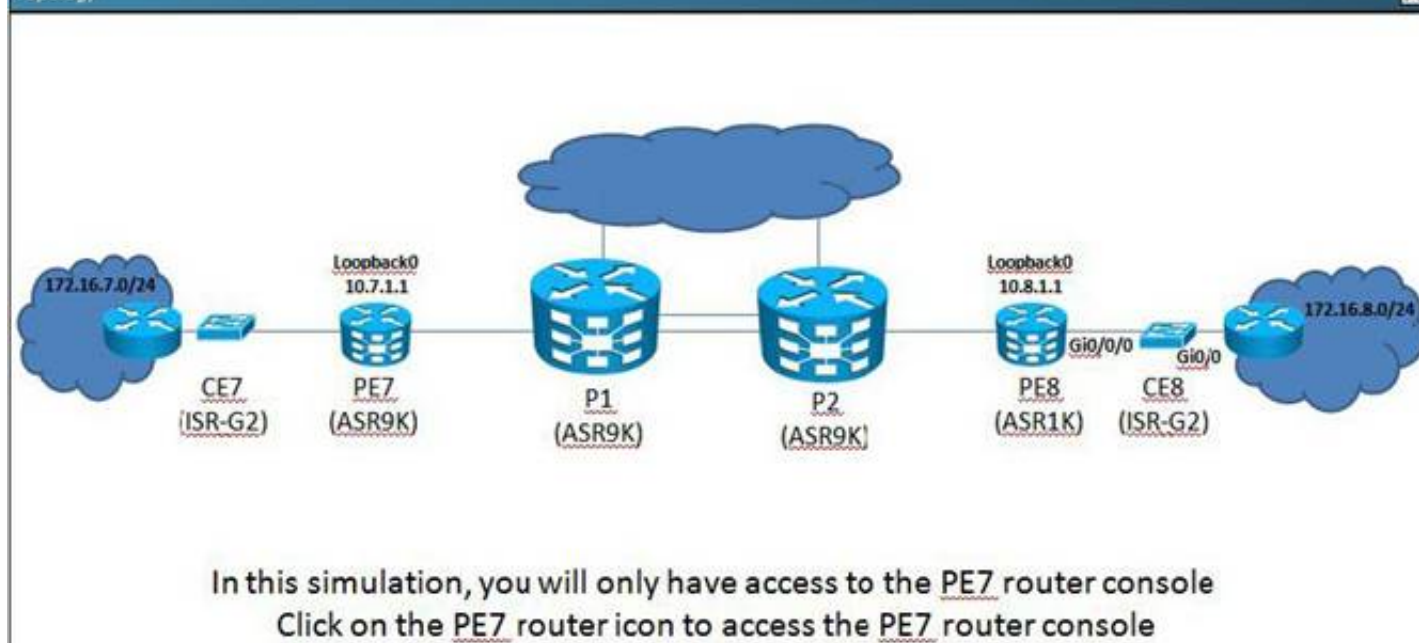
All the devices in this simulation have been pre-configured and you are not required to enter in any configurations.

Scenario

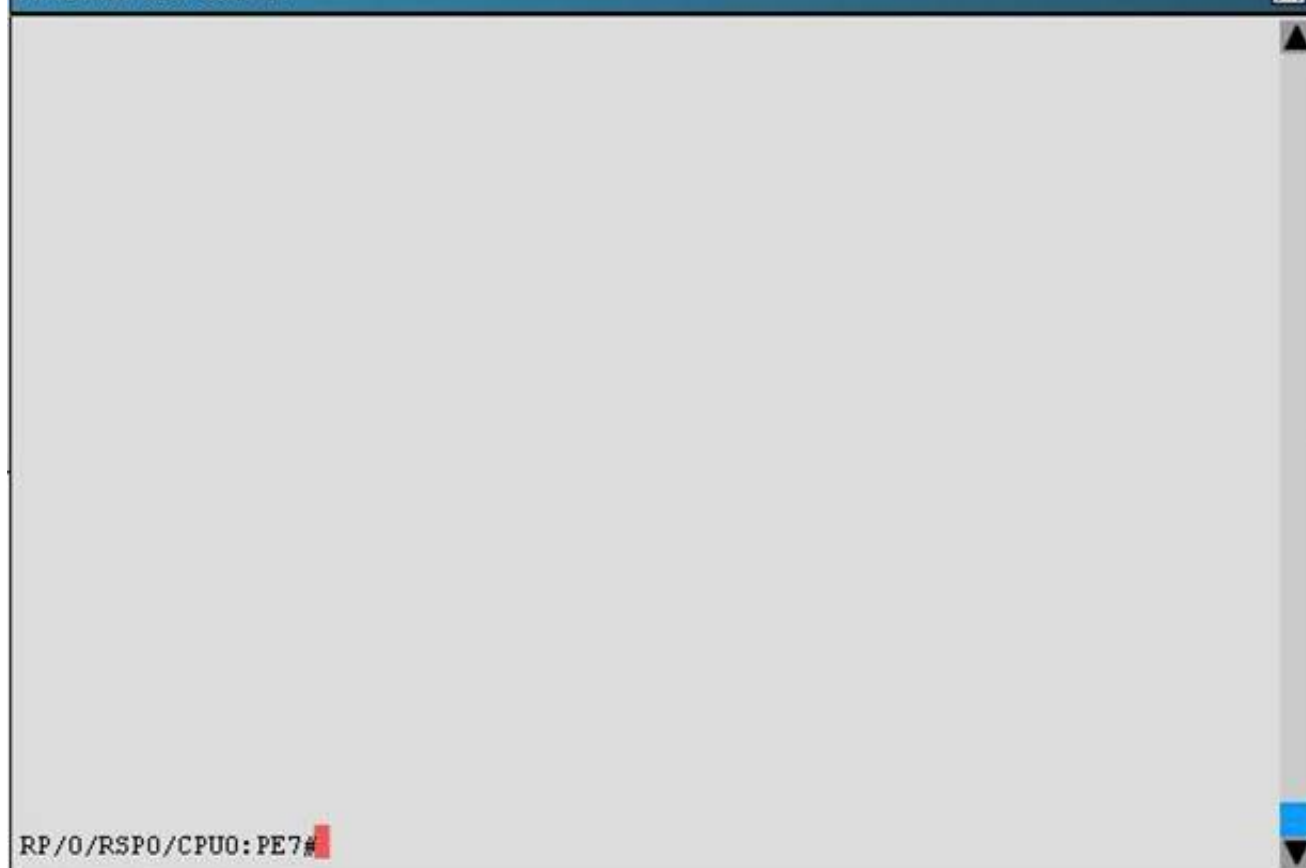
Referring to the network topology diagram shown in the exhibit, use the proper CLI commands on PE7 router and interpret the supported CLI commands outputs to answer the four multiple choice questions.

The PE7 router is an ASR9K router.

Topology



RP/0/RSP0/CPU0:PE7



Which statement is correct regarding the pseudowire on connects PE7 to the 10.8.1.1 neighbor?

- A. The control word is enabled on both ends of the pseudowire
- B. The MTU size is 1500 bytes on both ends of the pseudowire
- C. Pseudowire backup is enabled
- D. The pseudowire is in the down state

Answer: B

Explanation:

show xconnect all
 show ip interface brief
 show mpls l2transport vc
 show cable l2-vpn xconnect mpls-vc-map

NEW QUESTION 133

Refer the exhibit.

Instructions

Enter the proper CLI commands and analysis the outputs on the Cisco routers to answer the multiple-choice questions.

From the network topology diagram, click on the router icon to gain access to the console of the router.

No console or enable passwords are required.

There are four multiple-choice questions with this task. Be sure to answer all four questions before selecting the Next button.

Not all the CLI commands or commands options are supported or required for this simulation.

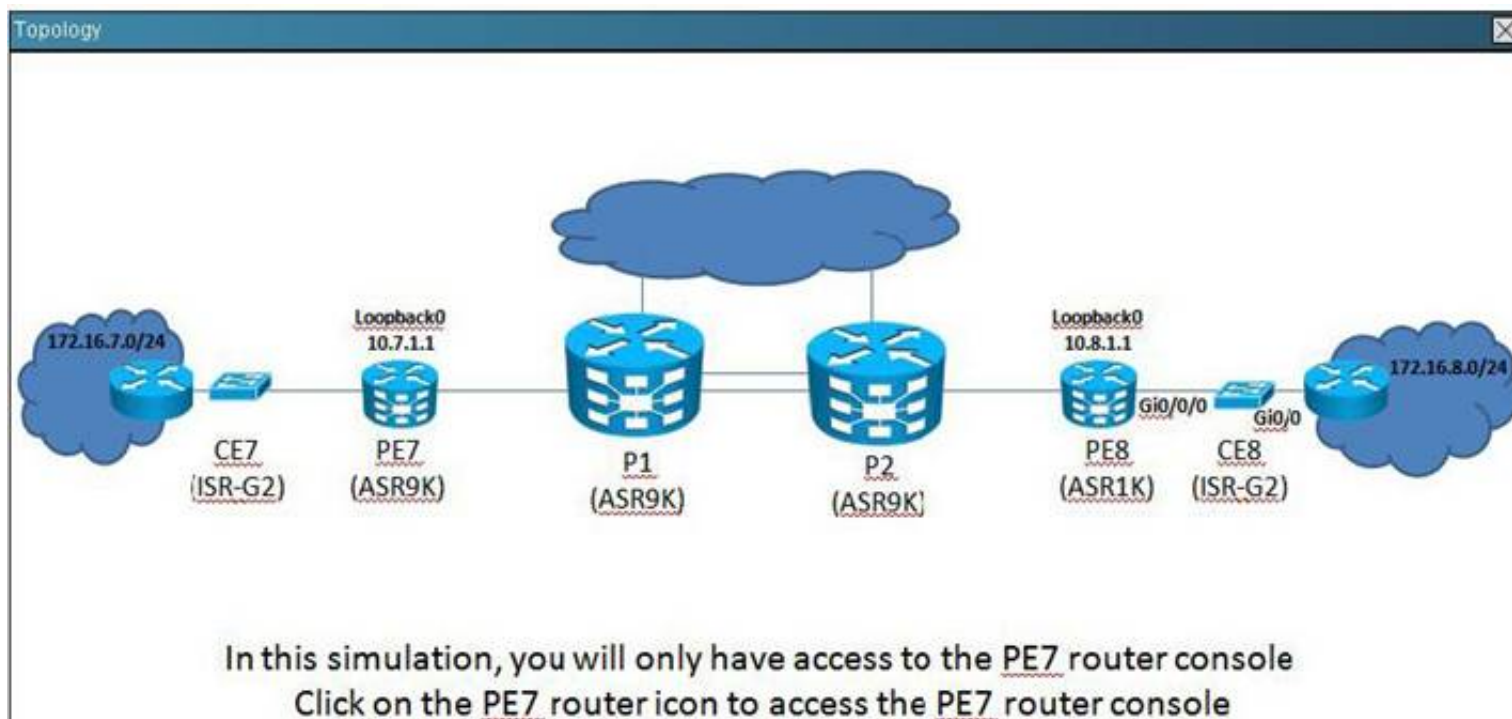
For example, the show running-config command is **NOT** supported in this simulation.

All the devices in this simulation have been pre-configured and you are not required to enter in any configurations.

Scenario

Referring to the network topology diagram shown in the exhibit, use the proper CLI commands on PE7 router and interpret the supported CLI commands outputs to answer the four multiple choice questions.

The PE7 router is an ASR9K router.



RP/0/RSP0/CPU0:PE7

RP/0/RSP0/CPU0: PE7#

On PE7, which encapsulation method is used on the pseudowire that connects to the 10.8.1.1 neighbor?

- A. MPLS
- B. L2TPv3
- C. IP
- D. LDP
- E. Ethernet

Answer: B

Explanation:

show xconnect all
 check value is mpls or l2tp or Ethernet etc in segment field

NEW QUESTION 135

Which VPN technology is an example of a full-mesh VPN?

- A. VTI
- B. GRE VPN
- C. Frame Relay L2 VPN
- D. MPLS L3VPN

Answer: D

NEW QUESTION 136

A customer wants two separated sites to be connected via a pseudo-wire. Which solution provides the simplest implementation?

- A. AToM
- B. Layer 3 VPN
- C. VPLS
- D. GETVPN

Answer: A

NEW QUESTION 137

Which two options are disadvantages of MPLS Layer 3 VPNs? {Choose two.}

- A. IP-only support
- B. lack of scalability
- C. dependency on service provider Layer 3 model
- D. complex PE-CE configuration
- E. less efficient than hub-and-spoke model

Answer: AD

NEW QUESTION 139

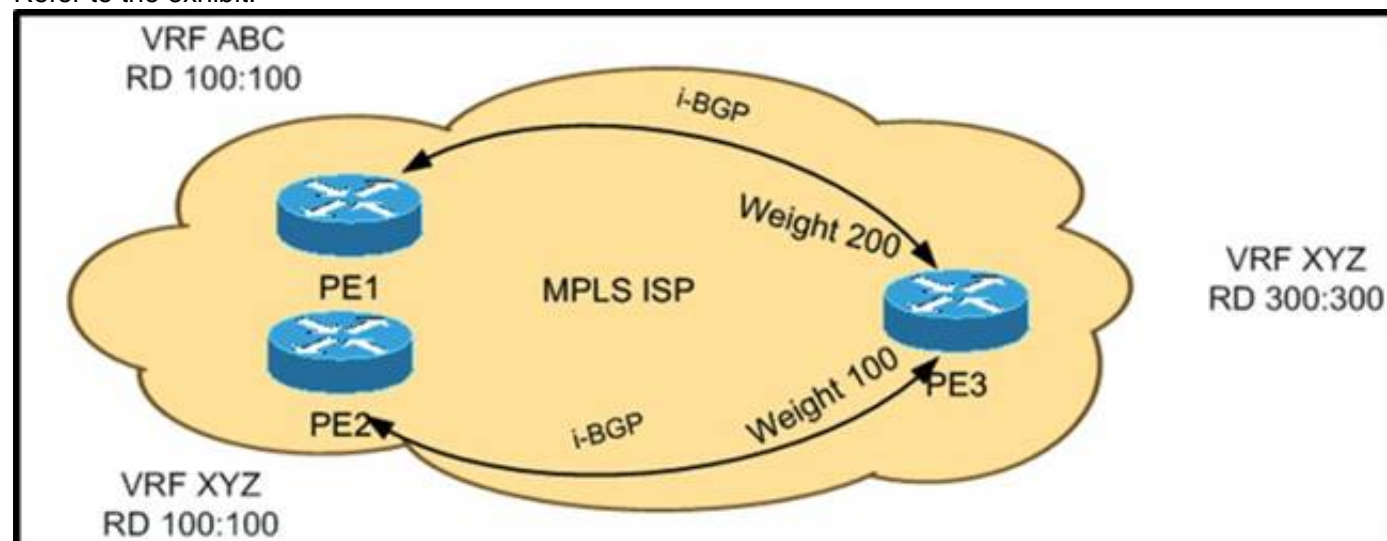
What is the purpose of the route distinguisher in a service provider network?

- A. to identify which prefixes should be imported
- B. to identify customer local prefixes
- C. to identify customer global prefixes
- D. to identify which prefixes should be exported from BGP

Answer: C

NEW QUESTION 140

Refer to the exhibit.



PE1 and PE2 are advertising the same subnet 10.10.10.0/24 and export route-target to PE3. Which PE advertised subnet is installed at the PE3 BGP table?

- A. PE1 subnet only, due to higher BGP assigned weight.
- B. PE2 subnet only because it is a member in the same VRF.
- C. PE1 and PE2 subnets
- D. PE1 and PE2 subnets as 300:300:10.10.10.0/24

Answer: C

NEW QUESTION 145

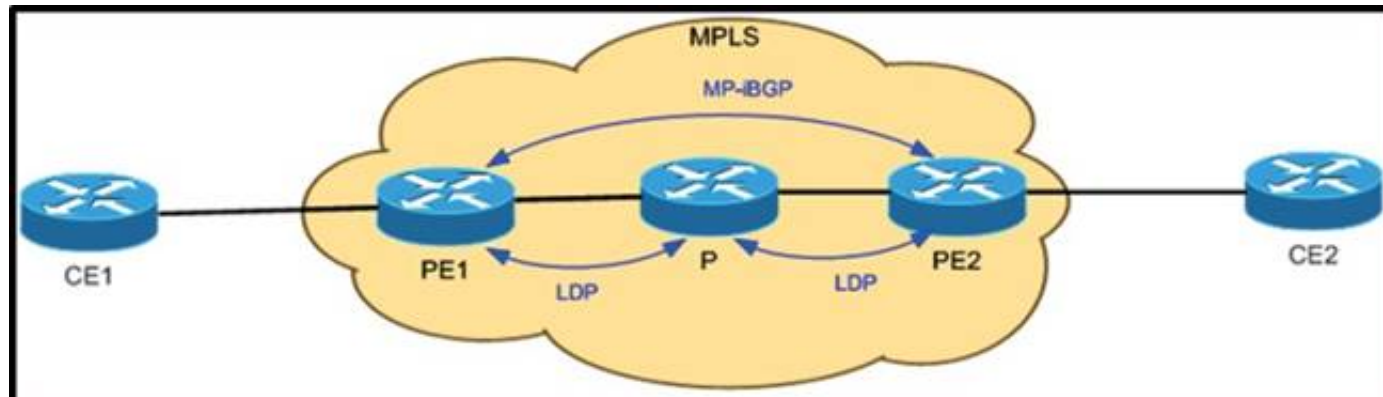
When is it appropriate to activate the VPNv6 address family?

- A. when implementing 6PE
- B. when running dual stack at the provider edge
- C. when implementing 6to4 tunneling
- D. when implementing 6VPE

Answer: D

NEW QUESTION 148

Refer to the exhibit.



A customer wants to deploy an IPv6 VPN network over the MPLS provider. Which option describes what must be enabled on the MPLS provider to support this request?

- A. IPv6 should be deployed inside the core network of the provider.
- B. LDP also should be configured to provide labels for IPv6 routes.
- C. MP-iBGP VPNv6 session should be configured with current IPv4 addresses.
- D. MP-iBGP IPv6 session should be configured with current IPv4 addresses.

Answer: C

NEW QUESTION 149

A Cisco IOS XR device is acting as a PE. It must have an iBGP VPNv4 session with the other PE 2.2.2.2 using source loopback 0. Which configuration achieves this goal?

A)

```
router bgp 100
  neighbor 2.2.2.2
  remote-as 100
  update-source Loopback0
  address-family vpnv4 unicast
```

B)

```
router bgp 100
  address-family vpnv4 unicast
  neighbor 2.2.2.2
  remote-as 100
  update-source Loopback0
  address-family vpnv4 unicast
```

C)

```
router bgp 100
  address-family vpnv4 unicast
  neighbor 2.2.2.2 remote-as 100
  neighbor 2.2.2.2 update-source Loopback0
  address-family vpnv4 unicast
```

D)

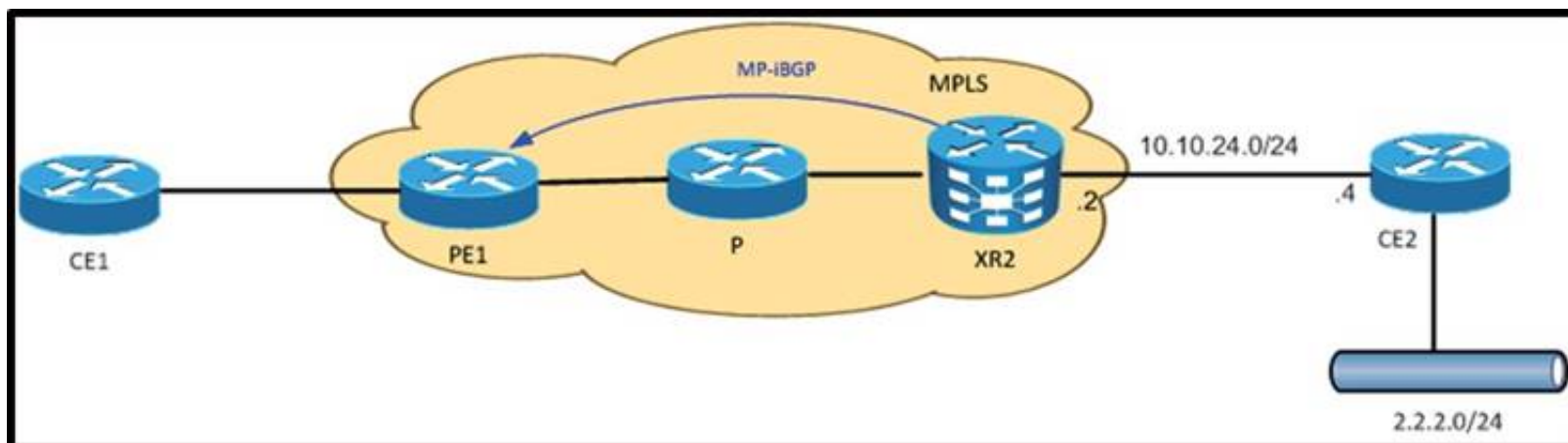
```
router bgp 100
  neighbor 2.2.2.2 remote-as 100
  neighbor 2.2.2.2 update-source Loopback0
  address-family vpnv4
  neighbor 2.2.2.2 activate
```

- A. Exhibit A
- B. Exhibit B
- C. Exhibit C
- D. Exhibit D

Answer: B

NEW QUESTION 151

Refer to the exhibit.



XR2 must be configured with a static route for 2.2.2.0/24 subnet toward CE2 into the VRF ABC table. Which configuration achieves this goal?

- A. router static vrf ABC 2.2.2.0/24 10.10.24.2
- B. router static vrf ABC 2.2.2.0/24 10.10.24.2 address-family ipv4 unicast
- C. router static vrf ABC address-family ipv4 unicast 2.2.2.0/24 10.10.24.2
- D. router static address-family ipv4 unicast vrf ABC 2.2.2.0/24 10.10.24.2

Answer: C

NEW QUESTION 152

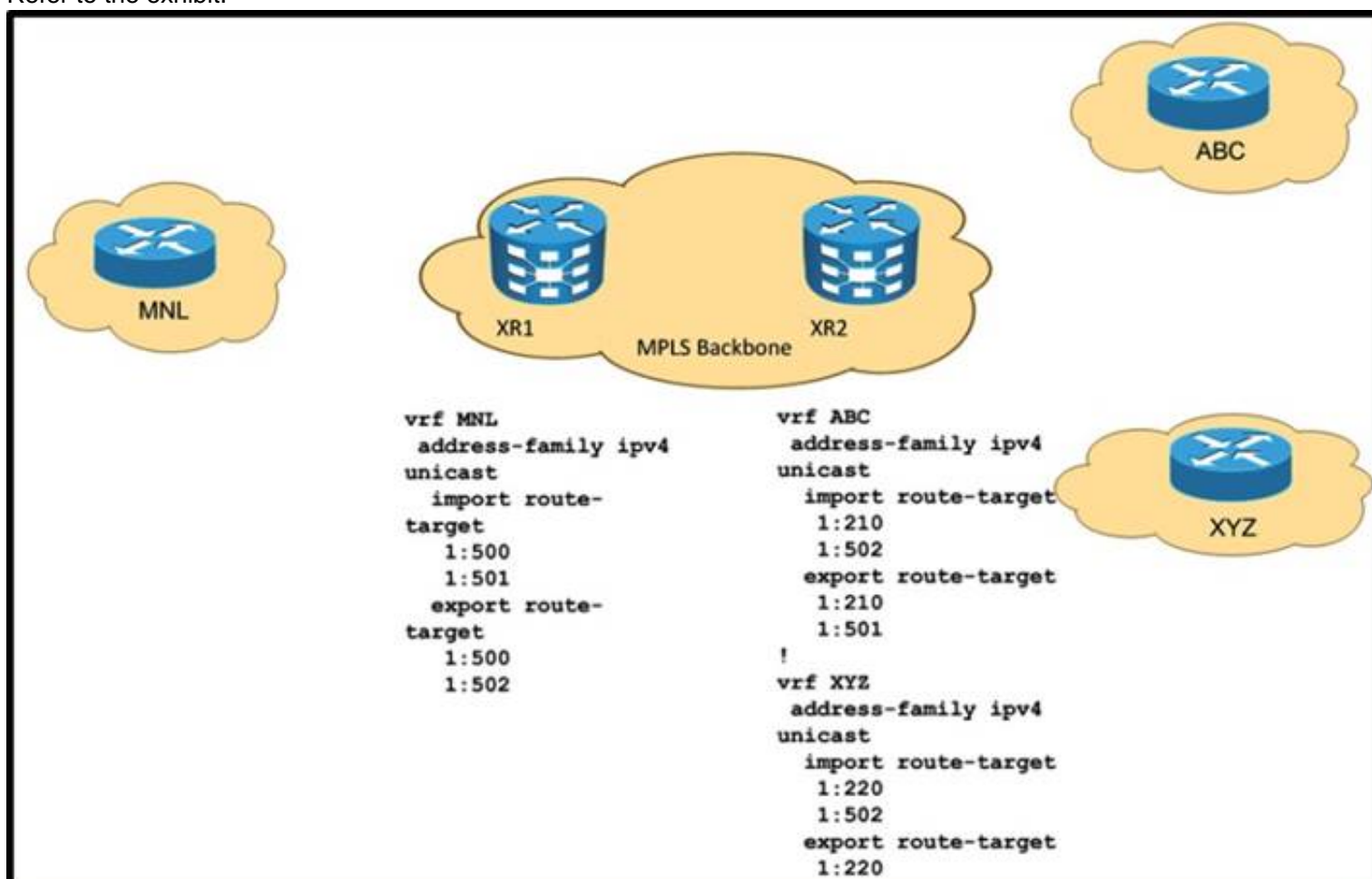
A Cisco IOS XR router is acting as a PE and is running EIGRP as the CE-PE routing protocol. SOO must be configured. Under which subconfiguration mode should SOO be configured?

- A. RP/0/0/CPU0:XR1{config-eigrp}
- B. RP/0/0/CPU0:XR1{config-eigrp-vrf-af-if}
- C. RP/0/0/CPU0:XR1{config-eigrp-vrf}
- D. RP/0/0/CPU0:XR1{config-eigrp-vrf-af}

Answer: B

NEW QUESTION 157

Refer to the exhibit.



Which two descriptions outline the traffic flow among the three sites? {Choose two.}

- A. The MNL site communicates with the XYZ and ABC sites.
- B. The XYZ and ABC sites communicate using the default route that points to the MNL site.
- C. XYZ sees the MNL and ABC routes.
- D. ABC sees the MNL and XYZ routes.
- E. The MNL site acts as a central site for the ABC and XYZ sites.

Answer: AE

NEW QUESTION 162

A PE configured with VRF ABC needs to export only subnet 1.1.1.1/32 with RT 100:100 without losing its original RT 200:200 to a remote PE. Which configuration is correct?

A}


```
ip access-list standard EXPORT
  permit 1.1.1.1
!
route-map EXPORT permit 10
  match ip address prefix-list EXPORT
  set extcommunity rt 100:100 additive
```

B)

```
ip prefix-list EXPORT seq 5 permit 1.1.1.1/32
!
route-map EXPORT permit 10
  match ip address EXPORT
  set extcommunity rt 100:100 additive
```

C)

```
ip access-list standard EXPORT
  permit 1.1.1.1
!
route-map EXPORT permit 10
  match ip address EXPORT
  set extcommunity rt 100:100 additive
```

D)

```
ip prefix-list EXPORT seq 5 permit 1.1.1.0/24 le 32
!
route-map EXPORT permit 10
  match ip address prefix-list EXPORT
  set extcommunity rt 100:100 additive
```

- A. Exhibit A
- B. Exhibit B
- C. Exhibit C
- D. Exhibit D

Answer: C

NEW QUESTION 164

Which three possible misconfigurations can occur on the backbone IGP section of an MPLS Layer 3 VPN setup? {Choose three.}

- A. configuring the LDP router ID with an incorrect loopback interface
- B. configuring the wrong AS number on a client eBGP peering
- C. configuring the wrong area number on a PE-CE OSPF link
- D. decreasing the MPLS MTU
- E. disabling MPLS on a core link
- F. disabling MPLS LDP sync in the IGP routing process

Answer: ADE

NEW QUESTION 168

Which three commands represent valid QoS classifiers of traffic in case of an EoMPLS circuit? {Choose three.}

- A. match cos
- B. match mpls experimental
- C. match qos-group
- D. match fr-de
- E. match protocol
- F. match ip address prefix-list
- G. match tag

Answer: ABC

NEW QUESTION 171

Which protocol is used to hide customer VLANs inside the provider backbone network?

- A. 802.1ap
- B. 802.1x
- C. 802.1ad
- D. 802.1q

Answer: C

NEW QUESTION 176

Which three security features can be implemented on PEs inside a Cisco IOS XR VPLS environment? {Choose three.}

- A. MAC flooding
- B. neighbor VC storm-control
- C. interface storm-control
- D. MAC learning
- E. DHCP snooping
- F. MAC withdrawal

Answer: ABC

NEW QUESTION 181

Which service can be used to extend the same broadcast domain across the WAN to multiple customers?

- A. EVP-TREE
- B. E-LINE
- C. EPL
- D. EVPL

Answer: A

NEW QUESTION 186

When using H-VPLS, the PE router may use an IRB interface. How many VLAN tags can be processed by an IRB?

- A. 1
- B. 2
- C. 3

Answer: A

NEW QUESTION 188

Which two protocols can be used for VPLS signaling on a Cisco IOS XR router? {Choose two.}

- A. BGP
- B. LDP
- C. TDP
- D. RSVP
- E. PBB

Answer: AB

NEW QUESTION 190

Which two MPLS QoS models described by RFC3270 are used for CE-PE QoS implementation? {Choose two.}

- A. best effort
- B. pipe
- C. uniform
- D. integrated services
- E. differentiated services

Answer: BC

NEW QUESTION 191

A presale engineer is asked to advise about the various MPLS VPN designs to best fit the customer requirements. Which two MPLS L2VPN features should be highlighted as advantages over a MPLS L3VPN? {Choose two.}

- A. An MPLS L2VPN design is a more appropriate solution for disaster recovery and data backup.
- B. An MPLS L2VPN is a more redundant design compared to a MPLS L3VPN solution.
- C. An MPLS L2VPN design does not require routing interaction with the service provider network.
- D. An MPLS L2VPN design virtually extends the broadcast domain boundary allowing for the customer IGP to fully interoperate between remote sites.
- E. An MPLS L2VPN design does not require monitoring, which provides a significant cost-saving solution.

Answer: CD

NEW QUESTION 194

A network engineer working for a very large financial institution must migrate the legacy Frame Relay and ATM virtual circuits over a MPLS VPN solution. Which option is a benefit in choosing a MPLS Layer 3 VPN versus any other Layer 2 VPN design?

- A. An MPLS Layer 3 VPN design offers better scalability for large organizations.
- B. An MPLS Layer 3 VPN design requires less customer edge router configuration than any other Layer 2 VPN implementation.
- C. An MPLS Layer 3 VPN solution provides the possibility to implement overlapping IP addressing.
- D. An MPLS Layer 3 VPN design requires less provider edge router configuration than any other Layer 2 VPN implementation.

Answer: A

NEW QUESTION 195

A company recently completed a third company acquisition and is requesting to deploy a point-to-point VPN technology over the IP core network to extend their IGP domain. The company core network is not MPLS-enabled yet. Which technology matches these requirements?

- A. Any Transport over MPLS
- B. Layer 2 Tunneling Protocol version 3
- C. Virtual Private LAN Service
- D. Point-to-Point Protocol

Answer: B

NEW QUESTION 197

An engineer is deploying L2VPN service between two different Layer 2 encapsulations. Which feature should be set up to accomplish this task?

- A. interworking VLAN on both the provider edge routers
- B. interworking Ethernet on both the provider edge routers with VLAN tagging
- C. interworking IPv4 on both the customer edge routers
- D. interworking IPv4 on both the provider edge routers

Answer: D

NEW QUESTION 200

Which Layer 2 encapsulations can AToM solution support with interworking IP feature enable?

- A. Ethernet to ATM AAL5
- B. ATM AAL5 to Frame Relay
- C. PPP to Frame Relay
- D. multipoint PPP to Frame Relay

Answer: A

NEW QUESTION 201

A network engineer is tasked to implement an AToM VPN for a given customer to emulate a Frame Relay virtual circuit over the MPLS-enabled core network. Which command enables Frame Relay to forward frames from the attachment circuit over the emulated session in regular Cisco IOS Software?

- A. ip route 0.0.0.0 0.0.0.0 tailend_router_ip
- B. encapsulation frame-relay
- C. frame-relay switching
- D. frame-relay intf-type dce

Answer: C

NEW QUESTION 205

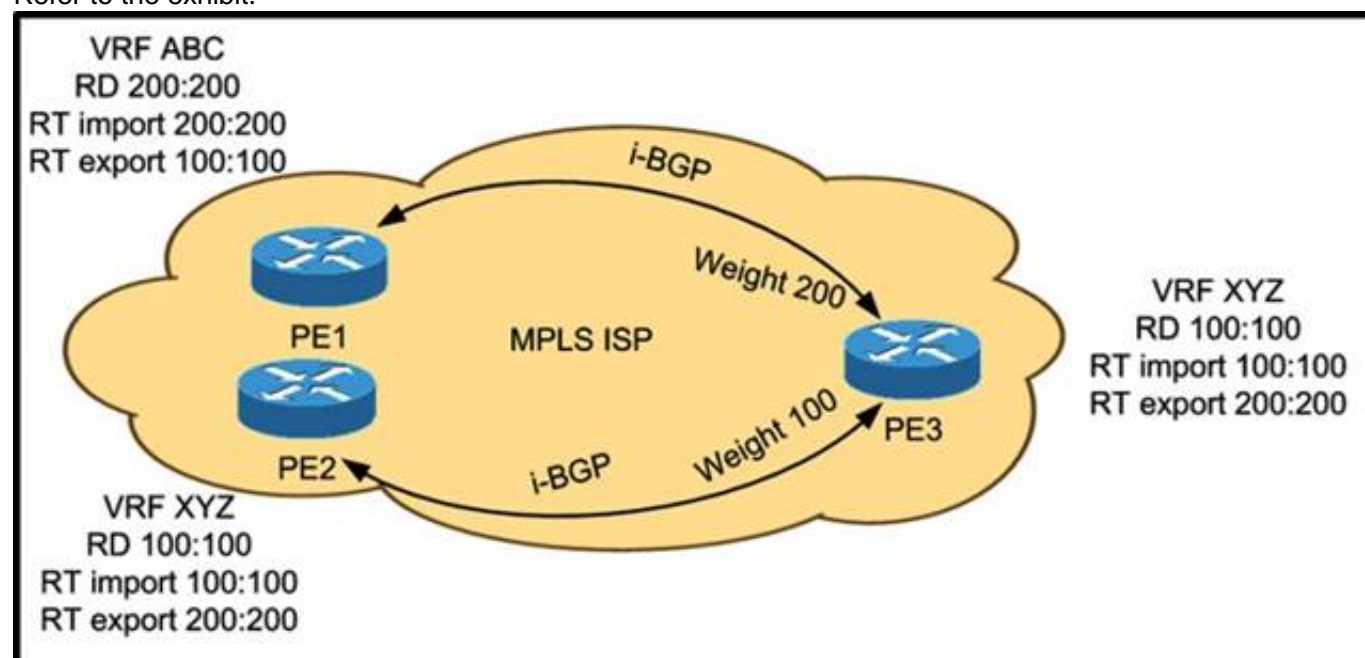
A service provider is tasked to write up a template for the network operations center to set up a Layer 2 VPN. Which command is the first command to issue on a Cisco IOS XR router?

- A. xconnect peer_ip vc_id encapsulation encapsulation_type
- B. connect name_pw interface_path_id dlci_value l2transport
- C. l2vpn
- D. pseudowire-class class_name

Answer: C

NEW QUESTION 207

Refer to the exhibit.



PE1 and PE2 are advertising the same subnet 196.168.10.0/24 to PE3. Which PE advertised subnet is installed at PE3 BGP table?

- A. PE2 subnet only due to the same RD value with PE1
- B. PE2 subnet only due to the same RD value with PE3
- C. Both PE1 and PE2 subnets due to exported subnet with RT matches import RT on PE3
- D. PE1 subnet only due to exported subnet with RT matches import RT on PE3

Answer: D

NEW QUESTION 209

A customer needs Internet and MPLS services from the service provider and needs to ensure traffic from the Internet network does not constrain MPLS traffic.

Which shared MPLS/Internet service type best accommodates this requirement?

- A. partial separation
- B. full separation
- C. Multisite Internet Access
- D. Internet tunnel over MPLS

Answer: B

NEW QUESTION 214

A customer requests Internet through its MPLS provider. Which Internet design model guarantees maximum security and easier provisioning?

- A. Internet access through global routing
- B. Internet access through route leaking
- C. Internet access through a separate VPN service
- D. Internet access through multisite

Answer: C

NEW QUESTION 217

Which option is the primary purpose of central service MPLS VPNs?

- A. provide customer access to provider resources while ensuring customers cannot communicate directly
- B. provide the provider access to customer resources while ensuring customers cannot communicate directly
- C. provide other service providers access to provider resources
- D. provide other service providers access to customer resources

Answer: A

NEW QUESTION 219

A network engineer is troubleshooting an MPLS Layer 3 VPN and discovers that routes are being learned by CE routers, but there is no IP connectivity. Which option is the most likely cause?

- A. The provider does not have an end-to-end label switch path.
- B. The customer does not have an end-to-end label switch path.
- C. The customer is not sharing labels with the provider.
- D. The provider is not sharing labels with the customer.
- E. The providers PE to CE routing protocol is misconfigured.
- F. The customers PE to CE routing protocol is misconfigured.

Answer: A

NEW QUESTION 222

Which option is a valid Cisco IOS XR BGP Layer 3 IPv4 MPLS VPN configuration?

- A. router bgp 65001no bgp default ipv4-unicast bgp log-neighbor-changesneighbor 1.2.3.4 remote-as 65001 neighbor 1.2.3.4 update-source Loopback0 address-family vpnv4neighbor 1.2.3.4 activateneighbor 1.2.3.4 send-community extended exit-address-familyaddress-family ipv4 vrf VPN redistribute ospf 100
- B. router bgp 65001no bgp default ipv4-unicast bgp log-neighbor-changesneighbor 1.2.3.4 remote-as 65001 neighbor 1.2.3.4 update-source Loopback0 address-family vpnv4neighbor 1.2.3.4 activate exit-address-familyaddress-family ipv4 vrf VPN redistribute ospf 100
- C. router bgp 100address-family vpnv4 unicast neighbor 2.2.2.2remote-as 100update-source Loopback0 address-family vpnv4 unicast!vrf VPN_A rd 100:1address-family ipv4 unicast redistribute ospf 100
- D. router bgp 100address-family vpnv4 unicast neighbor 2.2.2.2remote-as 100update-source Loopback0 address-family ipv4 unicast!vrf VPN_A rd 100:1address-family ipv4 unicast redistribute ospf 100

Answer: C

NEW QUESTION 225

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