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Nokia Ethernet Virtual Private Network Services

Nokia 4A0-115

Version Demo

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QUESTION NO: 1

A PE receives an EVPN-MPLS packet from a remote PE. The outer transport label has delivered the packet across the provider MPLS network to the receiving PE. Which label identifies the local EVPN service forwarding context after the transport label processing is complete?

A. The route target attached to the EVPN route

B. The route distinguisher carried in the EVPN NLRI

C. The inner EVPN service label

D. The outer MPLS transport label

ANSWER: C

Explanation:

The inner EVPN service label identifies the local service forwarding context at the egress PE. The transport label is used by the MPLS underlay to direct the packet toward the egress PE and is removed or processed as the packet reaches that PE. The remaining EVPN service label demultiplexes the packet to the applicable VPLS, VPWS attachment circuit, or other EVPN forwarding context. A route target and route distinguisher are BGP control-plane attributes and are not MPLS data-plane labels.

QUESTION NO: 2

CE1 is single-active multi-homed to PE1 and PE2 for an EVPN VPLS. PE1 is elected as the designated forwarder for the service VLAN. PE2 receives a broadcast packet from a remote PE that must be delivered toward CE1. Which of the following actions does PE2 perform?

A. PE2 forwards the packet to CE1 because both PEs are attached to the Ethernet segment.

B. PE2 forwards the packet to CE1 only after adding an ESI label.

C. PE2 suppresses forwarding of the packet toward CE1 because it is the non-DF.

D. PE2 advertises a MAC/IP withdrawal for the source MAC address of the packet.

ANSWER: C

Explanation:

In single-active multihoming, only the designated forwarder forwards BUM traffic from the EVPN network toward the customer Ethernet segment for the applicable VLAN or Ethernet tag. Because PE2 is the non-DF, it suppresses transmission of the broadcast packet toward CE1. PE2 can still participate in control-plane procedures and can become active following a DF-election change, but it must not duplicate BUM delivery toward the CE while PE1 is the DF.

QUESTION NO: 3

CE1 is single-active multi-homed to PE1 and PE2 for an EVPN VPLS. PE1 is the designated forwarder for the VLAN associated with the service. PE2 receives a broadcast frame from CE1 on its local attachment circuit. Which of the following actions does PE2 perform?

A. PE2 replicates the frame to all remote PEs because both PEs are attached to CE1.

B. PE2 suppresses the frame because PE2 is the non-designated forwarder.

C. PE2 sends the frame only to PE1, which then replicates it to the remote PEs.

D. PE2 forwards the frame only when the frame includes an ESI label.

ANSWER: B

Explanation:

PE2 suppresses the broadcast frame because it is the non-designated forwarder for the applicable VLAN. In single-active multihoming, only the DF forwards BUM traffic between the Ethernet segment and the EVPN network for a given VLAN or service context. This prevents duplicate flooding when the CE is attached to multiple PEs. PE2 does not replicate the frame to the EVPN flooding list, and it does not send the frame to PE1 for PE1 to perform the flooding decision.

QUESTION NO: 4

Proxy-ARP/ND is operational for a VPLS. Which of the following statements is FALSE?

A. The PE has proxy-ARP and dynamic-populate enabled for the VPLS.

B. The proxy-ARP table is populated by snooping IP packets received from remote PEs.

C. When the PE learns a local host IP address, it adds an entry into its proxy-ARP table.

D. The PE advertises a MAC/IP route that includes the MAC and IP address of a local host.

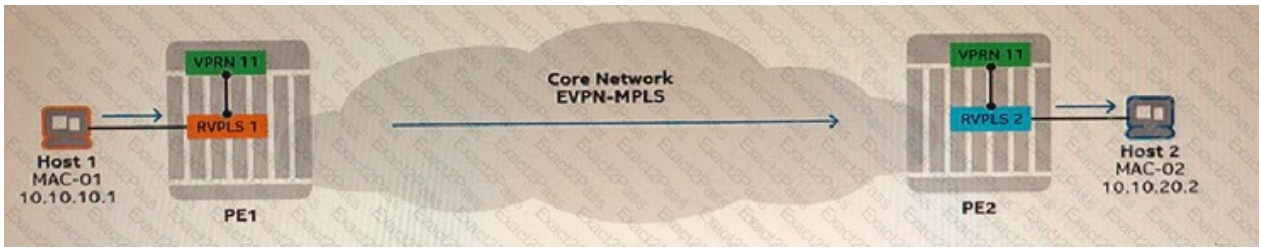
ANSWER: C

Explanation:

The false statement is *"When the PE learns a local host IP address, it adds an entry into its proxy-ARP table."* In a VPLS using proxy-ARP/ND with dynamic population, locally attached host information is learned by the PE and advertised to remote PEs through an EVPN MAC/IP advertisement route. That route carries the host MAC address and IP address, allowing remote PEs to associate the IP endpoint with the appropriate EVPN destination. The local PE does not need to install its own locally learned host IP address in the proxy-ARP/ND cache for this purpose. Instead, the proxy-ARP/ND table is dynamically populated by snooping eligible IP traffic received from remote PEs. This remotely learned IP-to-MAC information enables the PE to answer ARP requests or IPv6 Neighbor Discovery queries locally on behalf of remote hosts, reducing unnecessary broadcast, unknown-unicast, and multicast flooding across the VPLS. Nokia's SR OS documentation describes EVPN MAC/IP route advertisement and the associated host-information learning behavior in its Layer 2 service and EVPN material. See the Nokia SR OS EVPN documentation and the Nokia SR OS Layer 2 Services documentation.

QUESTION NO: 5

In the exhibit, the interface-less forwarding model is used for the Layer-3 EVPN service. Which of the following statements about traffic forwarding from Host 1 to Host 2 is FALSE?



A. PE1 consults the FDB of RVPLS 1 and forwards the traffic to the local interface of VPRN 11.

B. PE1 encapsulates the packet with two labels: an outer transport label and an inner service label.

C. PE2 inspects the service label and determines that it is associated with RVPLS 2.

D. PE2 consults the FDB of RVPLS 2 and forwards the traffic to Host 2.

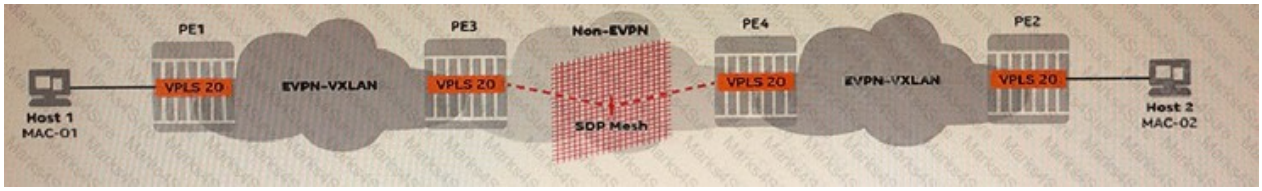
ANSWER: B

Explanation:

PE1 encapsulates the packet with two labels: an outer transport label and an inner service label. is the false statement. In an interface-less Layer-3 EVPN forwarding design that uses a VPRN-to-RVPLS relationship, the ingress router needs a label stack that represents both service contexts in addition to transport across the provider network. After the local VPRN forwarding decision directs the packet toward the associated routed-VPLS context, PE1 imposes an outer transport label to reach the remote PE, a service label identifying the VPRN service, and a further service label identifying the RVPLS forwarding context. Thus, the transmitted packet has three labels rather than only an outer transport label and one inner service label. This stacked-label treatment preserves the separation between Layer-3 VPN forwarding and the EVPN/RVPLS Ethernet forwarding lookup at the remote PE. The remote router can remove the transport label as the packet reaches its destination, process the service-label hierarchy, and deliver the frame through the correct Ethernet service forwarding context. Nokia's EVPN documentation describes EVPN service forwarding and label handling in the SR OS EVPN guide: Nokia SR OS EVPN Guide. Additional service-model context is available in the Nokia SR OS Services Overview.

QUESTION NO: 6

Examine the exhibit.



Which of the following statements about the operation of VPLS 20 is TRUE?

A. The flooding list maintained by PEI for VPLS 20 contains three entries: PE2, PE3, and PE4.

B. PE3 advertises an IMET route to PEI when its VPLS 20's mesh-SDP becomes operationally UP.

C. PE3 signals a service label to PE4 when its VPLS 20 is enabled and is bound to an operational SDP.

D. PE1 advertises a MAC route for MAC-01 when its VPLS 20's SAP becomes operationally UP.

ANSWER: C

Explanation:

PE3 signals a service label to PE4 when its VPLS 20 is enabled and is bound to an operational SDP. In an MPLS VPLS implementation using an SDP binding, the pseudowire/service label is distributed by the LDP signaling associated with the SDP. Once the VPLS service is administratively enabled and the underlying SDP is operational, PE3 can advertise the label information that PE4 needs to send traffic into PE3's VPLS instance. PE4 likewise provides its label information for traffic in the reverse direction. These labels identify the VPLS service at the far end of the MPLS transport tunnel, allowing Ethernet frames received on a local SAP or another service attachment to be encapsulated and delivered to the correct remote VPLS context. This is the fundamental control-plane behavior for LDP-signaled VPLS pseudowires: each PE distributes a VC/service label for its endpoint of the VPLS connection. RFC 4762 describes the use of LDP for VPLS setup and the distribution of VPLS label mappings, while RFC 4447 defines the pseudowire label-signaling procedures used by LDP. See RFC 4762 and RFC 4447.