300-410 Q&As

Implementing Cisco Enterprise Advanced Routing and Services (ENARSI) (Include 2023 Newest Simulation Labs)

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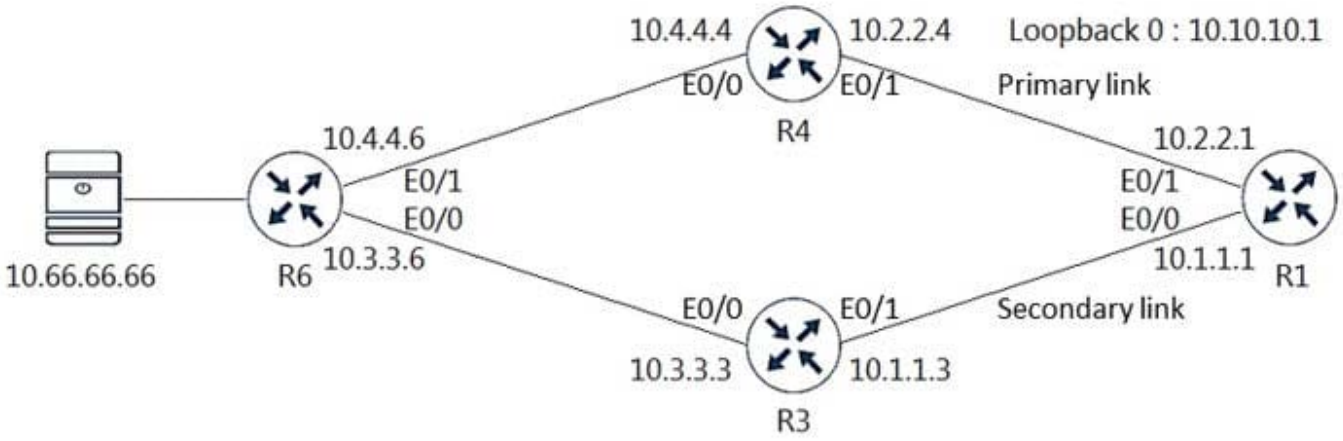
QUESTION 1

Refer to the exhibit An engineer configured NetFlow but cannot receive the flows from R1.




```
R3# & R4#
interface Ethernet0/1
 ip access-group DDOS in
!
ip access-list extended DDOS
 permit tcp any any
 deny  udp any any range 1024 65535
 permit ip any any
```

```
R1#sh flow interface
Interface Ethernet0/0
 FNF: monitor: FlowMonitor1
    direction:   Input
    traffic(ip):  on
 FNF: monitor: FlowMonitor1
    direction:   Output
    traffic(ip):  on
Interface Ethernet0/1
 FNF: monitor: FlowMonitor1
    direction:   Input
    traffic(ip):  on
 FNF: monitor: FlowMonitor1
    direction:   Output
    traffic(ip):  on
```

```
R1#show flow exporter
Flow Exporter FlowExporter1:
  Description: User defined
  Export protocol: NetFlow Version 5
  Transport Configuration:
    Destination IP address: 10.66.66.66
    Source IP address:      10.1.1.1
    Transport Protocol:     UDP
    Destination Port:       1090
    Source Port:    54186
    DSCP:           0x0
    TTL:            255
    Output Features: Not Used
```

```
R1#show flow monitor
Flow Monitor FlowMonitor1:
  Description: User defined
  Flow Record: netflow ipv4 original-input
  Flow Exporter: FlowExporter1
  Cache:
    Type:     normal
    Status:   allocated
    Size:     4096 entries / 344088 bytes
    Inactive Timeout:  15 secs
    Active Timeout:    1800 secs
    Update Timeout:    1800 secs
    Synchronized Timeout:   600 secs
```

Which two configurations resolve the issue? (Choose two)

A. R3(config)#ip access-list extended DDOS R3(config-ext-nacl)#5 permit udp any host 10.66.66.66 eq 1090

B. R4(config)#flow exporter FlowExporter1 R4(config-flow-exporter)#destination 10.66.66.66

C. R3(config)#flow exporter FlowExporter1 R3(config-flow-exporter)#destination 10.66.66.66

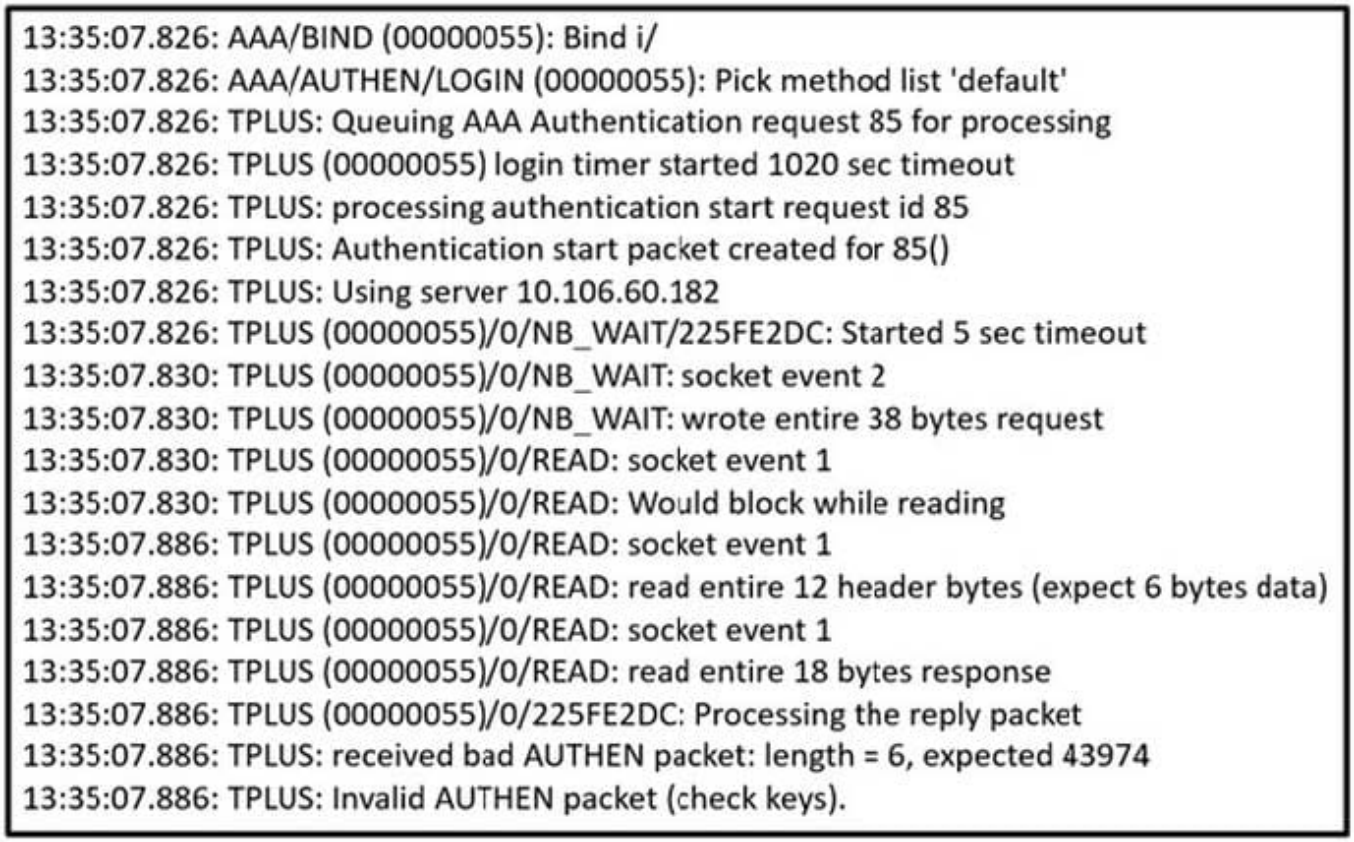
D. R1(config)#flow exporter FlowExporter1 R1(config-flow-exporter)#destination 10.66.60.66

E. R4(config)#ip access-list extended DDOS R4(config-ext-naci)#5 permit udp any host 10.66.66.66 eq 1090

Correct Answer: AE

QUESTION 2

Refer to the exhibit. Which action resolves the authentication problem?



A. Configure the user name on the TACACS+ server

B. Configure the UDP port 1812 to be allowed on the TACACS+ server

C. Confiqure the TCP port 49 to be reachable by the router

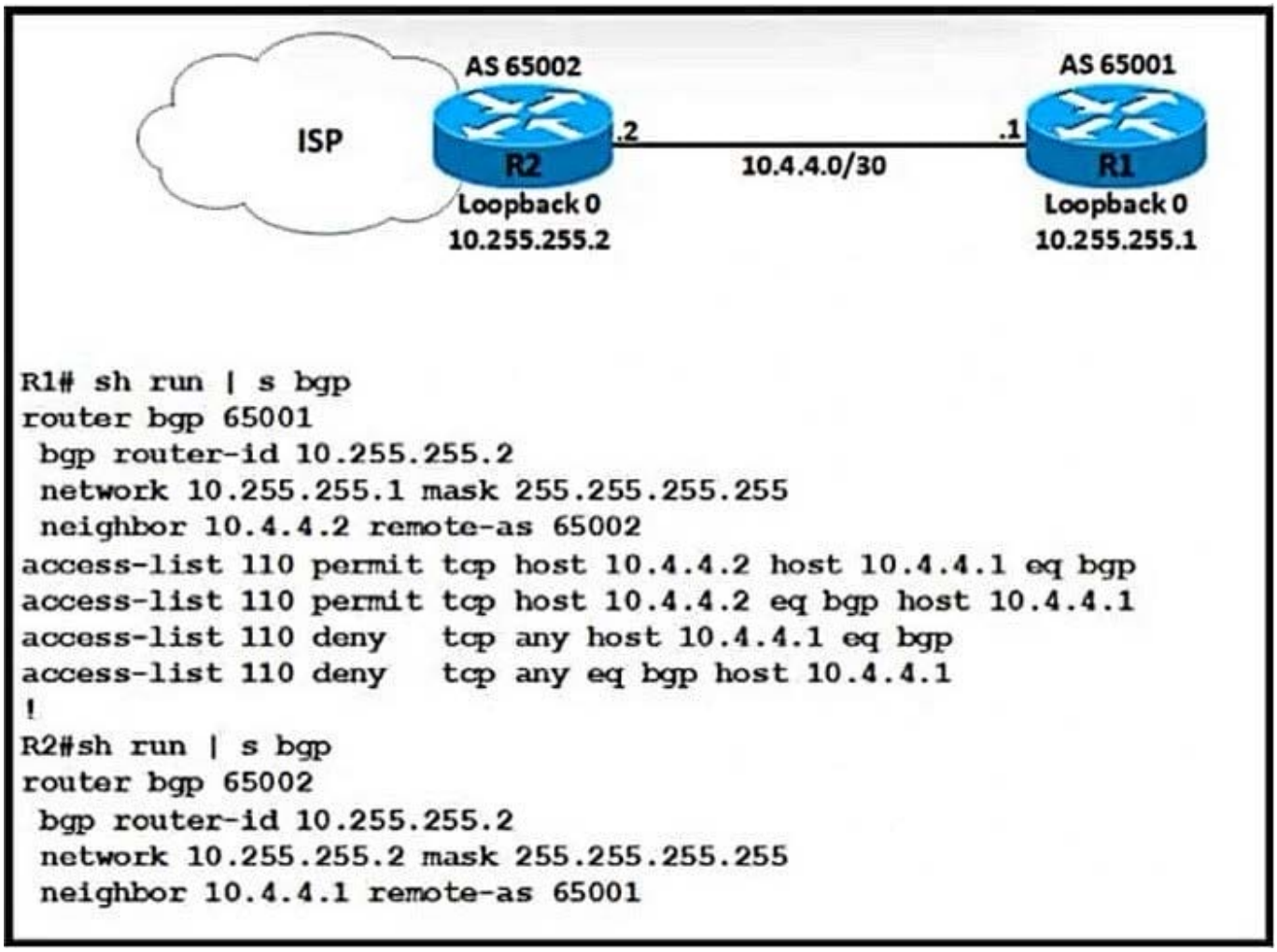
D. Configure the same password between the TACACS+ server and router.

Correct Answer: D

From the last line of the output, we notice that the result was "Invalid AUTHEN packet". Therefore something went wrong with the username or password.

QUESTION 3

Refer to the exhibit.



A network engineer notices that R1 and R2 cannot establish an eBGP peering. The following messages appear in the log:

*Dec 21 12:08:59.991: BGP: br topo global 10.4.4.2 IPv4 Unicast:base (0x6A8B3998:1) NSF delete stale NSF not active
*Dec 21 12:08:59.995: BGP: br topo global 10.4.4.2 IPv4 Unicast:base (0x44361063:8) NSF no stale paths state is NSF not active
*Dec 21 12:08:59.995: BGP: br topo global 10.4.4.2 IPv4 Unicast:base (0x6A8B3998:1) Resetting ALL counters.
*Dec 21 12:09:09.819: BG-3-NOTIFICATION: sent to neighbor 10.4.4.2 passive 2/3 (BGP identifier wrong) 4 bytes OAFFFF02
*Dec 21 12:09:09.823: BGP-4-MSGDUMP: unsupported or mal-formatted message received from 10.4.4.2:
*Dec 21 12:09:12.443: 8BGP SESSION-5-ADJCHANGE: neighbor 10.4.4.2 IPv4 Unicast topology base removed from session BGP Notification received
*Dec 21 12:09:00.191: BGP: br global 10.4.4.2 Open active delayed 12288ms (35000ms max, 60% jitter)

Which configuration must the engineer apply to R1 to restore the eBGP peering?

A.
```
router bgp 65001
  bgp router-id 10.255.255.1
  neighbor 10.4.4.2 remote-as 65002
access-list 110 permit udp host 10.4.4.2 host 10.4.4.1 eq 179
access-list 110 permit udp host 10.4.4.2 eq 179 host 10.4.4.1
access-list 110 deny udp any host 10.4.4.1 eq 179
access-list 110 deny udp any eq 179 host 10.4.4.1
```

B.
```
router bgp 65001
  bgp router-id 10.255.255.2
  neighbor 10.4.4.2 remote-as 65002
access-list 110 permit tcp host 10.4.4.2 host 10.4.4.1 eq 179
access-list 110 permit tcp host 10.4.4.2 eq 179 host 10.4.4.1
access-list 110 deny tcp any host 10.4.4.1 eq 179
access-list 110 deny tcp any eq 179 host 10.4.4.1
```

C.
```
router bgp 65001
  bgp router-id 10.255.255.2
  neighbor 10.4.4.2 remote-as 65002
access-list 110 permit udp host 10.4.4.2 host 10.4.4.1 eq 179
access-list 110 permit udp host 10.4.4.2 eq 179 host 10.4.4.1
access-list 110 deny udp any host 10.4.4.1 eq 179
access-list 110 deny udp any eq 179 host 10.4.4.1
```

D.
```
router bgp 65001
  bgp router-id 10.255.255.1
  neighbor 10.4.4.2 remote-as 65002
access-list 110 permit tcp host 10.4.4.2 host 10.4.4.1 eq 179
access-list 110 permit tcp host 10.4.4.2 eq 179 host 10.4.4.1
access-list 110 deny   tcp any host 10.4.4.1 eq 179
access-list 110 deny   tcp any eq 179 host 10.4.4.1
```

A. Option A

B. Option B

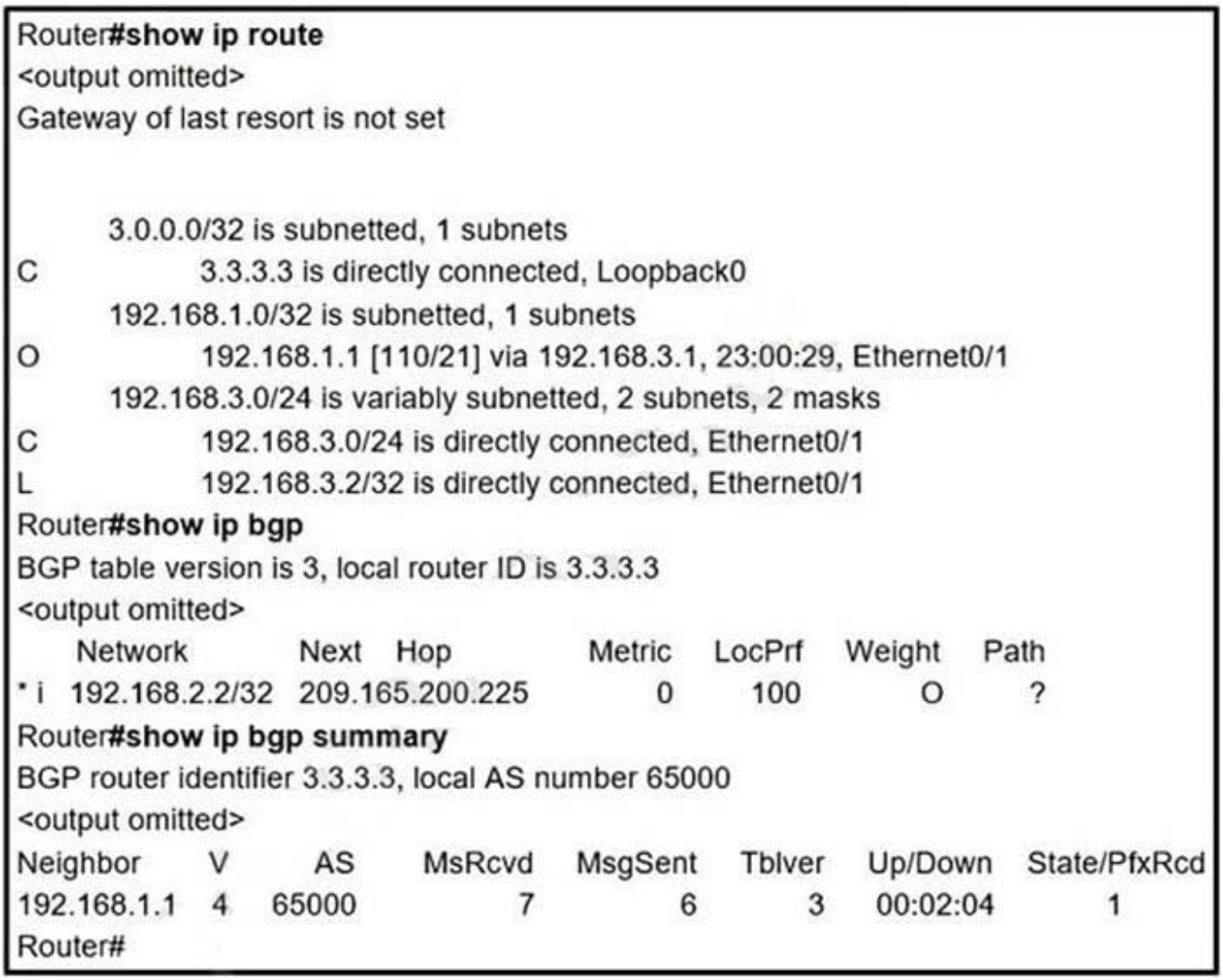
C. Option C

D. Option D

Correct Answer: D

QUESTION 4

Refer to the exhibit.



```
Router#show ip route
<output omitted>
Gateway of last resort is not set

      3.0.0.0/32 is subnetted, 1 subnets
C        3.3.3.3 is directly connected, Loopback0
      192.168.1.0/32 is subnetted, 1 subnets
O        192.168.1.1 [110/21] via 192.168.3.1, 23:00:29, Ethernet0/1
      192.168.3.0/24 is variably subnetted, 2 subnets, 2 masks
C        192.168.3.0/24 is directly connected, Ethernet0/1
L        192.168.3.2/32 is directly connected, Ethernet0/1
Router#show ip bgp
BGP table version is 3, local router ID is 3.3.3.3
<output omitted>
     Network          Next Hop            Metric  LocPrf  Weight  Path
* i  192.168.2.2/32    209.165.200.225          0     100       0  ?
Router#show ip bgp summary
BGP router identifier 3.3.3.3, local AS number 65000
<output omitted>
Neighbor        V           AS MsgRcvd MsgSent   TblVer  Up/Down  State/PfxRcd
192.168.1.1     4        65000       7       6        3  00:02:04            1
Router#
```

Which action installs route 192.168.2.2/32 in the routing table?

A. Redistribute connected networks into BGP on the local router.

B. Configure NAT on the local router to translate private IP addresses.

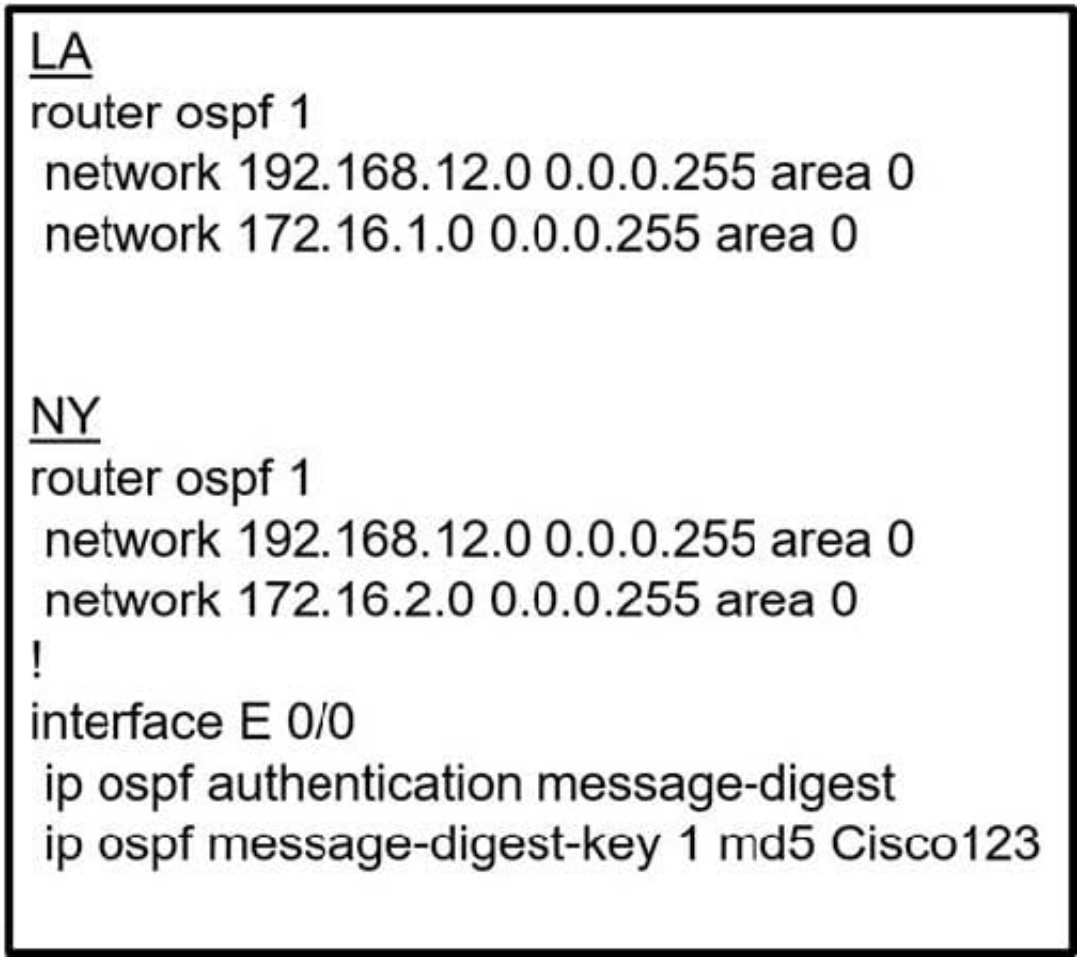
C. Configure the next-hop-self attribute for the peering on the local router.

D. Configure the next-hop-self attribute for the peering on the peer router.

Correct Answer: D

QUESTION 5

Refer to the exhibit. The neighbor relationship is not coming up. Which two configurations bring the adjacency up? (Choose two)



A. LA interface E 0/0 ip ospf authentication-key Cisco123

B. NY interface E 0/0 no ip ospf message-digest-key 1 md5 Cisco123 ip ospf authentication-key Cisco123

C. LA interface E 0/0 ip ospf message-digest-key 1 md5 Cisco123

D. LA router ospf 1 area 0 authentication message-digest

E. NY router ospf 1 area 0 authentication message-digest

Correct Answer: CD

The configuration on NY router is good for OSPF authentication. So we must enable OSPF authentication on LA router with the following commands:

router ospf 1 area 0 authentication message-digest interface E0/0 ip ospf message-digest-key 1 md5 Cisco123

QUESTION 6

Network operations report issues with receiving too many external routes, which caused CPU spike on routers with smaller memories. Which action resolves the issue?

A. Configure the area range command when redistributing on ASBR.

B. Configure the summary-address command when redistributing on ABR.

C. Configure the area range command when redistributing on ABR.

D. Configure the summary-address command when redistributing on ASBR.

Correct Answer: D

https://www.geeksforgeeks.org/configuring-ospf-route-summarization-in-cisco/

ASBR summary-address [not-advertise]

ABR area range [advertise |not-advertise]

E1/E2 come from ASBR.

QUESTION 7

Which of the following commands configures an SNMP host to authenticate a user by username and send clear text notifications, the receipt of which will be acknowledged by the receiver?

A. Router(config)# snmp-server host 192.168.5.5 informs version 3 noauth CISCO

B. Router(config)# snmp-server host 192.168.5.5 traps version 3 auth CISCO

C. Router(config)# snmp-server host 192.168.5.5 informs version 2c CISCO

D. Router(config)# snmp-server host 192.168.5.5 informs version 3 authpriv CISCO

Correct Answer: A

The command snmp-server host 192.168.5.5 informs version 3 noauth CISCO will configure the host to authenticate a user by username and send clear text notifications. The receiver will then acknowledge receipt of the notification. The

keyword informs indicates that an inform message type will be used. Unlike a trap, an inform message is acknowledged by the receiver.

The version 3 keyword indicates that version 3 is in use, which is the ONLY version that supports authentication and encryption. Finally, the noauth keyword specifies authentication by username only and no encryption.

The command snmp-server host 192.168.5.5 traps version 3 auth CISCO configures the host to send traps rather than informs.

The command snmp-server host 192.168.5.5 informs version 2c CISCO specifies version 2c, which only support community string-based authentication.

The command snmp-server host 192.168.5.5 informs version 3 authpriv CISCO specifies the keyword authpriv, which indicates encryption will be used and authentication based on HMAC-MD5 or HMAC-SHA algorithms.

Objective:

Infrastructure Services

Sub-Objective:

Configure and verify SNMP

References:

Configuring SNMP Support > Understanding SNMP > SNMP Versions Cisco IOS Network Management Command Reference > snmp-server engineID local through snmp trap link- status > snmp-server host

QUESTION 8

Which of the following commands must be present in the configuration to support Unicast RFP?

A. bandwidth

B. ip cef

C. ip route 0.0.0.0 0.0.0.0

D. log

Correct Answer: B

The command ip cef must be present in the configuration to support Unicast Reverse Path Forwarding (RPF). If the router is set to its defaults, it will be present. Unicasts RPF uses the tables created by CEF to validate packet source

addresses. Therefore, it must be enabled. Unicast RPF can be enabled in three modes:

Strict mode - The source address must be must be reachable on the interface where the packet arrived. Loose mode - Traffic is allowed if the source address is reachable via any interface on the router as indicted in the routing table.

VRF mode - Evaluates an incoming packet\\'s source IP address against the VRF table configured for an eBGP neighbor.

The bandwidth command, while desirable to ensure proper cost calculation of the interface for routing purposes, is not a requirement for Unicast RPF.

The ip route 0.0.0.0 0.0.0 command creates a default route. A default route does not need to be present for Unicast RPF to function.

The log command is not required. This command should be used with caution with any access list, as it causes an increase in CPU usage in the router.

Objective:

Infrastructure Security

Sub-Objective:

Configure and verify router security features

References:

Cisco IOS Security Configuration Guide, Release 12.2 > Part 5: Other Security Features > Configuring Unicast Reverse Path Forwarding Cisco > Cisco IOS IP Switching Command Reference > ip cef

QUESTION 9

Refer to the exhibit. The administrator noticed that the connection was flapping between the two ISPs instead of switching to ISP2 when the ISP1 failed. Which action resolves the issue?

```
ip sla 1
 icmp-echo 8.8.8.8
 threshold 1000
 timeout 2000
 frequency 5
ip sla schedule 1 life forever start-time now
!
track 1 ip sla 1
!
ip route 0.0.0.0 0.0.0.0 Ethernet0/0 203.0.113.1 name ISP1 track
1
ip route 0.0.0.0 0.0.0.0 Ethernet0/1 198.51.100.1 2 name ISP2
```

A. Include a valid source-interface keyword in the icmp-echo statement.

B. Reference the track object 1 on the default route through ISP2 instead of ISP1.

C. Modify the static routes to refer both to the next hop and the outgoing intertace.

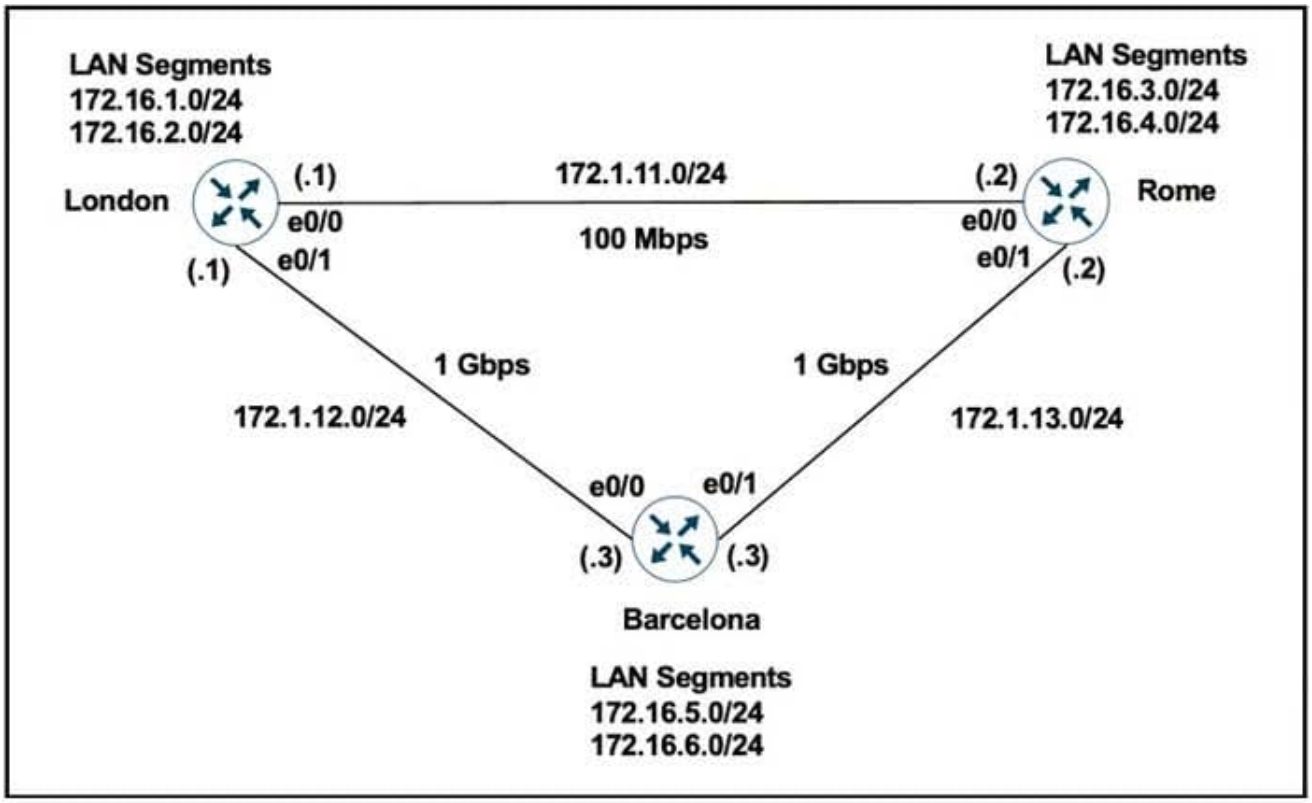
D. Modify the threshold to match the administrative distance of the ISP2 route.

Correct Answer: A

https://www.cisco.com/c/en/us/support/docs/ip/ip-routing/200785-ISP-Failover-withdefault-routes-using-I.html

QUESTION 10

Refer to the exhibits.



London – "show ip route" output

```
Gateway of last resort is not set

     172.1.0.0/16 is variably subnetted, 5 subnets, 2 masks
C       172.1.11.0/24 is directly connected, Ethernet0/0
L       172.1.11.1/32 is directly connected, Ethernet0/0
C       172.1.12.0/24 is directly connected, Ethernet0/1
L       172.1.12.1/32 is directly connected, Ethernet0/1
D       172.1.13.0/24 [90/76800] via 172.1.11.2, 00:00:50, Ethernet0/0
     172.16.0.0/16 is variably subnetted, 8 subnets, 2 masks
C       172.16.1.0/24 is directly connected, Loopback0
L       172.16.1.1/32 is directly connected, Ethernet0/0
C       172.16.2.0/24 is directly connected, Loopback1
L       172.16.2.1/32 is directly connected, Loopback1
R       172.16.3.0/24 [120/1] via 172.1.11.2, 00:00:08, Ethernet0/0
R       172.16.4.0/24 [120/1] via 172.1.11.2, 00:00:08, Ethernet0/0
D       172.16.5.0/24 [90/156160] via 172.1.12.3, 00:00:50, Ethernet0/1
D       172.16.6.0/24 [90/156160] via 172.1.12.3, 00:00:50, Ethernet0/1


  redistribute connected
!
router rip
  version 2
  network 172.1.0.0
  network 172.16.0.0
  no auto-summary
```

London must reach Rome using a faster path via EIGRP if all the links are up but it failed to take this path Which action resolves the issue?

A. Increase the bandwidth of the link between London and Barcelona

B. Use the network statement on London to inject the 172 16 X 0/24 networks into EIGRP.

C. Change the administrative distance of RIP to 150

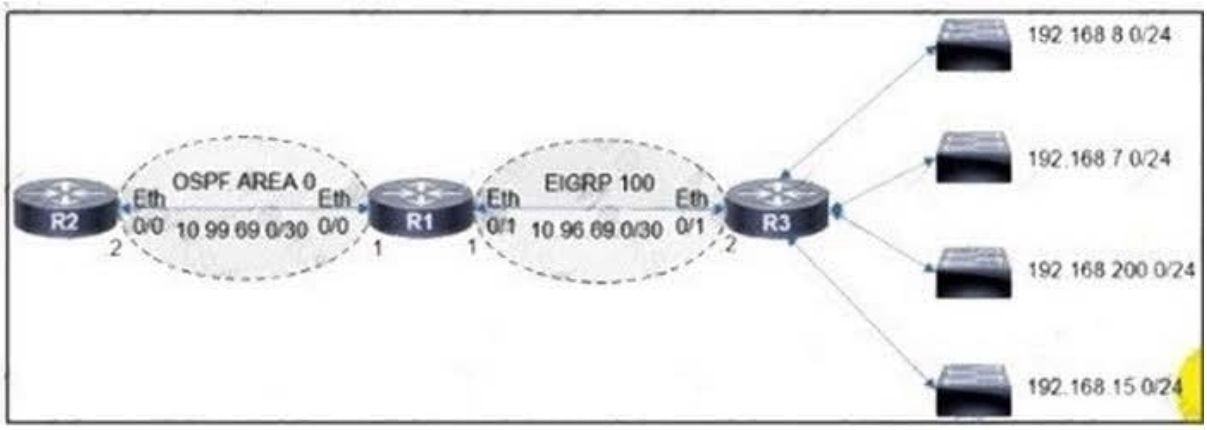
D. Use the network statement on Rome to inject the 172 16 X 0/24 networks into EIGRP

Correct Answer: D

Prefixes from Rome are only advertised in RIP (AD-120). After advertising it in EIGRP these prefixes will be preferred by London site. Additionally, London site performs redistribution of connected routes in EIGRP (see output).

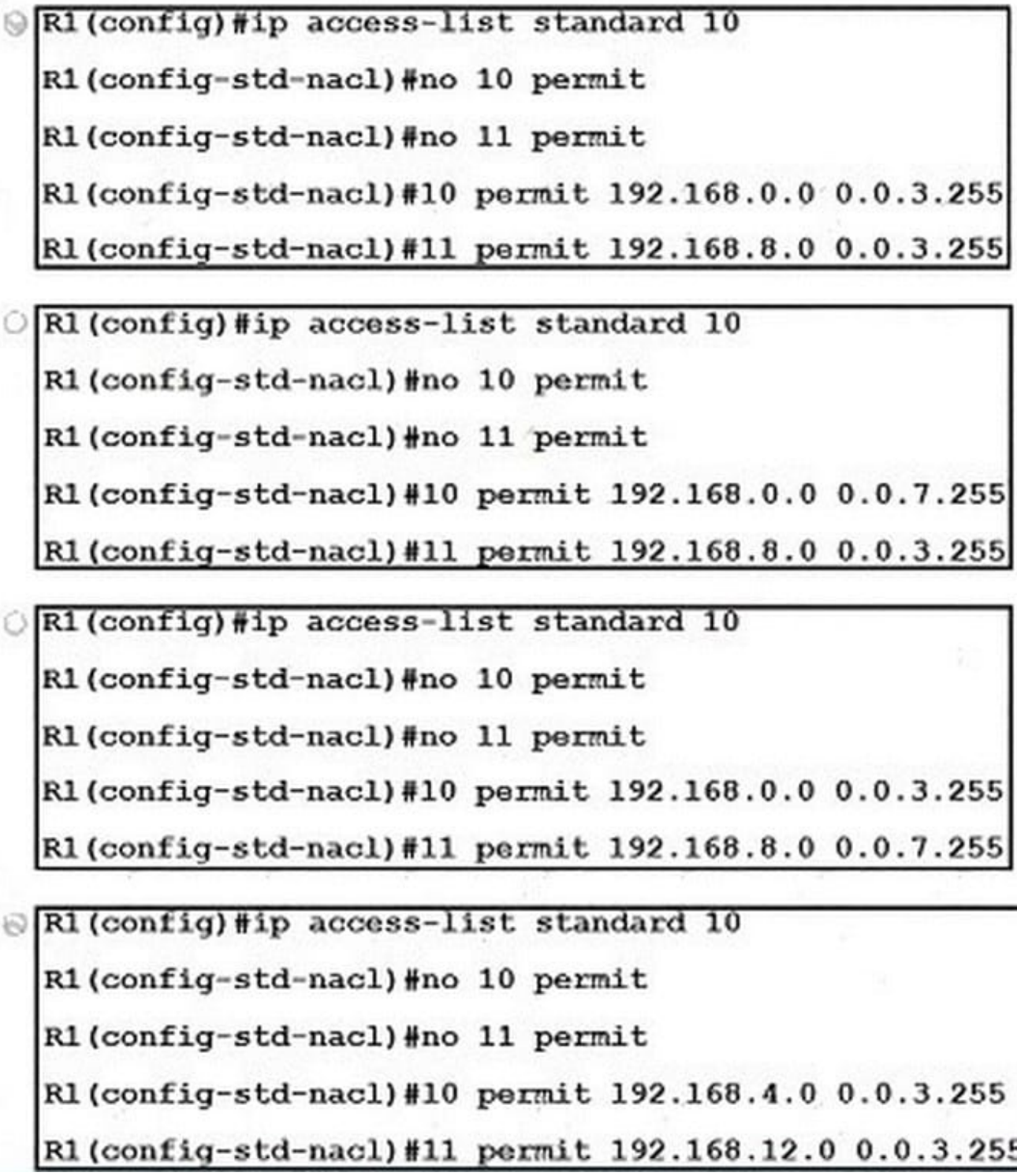
QUESTION 11

Refer to the exhibit




```
R1#show route-map
route-map FROM->EIGRP, permit, sequence 10
  Match clauses:
    ip address (access-lists): 10
  Set clauses:
  Policy routing matches: 0 packets, 0 bytes
R1#show run | sec router
router eigrp 100
 network 10.96.69.0 0.0.0.3
 no auto-summary
 eigrp router-id 1.1.1.1
router ospf 100
 router-id 1.1.1.1
 log-adjacency-changes
 redistribute eigrp 100 subnets route-map FROM->EIGRP
 network 10.99.69.0 0.0.0.3 area 0
R1#show ip access-list
Standard IP access list 10
    10 permit 192.168.16.0, wildcard bits 0.0.3.255
    11 permit 192.168.0.0, wildcard bits 0.0.7.255
    20 deny   any
```

The engineer configured route redistribution in the network but soon received reports that R2 cannot access 192 168 7 0/24 and 192 168 15 0/24 subnets Which configuration resolves the issue?



A. Option A

B. Option B

C. Option C

D. Option D

Correct Answer: D

QUESTION 12

When configuring Control Plane Policing on a router to protect it from malicious traffic, an engineer observes that the configured routing protocols start flapping on that device. Which action in the Control Plane Policy prevents this problem in a production environment while achieving the security objective?

A. Set the conform-action and exceed-action to transmit initially to test the ACLs and transmit rates and apply the Control Plane Policy in the output direction

B. Set the conform-action and exceed-action to transmit initially to test the ACLs and transmit rates and apply the Control Plane Policy in the input direction

C. Set the conform-action to transmit and exceed-action to drop to test the ACLs and transmit rates and apply the Control Plane Policy m the input direction

D. Set the conform-action to transmit and exceed-action to drop to test the ACLs and transmit rates and apply the Control Plane Policy m the output direction

Correct Answer: B

QUESTION 13

Refer to the exhibit. The R2 loopback interface is advertised with RIP and EIGRP using default values. Which configuration changes make R1 reach the R2 loopback using RIP?

```
R1#sh ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP
       a - application route
       + - replicated route, % - next hop override, p - overrides from PfR

Gateway of last resort is not set

D     10.0.0.0/8 [90/409600] via 172.16.1.200, 00:00:28, Ethernet0/0
      172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C        172.16.1.0/24 is directly connected, Ethernet0/0
L        172.16.1.100/32 is directly connected, Ethernet0/0
      192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C        192.168.1.0/24 is directly connected, Loopback0
L        192.168.1.100/32 is directly connected, Loopback0
R1#
```

A. R1(config)# router rip R1(config-router)# distance 90

B. R1(config)# router rip R1(config-router)# distance 100

C. R1(config)# router eigrp 1 R1(config-router)# distance eigrp 130 120

D. R1(config)# router eigrp 1 R1(config-router)# distance eigrp 120 120

Correct Answer: C

distance (AD Number u want to change to) (neighbor IP) (Wildcard Mask) (access-list number)

QUESTION 14

A network engineer needs to verify IP SLA operations on an interface that shows on indication of excessive traffic. Which command should the engineer use to complete this action?

A. show frequency

B. show track

C. show reachability

D. show threshold

Correct Answer: B

QUESTION 15

You are configuring a DHCP server to service a group of clients that are located on a different subnet than the DHCP server itself. What else must you configure to ensure a successful setup?

A. Relay agent

B. Multicast routing

C. Unicast routing

D. Access list

Correct Answer: A

If a DHCP server needs to service clients in a different subnet, you will need to configure a relay agent. The relay agent service is enable by default but does not function unless you provide the IP address of the remote DHCP server, which is

done by executing the ip helper address command on the interface where the address needs to be announced.

The fact that the clients are on a different subnet indicates that there is a router between the DHCP server and the clients. The DHCP discover packet that a client sends out is in the form of a broadcast. Routers do not forward broadcast

traffic from one segment to the other. Without a relay agent, the DHCP server would never receive the requests.

A relay agent resides on the same segment as the clients. When a client sends out a discover packet, the relay agent takes the request, converts it to a unicast packet, and forwards the request to the DHCP server on the other network

segment.

The relay agent can also be activated on the router that separates the two network segments. To enable the relay agent service on a Cisco router where 172.16.10.2 is the IP address of the DHCP server, use the following command:

Router(config-if)# ip helper-address 172.16.10.2

A relay agent can also be used to assist in the auto configuration of a switch. Auto configuration is a process whereby:

1.

A switch boots up.

2.

The switch obtains an IP address, subnet mask, and gateway address (optional).

3.

The switch uses the DNS server to locate the TFTP server.

4.

The switch connects to the TFTP server, downloads the configuration file, and applies it.

When the switch must broadcast to locate the DHCP, DNS, or TFTP server, IP helper addresses can be provided for all of these. When the switch broadcasts, a unicast will be sent to all of these addresses.

In following illustration, the FastEthernet0 interface of the router is connected to the subnet containing the switch and the FastEthernet1 interface of the router is connected to the subnet containing the DHCP, DNS, and TFTP servers. The addresses involved are: Switch - 10.2.2.2 Router - F0 10.2.21, F2 20.2.2.2 DHCP - 20.2.2.5 DNS - 20.2.2.6 TFTP - 20.2.2.7

The router that is located between the subnet containing the switch and the subnet containing the DHCP, DNS, and TFTP servers should be configured as shown below:

```
router10(config)# interface fastethernet 0
router10(config-if)# ip helper-address 20.2.2.5
router10(config-if)# ip helper-address 20.2.2.6
router10(config-if)# ip helper-address 20.2.2.7
router10(config-if)# exit
router10(config)# interface fastethernet 1
router10(config-if)# ip helper-address 10.2.2.2
```

Regardless of whether the ip helper-address command has been used to aid in the DHCP configuration of a switch utilizing auto configuration, or to aid DHCP clients in a different subnet from the DHCP server, the DHCP relay service will

provide relay services for the following UDP protocols by default:

Trivial File Transfer Protocol (TFTP) (port 69)

Domain Naming System (DNS) (port 53)

Time service (port 37)

NetBIOS Name Server (port 137)

NetBIOS Datagram Server (port 138)

Boot Protocol (BOOTP) client and server packets (ports 67 and 68) TACACS service (port 49)

IEN-116 Name Service (port 42)

This default behavior can be altered with the IP forward-protocol udp command executed in global configuration mode.

Multicast routing, unicast routing and access lists do not aid in the DHCP communication process.

Objective:

Layer 3 Technologies

Sub-Objective:

Identify, configure, and verify IPv4 addressing and subnetting

References:

Cisco > IP Addressing: DHCP Configuration Guide > Configuring the Cisco IOS DHCP Relay Agent

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