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Exam : **300-101**

Title : Implementing Cisco IP Routing

Vendor : Cisco

Version : DEMO

NO.1 Which three IP SLA performance metrics can you use to monitor enterprise-class networks? (Choose three.)

A. Bandwidth

B. Traps

C. Packet loss

D. Reliability

E. Delay

F. Connectivity

Answer: C,E,F

NO.2 Which two statements about DMVPN are true?

A. IPsec encryption is not supported with statical addressed spokes

B. It requires full-mesh connectivity on the network

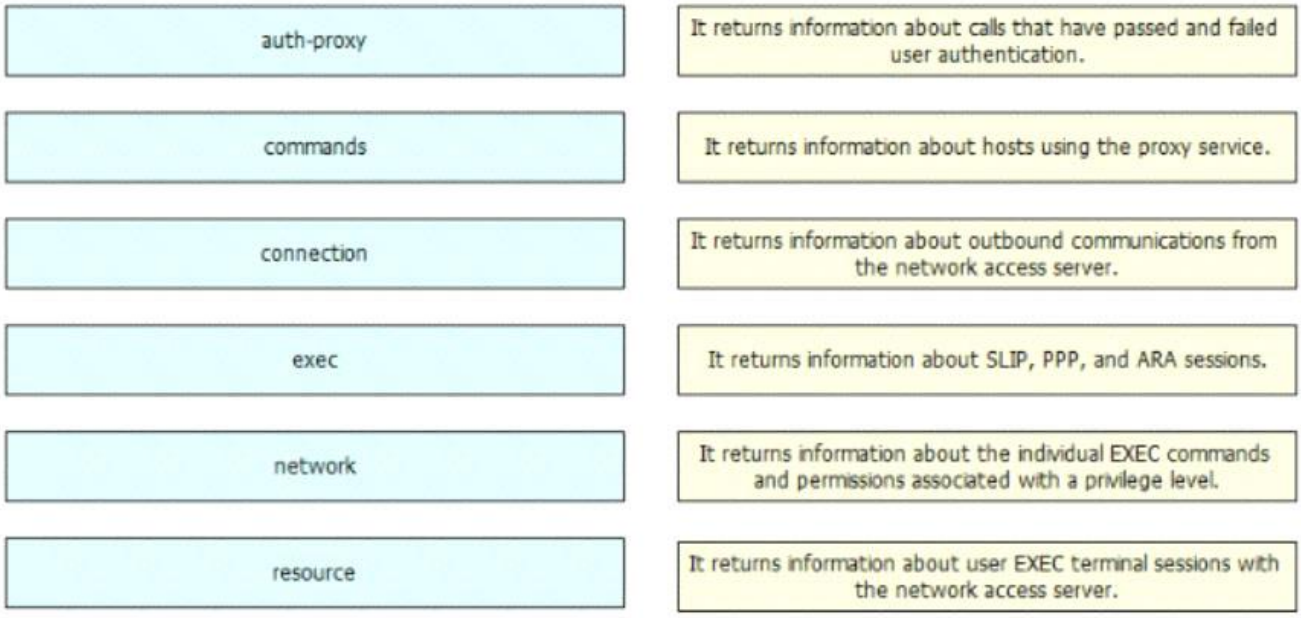
C. It uses NHRP to create a mapping database of spoke addresses

D. It supports dynamic addresses for spokes in a hub-and-spoke VPN topology

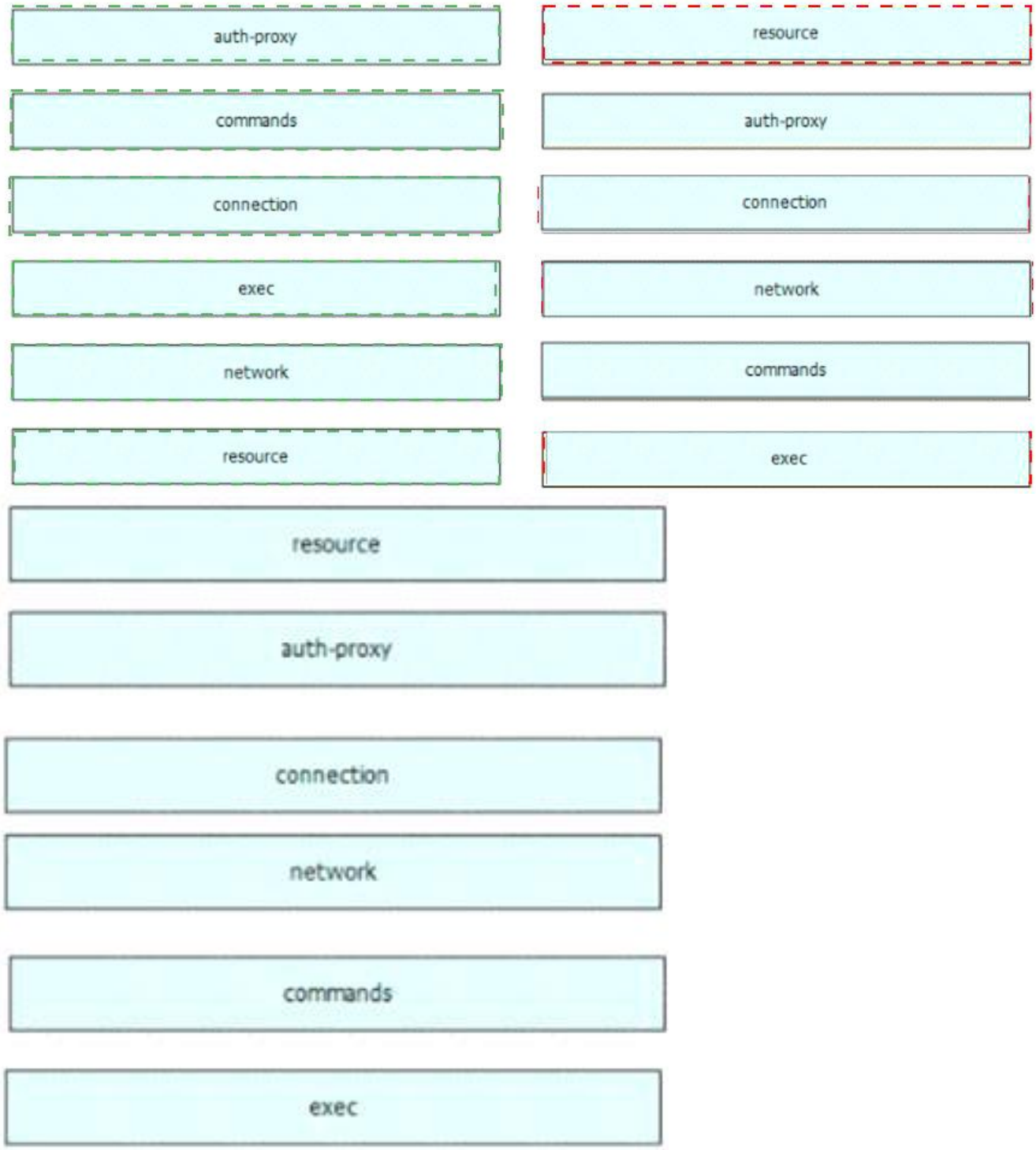
E. Multicast traffic is not supported

Answer: C,D

NO.3 Drag and drop the methods supported by the aaa accounting command from the left onto the correct descriptions on the right.



Answer:



NO.4 A network access server using TACACS+ for AAA operations receives an error message from the TACACS+ server Which action does the network access server take next?

A. It rejects the user access request

B. It restarts and attempts to reconnect to the TACACS+ server

C. It checks the method list for an additional AAA option

D. It attempts to authenticate the user against RADIUS

Answer: C

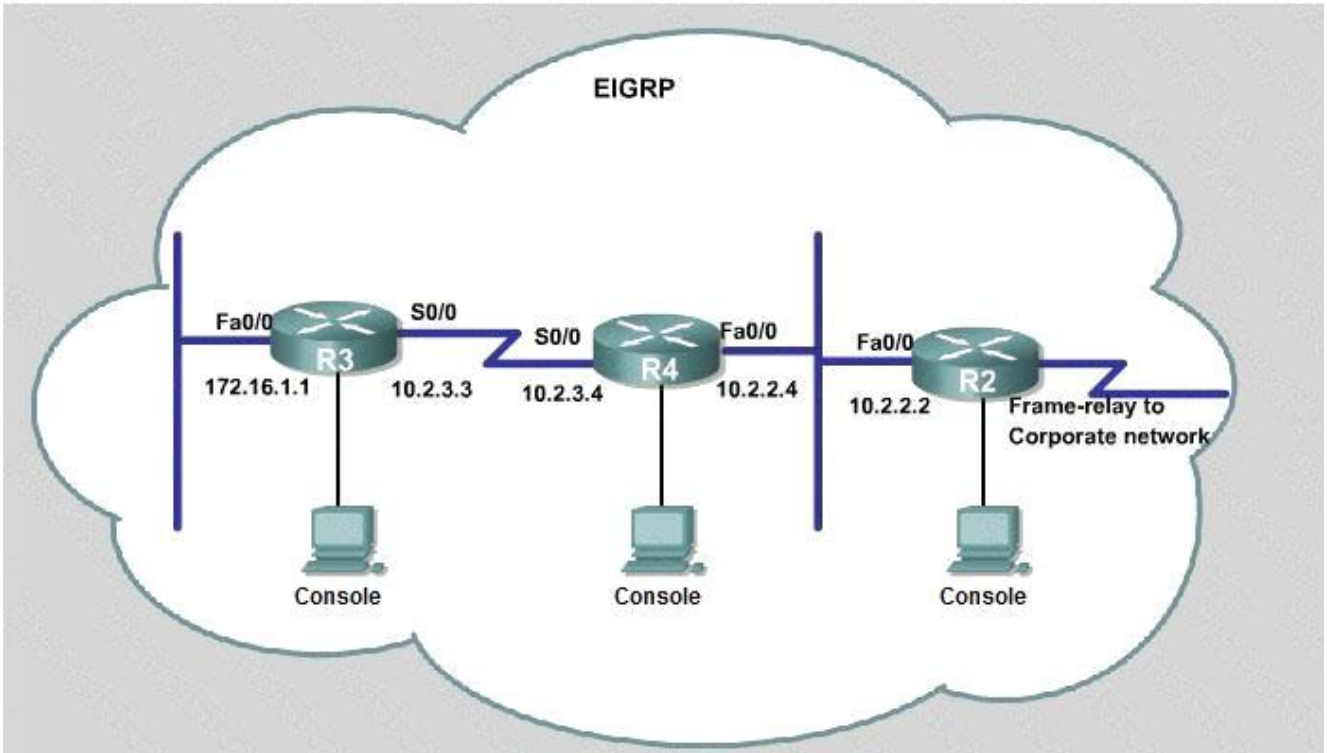
NO.5 Which two statements about configuring OSPFv3 are true? (Choose two)

A. The OSPFv3 routing process must be explicitly configured and enabled
B. OSPFv3 interfaces must be explicitly configured and enabled
C. You can configure only one OSPFv3 instance per link
D. OSPFv3 requires network statements for IPv6 prefixes
E. OSPFv3 neighbors must be explicitly identified on NBMA interfaces
Answer: D,E

NO.6 The OSPF database of a router shows LSA types 1.2,7, and a type 3 default route only. Which type of area is this router connected to?
A. NSSA
B. NSSA totally stub
C. tub area
D. totally stubby area
Answer: A

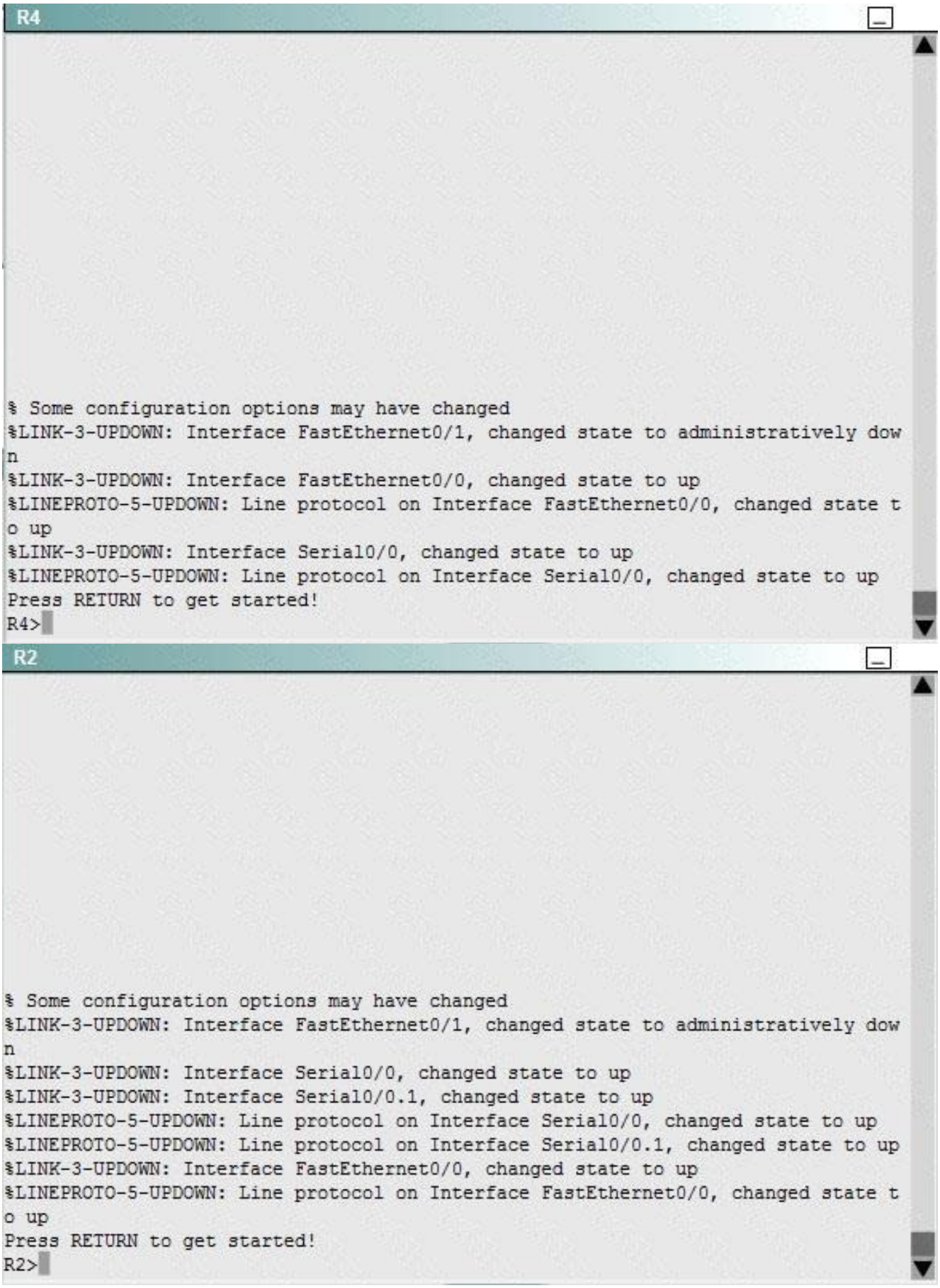
NO.7 Which interface type does a PPPoE client use to establish a session?
A. Physical
B. Loopback
C. Virtual-template
D. Dialer
Answer: D
Explanation
http://www.cisco.com/c/en/us/td/docs/ios-xml/ios/bbdsl/configuration/xe-3s/bba-pppoe-client.html

NO.8 JS Industries has expanded their business with the addition of their first remote office. The remote office router (R3) was previously configured and all Corporate subnets were reachable from R3. JS Industries is interested in using route summarization along with the EIGRP Stub Routing feature to increase network stability while reducing the memory usage and bandwidth utilization to R3. Another network professional was tasked with implementing this solution. However, in the process of configuring EIGRP stub routing connectivity with the remote network devices off of R3 has been lost.
Currently EIGRP is configured on all routers R2, R3, and R4 in the network. Your task is to identify and resolve the cause of connectivity failure with the remote office router R3. Once the issue has been resolved you should complete the task by configuring route summarization only to the remote office router R3.
You have corrected the fault when pings from R2 to the R3 LAN interface are successful, and the R3 IP routing table only contains 2 10.0.0.0 subnets.



R3

```
% Some configuration options may have changed
%LINK-3-UPDOWN: Interface FastEthernet0/1, changed state to administratively dow
n
%LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state t
o up
%LINK-3-UPDOWN: Interface Serial0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0, changed state to up
Press RETURN to get started!
R3>
```



Answer:

See the Explanation below.

Explanation
First we have to figure out why R3 and R4 can not communicate with each other. Use the show running-config command on router R3.

```
R3#show run

<output omitted>
!
!
router eigrp 123
 network 10.0.0.0
 network 172.16.0.0
 no auto-summary
 eigrp stub receive-only
!
!
<output omitted>
```

[eigrp10.jpg]
Notice that R3 is configured as a stub receive-only router. The receive-only keyword will restrict the router from sharing any of its routes with any other router in that EIGRP autonomous system. This keyword will also prevent any type of route from being sent. Therefore we will remove this command and replace it with the eigrp stub command:
R3# configure terminal R3(config)# router eigrp 123 R3(config-router)# no eigrp stub receive-only R3(config-router)# eigrp stub R3(config-router)# end Now R3 will send updates containing its connected and summary routes to other routers. Notice that the eigrp stub command equals to the eigrp stub connected summary because the connected and summary options are enabled by default.
Next we will configure router R3 so that it has only 2 subnets of 10.0.0.0 network. Use the show ip route command on R3 to view its routing table:
[ee1%255B5%255D.jpg]

```
R3#show ip route
Codes: C - connected, S - static, I - IGRP, 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, E - EGP
       i - IS-IS, 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

Gateway of last resort is not set

     10.0.0.0/8 is variably subnetted, 9 subnets, 2 masks
D       10.2.2.0/24 [90/30720] via 10.2.3.4, 00:00:06, Serial0/0
C       10.2.3.0/24 is directly connected, Serial0/1
D       10.2.4.0/24 [90/161280] via 10.2.3.4, 00:00:03, Serial0/0
D       10.2.5.0/24 [90/161280] via 10.2.3.4, 00:00:03, Serial0/0
D       10.2.6.0/24 [90/161280] via 10.2.3.4, 00:00:03, Serial0/0
D       10.2.7.0/24 [90/161280] via 10.2.3.4, 00:00:03, Serial0/0
D       10.2.8.0/24 [90/161280] via 10.2.3.4, 00:00:03, Serial0/0
D       10.2.9.0/24 [90/161280] via 10.2.3.4, 00:00:03, Serial0/0
     172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
D       172.16.0.0/16 is a summary, 02:04:06, Null0
C       172.16.1.0/24 is directly connected, FastEthernet0/0
```

Because we want the routing table of R3 only have 2 subnets so we have to summary sub-networks at the interface which is connected with R3, the s0/0 interface of R4.

There is one interesting thing about the output of the show ip route shown above: the 10.2.3.0/24, which is a directly connected network of R3. We can't get rid of it in the routing table no matter what technique we use to summary the networks. Therefore, to make the routing table of R3 has only 2 subnets we have to summary other subnets into one subnet.

In the output if we don't see the summary line (like 10.0.0.0/8 is a summary...) then we should use the command ip summary-address eigrp 123 10.2.0.0 255.255.0.0 so that all the ping can work well.

In conclusion, we will use the ip summary-address eigrp 123 10.2.0.0 255.255.0.0 at the interface s0/0 of R4 to summary.

R4> enable R4# conf t

R4(config)# interface s0/0 R4(config-if)# ip summary-address eigrp 123 10.2.0.0 255.255.0.0 Now we jump back to R3 and use the show ip route command to verify the effect, the output is shown below:

[ee2%255B5%255D.jpg]

```
R3#show ip route
Codes: C - connected, S - static, I - IGRP, 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, E - EGP
       i - IS-IS, 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

Gateway of last resort is not set

     10.0.0.0/8 is variably subnetted, 3 subnets, 3 masks
D       10.0.0.0/8 is a summary, 00:18:43, Null0
D       10.2.0.0/16 [90/161280] via 10.2.3.4, 00:00:11, Serial0/0
C       10.2.3.0/24 is directly connected, Serial0/1
     172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
D       172.16.0.0/16 is a summary, 02:04:06, Null0
C       172.16.1.0/24 is directly connected, FastEthernet0/0
```

Note: Please notice that the IP addresses and the subnet masks in your real exam might be different so you might use different ones to solve this question.

Just for your information, notice that if you use another network than 10.0.0.0/8 to summary, for example, if you use the command ip summary-address eigrp 123 10.2.0.0 255.255.0.0 you will leave a /16 network in the output of the show ip route command.

[ee3%255B5%255D.jpg]

```
R3#show ip route
Codes: C - connected, S - static, I - IGRP, 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, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
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Gateway of last resort is not set

     10.0.0.0/8 is variably subnetted, 3 subnets, 3 masks
D       10.0.0.0/8 is a summary, 00:18:43, Null0
D       10.2.0.0/16 [90/161280] via 10.2.3.4, 00:00:11, Serial0/0
C       10.2.3.0/24 is directly connected, Serial0/1
     172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
D       172.16.0.0/16 is a summary, 02:04:06, Null0
C       172.16.1.0/24 is directly connected, FastEthernet0/0
```

But in your real exam, if you don't see the line "10.0.0.0/8 is a summary, Null0" then you can summarize using the network 10.2.0.0/16. This summarization is better because all the pings can work well.

Finally don't forget to use the copy run start command on routers R3 and R4 to save the configurations.

R3(config-if)# end

R3# copy run start

R4(config-if)# end

R4# copy run start

If the "copy run start" command doesn't work then use "write memory".

NO.9 Which two types of threshold are configured for tracking objects? (Choose two.)
A. Percentage
B. Delay
C. Bandwidth
D. Administrative distance
E. Weight
Answer: A,E

NO.10 Which condition prevents the establishment of a DMPVN tunnel between two spokes?
A. HSRP is enabled on the spoke devices
B. IPsec is enabled on the spoke devices
C. The two spokes are behind different PAT devices
D. The two spokes have different tunnel keepalive settings
Answer: D

NO.11 Which SNMP verification command shows the encryption and authentication protocols that are used in SNMPv3?
A. show snmp vi
B. show snmp
C. show snmp group
D. show snmp user
Answer: D

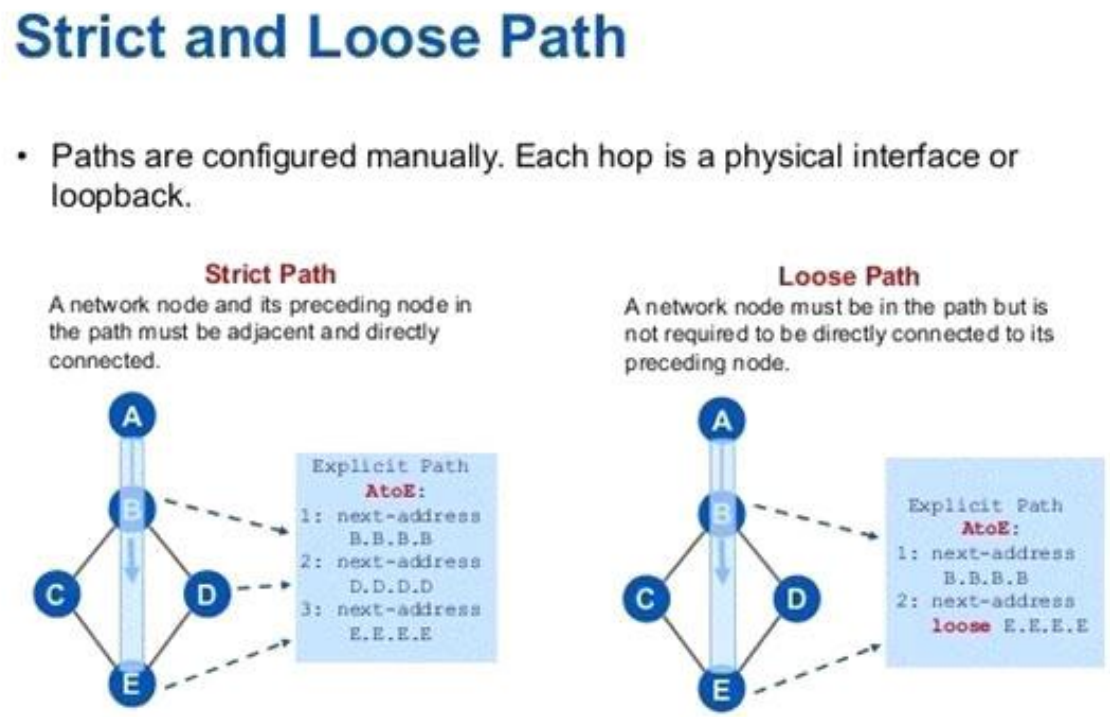
NO.12 In which scenario can asymmetric routing occur?
A. Redundant routers running VRRP
B. Active/standby firewall setup
C. Single path in and out of the network
D. Active/active firewall setup
Answer: D

NO.13 Which command enables NAT-PT on an IPv6 interface?
A. ipv6 nat-pt enable
B. ipv6 nat enable
C. ipv6 nat-pt
D. ipv6 nat
Answer: D

NO.14 Which two commands must be configured on a DMVPN hub to enable phase 3? (Choose two)
A. Ip nhrp map
B. ip nhrp interest
C. ip nhrp redirect
D. ip nhrp shortcut

E. ip redirects
Answer: A,C

NO.15 What are the three modes of Unicast Reverse Path Forwarding?
A. strict mode, broadcast mode, and VRF mode
B. strict mode, loose mode, and VRF mode
C. broadcast mode, loose mode, and VRF mode
D. strict mode, loose mode, and broadcast mode
Answer: B
Explanation



Network administrators can use Unicast Reverse Path Forwarding (Unicast RPF) to help limit the malicious traffic on an enterprise network. This security feature works by enabling a router to verify the reachability of the source address in packets being forwarded. This capability can limit the appearance of spoofed addresses on a network. If the source IP address is not valid, the packet is discarded. Unicast RPF works in one of three different modes: strict mode, loose mode, or VRF mode. Note that not all network devices support all three modes of operation. Unicast RPF in VRF mode will not be covered in this document.
When administrators use Unicast RPF in strict mode, the packet must be received on the interface that the router would use to forward the return packet. Unicast RPF configured in strict mode may drop legitimate traffic that is received on an interface that was not the router's choice for sending return traffic. Dropping this legitimate traffic could occur when asymmetric routing paths are present in the network.
When administrators use Unicast RPF in loose mode, the source address must appear in the routing table.
Administrators can change this behavior using the option, which allows the use of the default route in

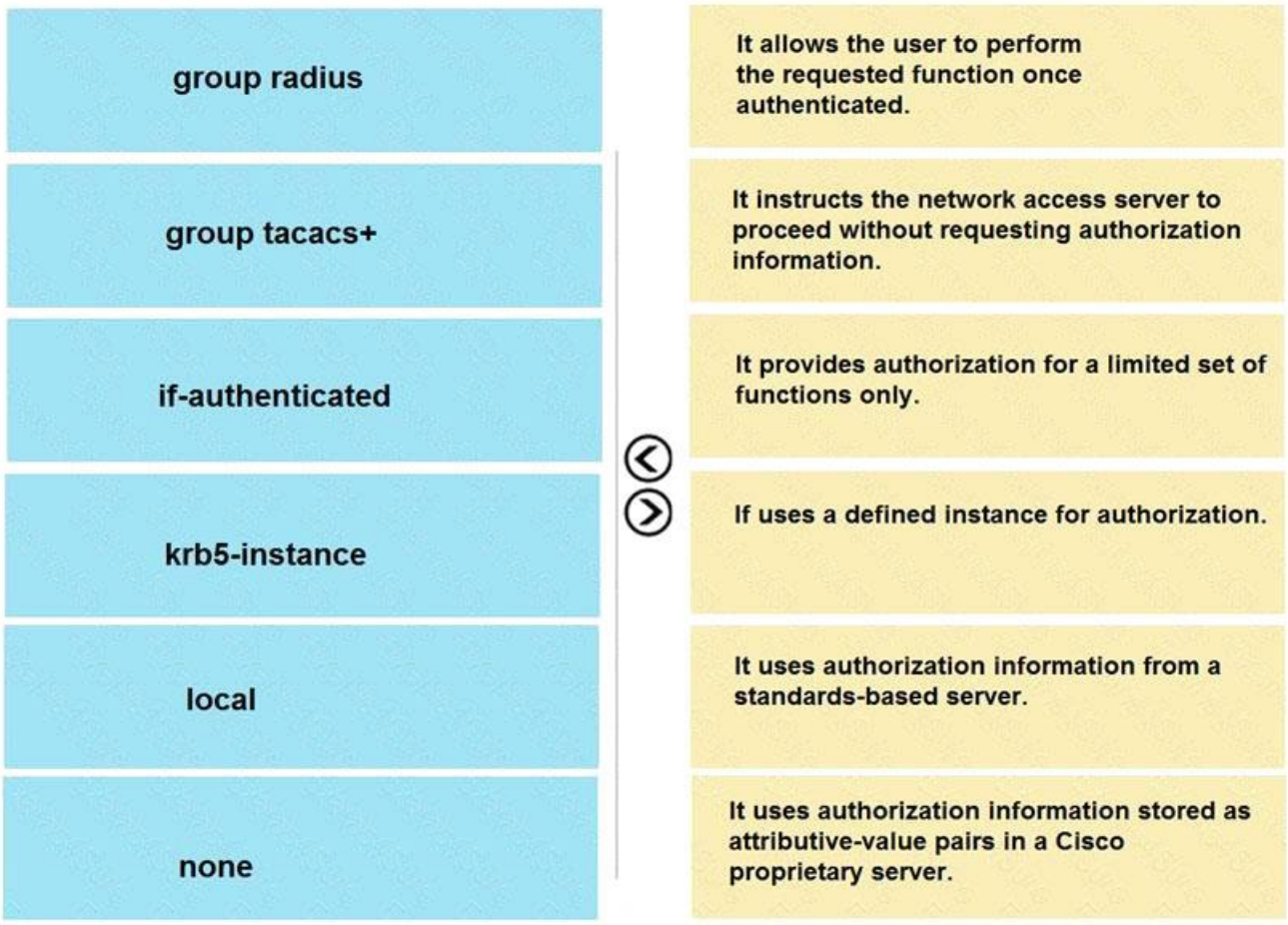
the source verification process. Additionally, a packet that contains a source address for which the return route points to the Null 0 interface will be dropped. An access list may also be specified that permits or denies certain source addresses in Unicast RPF loose mode.
Care must be taken to ensure that the appropriate Unicast RPF mode (loose or strict) is configured during the deployment of this feature because it can drop legitimate traffic. Although asymmetric traffic flows may be of concern when deploying this feature, Unicast RPF loose mode is a scalable option for networks that contain asymmetric routing paths.

NO.16 Which statement about dynamic NAT is true?
A. It creates a one-to-one mapping of inside addresses to a global address.
B. It uses the overload command to map addresses.
C. It maps inside addresses to different port numbers.
D. It maps inside addresses to a pool of global addresses.
Answer: D

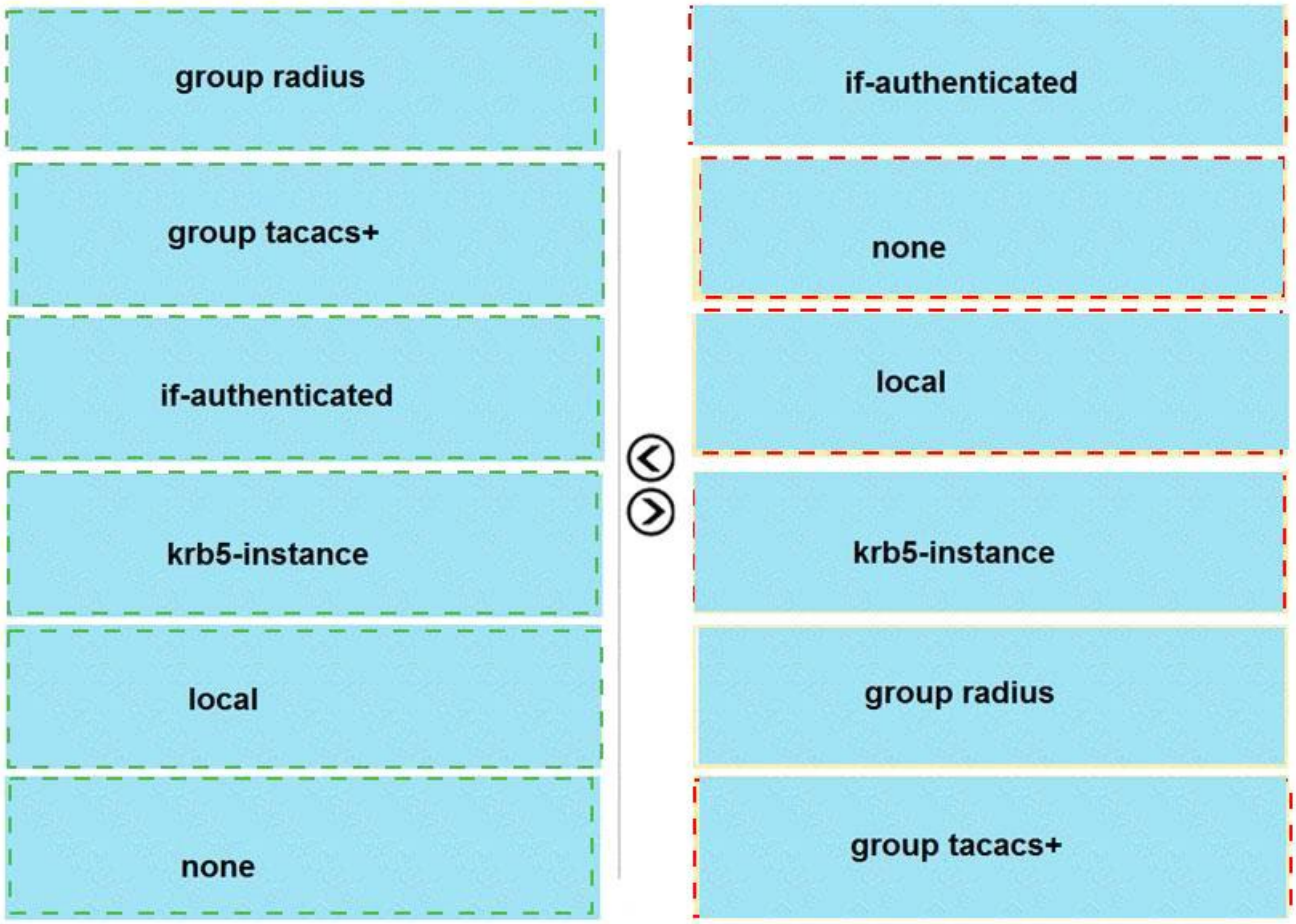
NO.17 Which two protocols are required for DMVPN? (Choose two)
A. PPTP
B. mGRE
C. IPsec
D. OpenVPN
E. NHRP
Answer: B,E
Explanation
IPsec in DMVPN is Optional
required are mGRE and NHRP
DMVPN is not a protocol, it is the combination of the following technologies:
+ Multipoint GRE (mGRE)
+ Next-Hop Resolution Protocol (NHRP)
+ Dynamic Routing Protocol (EIGRP, RIP, OSPF, BGP...) (optional)
+ Dynamic IPsec encryption (optional)
+ Cisco Express Forwarding (CEF)
DMVPN combines multiple GRE (mGRE) Tunnels, IPSec encryption and NHRP (Next Hop Resolution Protocol) to perform its job and save the administrator the need to define multiple static crypto maps and dynamic discovery of tunnel endpoints.

NO.18 Which issue is important to address when integrating two networks with different routing protocols?
A. handing IPv4 fragmentation
B. controlling unicast flooding
C. preventing UDP starvation
D. preventing asymmetric routing
E. mitigating UDP latency
Answer: D

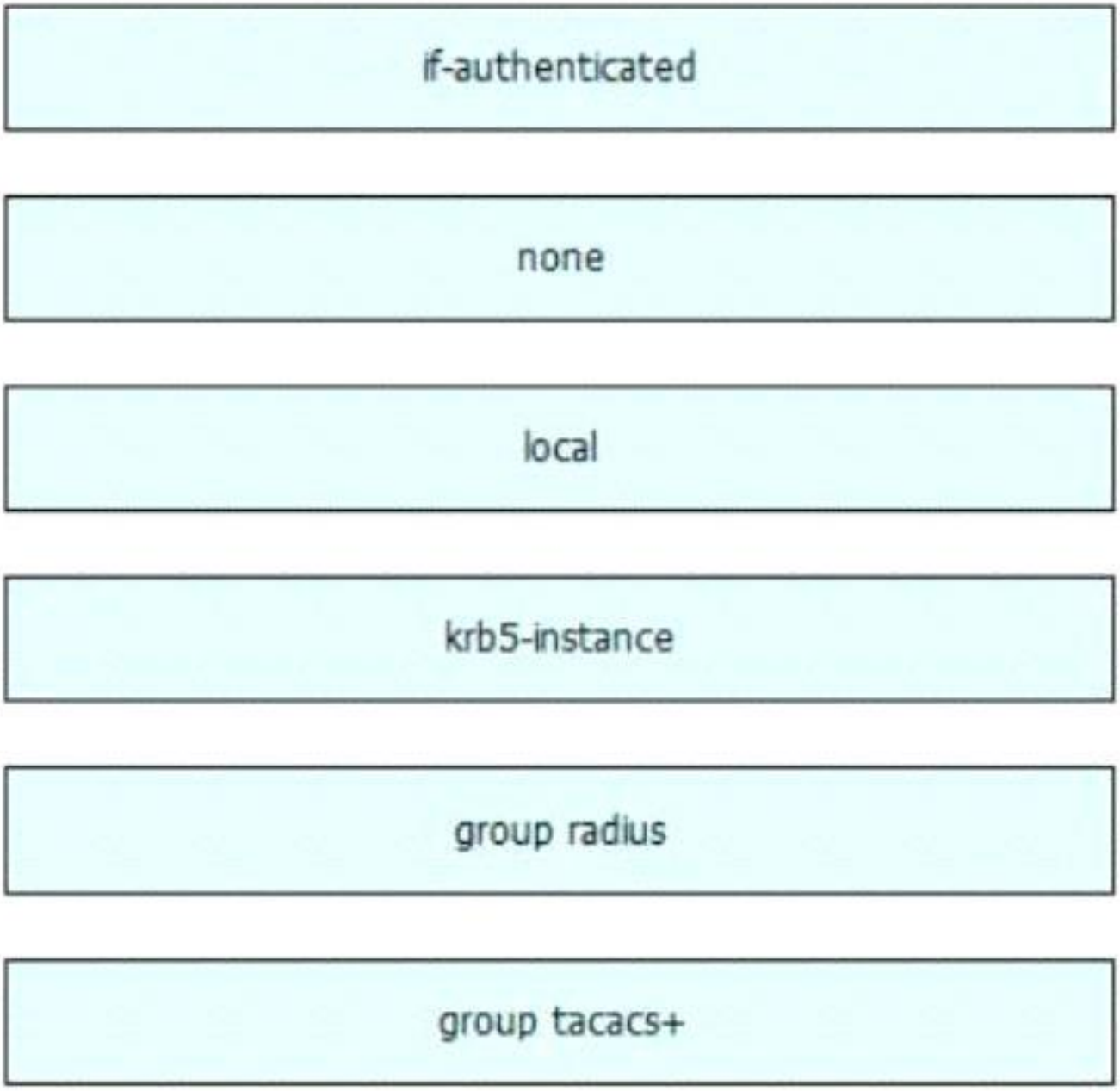
NO.19 Drag and drop the methods supported by the aaa authorization command from the left onto the correct descriptions on the right.



Answer:



Explanation



https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/sec_usr_aaa/configuration/xe-3s/sec-usr-aaa-xe-3s-book/
https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/sec_usr_aaa/configuration/xe-3s/sec-usr-aaa-xe-3s-book/

NO.20 Which feature mitigates fragmentation issues caused by endpoint hosts?
A. ICMP DF bit
B. TCP Flow control
C. TCP MSS
D. PMTU
Answer: C