



300-101^{Q&As}

Implementing Cisco IP Routing

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**QUESTION 1**

which two protocols are required for DMVPN?(choose two)

- A. IPsec
- B. PPTP
- C. mGRE
- D. NHRP
- E. Open VPN

Correct Answer: CD

QUESTION 2

Which two statements about VRF-Lite configurations are true? (Choose two.

- A. They support the exchange of MPLS labels.
- B. Different customers can have overlapping IP addresses on different VPNs
- C. They support a maximum of 512.000 routes
- D. Each customer has its own dedicated TCAM resources.
- E. Each customer has its own private routing table.
- F. They support IS-IS

Correct Answer: BE

QUESTION 3

A company has just opened two remote branch offices that need to be connected to the corporate network. Which interface configuration output can be applied to the corporate router to allow communication to the remote sites?

- A. interface Tunnel0 bandwidth 1536 ip address 209.165.200.230 255.255.255.224 tunnel source Serial0/0 tunnel mode gre multipoint
- B. interface fa0/0 bandwidth 1536 ip address 209.165.200.230 255.255.255.224 tunnel mode gre multipoint
- C. interface Tunnel0 bandwidth 1536 ip address 209.165.200.231 255.255.255.224 tunnel source 209.165.201.1 tunnel-mode dynamic
- D. interface fa 0/0 bandwidth 1536 ip address 209.165.200.231 255.255.255.224 tunnel source 192.168.161.2 tunnel destination 209.165.201.1 tunnel-mode dynamic

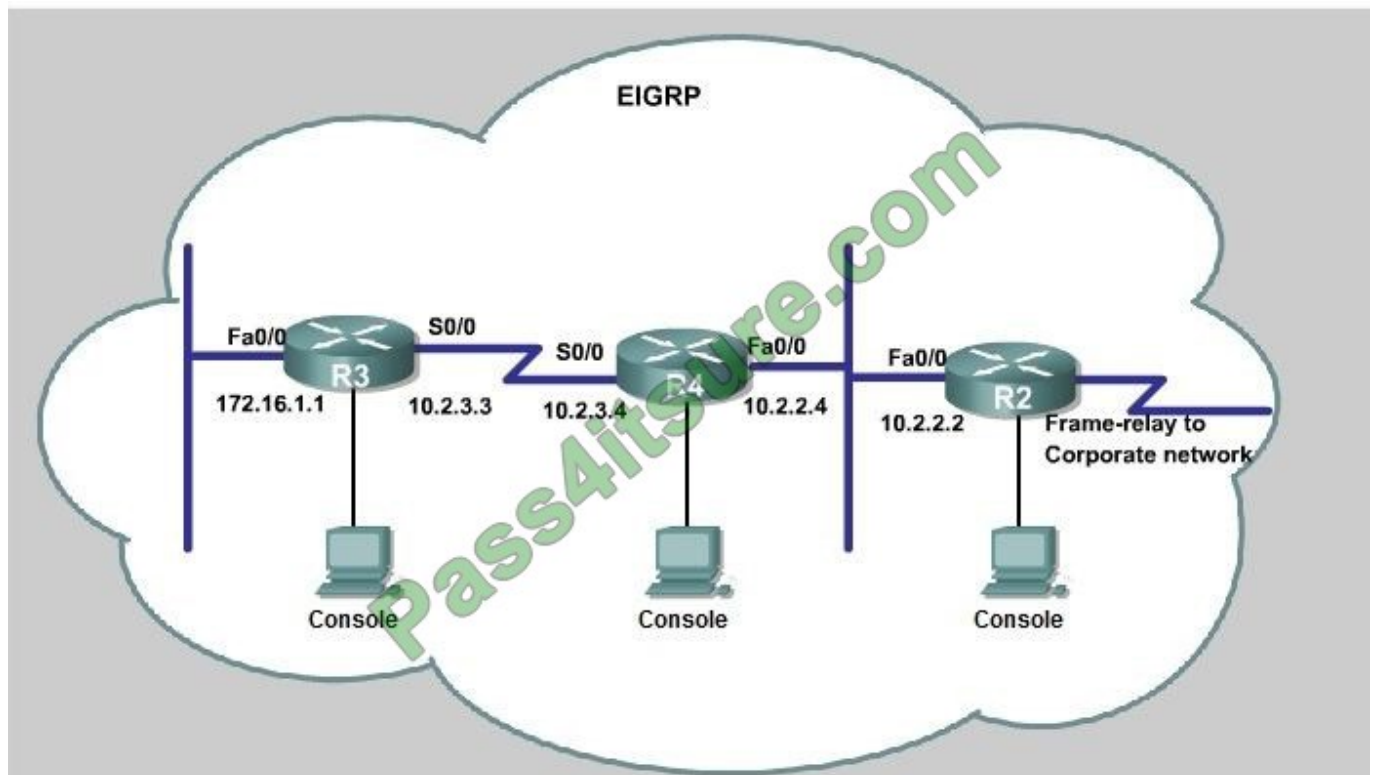
Correct Answer: A



The configuration of mGRE allows a tunnel to have multiple destinations. The configuration of mGRE on one side of a tunnel does not have any relation to the tunnel properties that might exist at the exit points. This means that an mGRE tunnel on the hub may connect to a p2p tunnel on the branch. Conversely, a p2p GRE tunnel may connect to an mGRE tunnel. The distinguishing feature between an mGRE interface and a p2p GRE interface is the tunnel destination. An mGRE interface does not have a configured destination. Instead the GRE tunnel is configured with the command `tunnel mode gre multipoint`. This command is used instead of the tunnel destination `x.x.x.x` found with p2p GRE tunnels. Besides allowing for multiple destinations, an mGRE tunnel requires NHRP to resolve the tunnel endpoints. Note, tunnel interfaces by default are point-to-point (p-p) using GRE encapsulation, effectively they have the `tunnel mode gre` command, which is not seen in the configuration because it is the default. The mGRE configuration is as follows: ! interface Tunnel0 bandwidth 1536 ip address 10.62.1.10 255.255.255.0 tunnel source Serial0/0 tunnel mode gre multipoint Reference: http://www.cisco.com/c/en/us/td/docs/solutions/Enterprise/WAN_and_MAN/DMVPDG/DMVPN_2_Phase2.html

QUESTION 4

By increasing the first distant office, 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.



A.

Correct Answer: A



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>
```

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:

```
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:

```
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.



```
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
D    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."

QUESTION 5

Drag and drop the adverse network conditions from the left on the correct descriptions on the right.

Select and Place:

excessive unicast flooding	caused by including a host port in STP
out-of-order packets	condition caused by including a host port in STP
TCP starvation	condition in which packets require an excessive length of time to traverse a switch
asymmetric routing	Potential effect of excessive UDP traffic on link
latency	Potential result of disabling FIFO



Correct Answer:

	excessive unicast flooding
	asymmetric routing
	latency
	TCP starvation
	out-of-order packets

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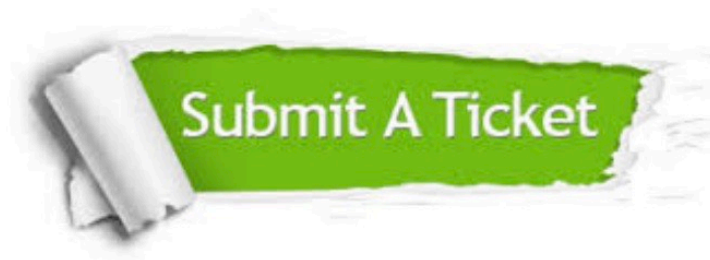
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