



# 642-902<sup>Q&As</sup>

Implementing cisco ip routing

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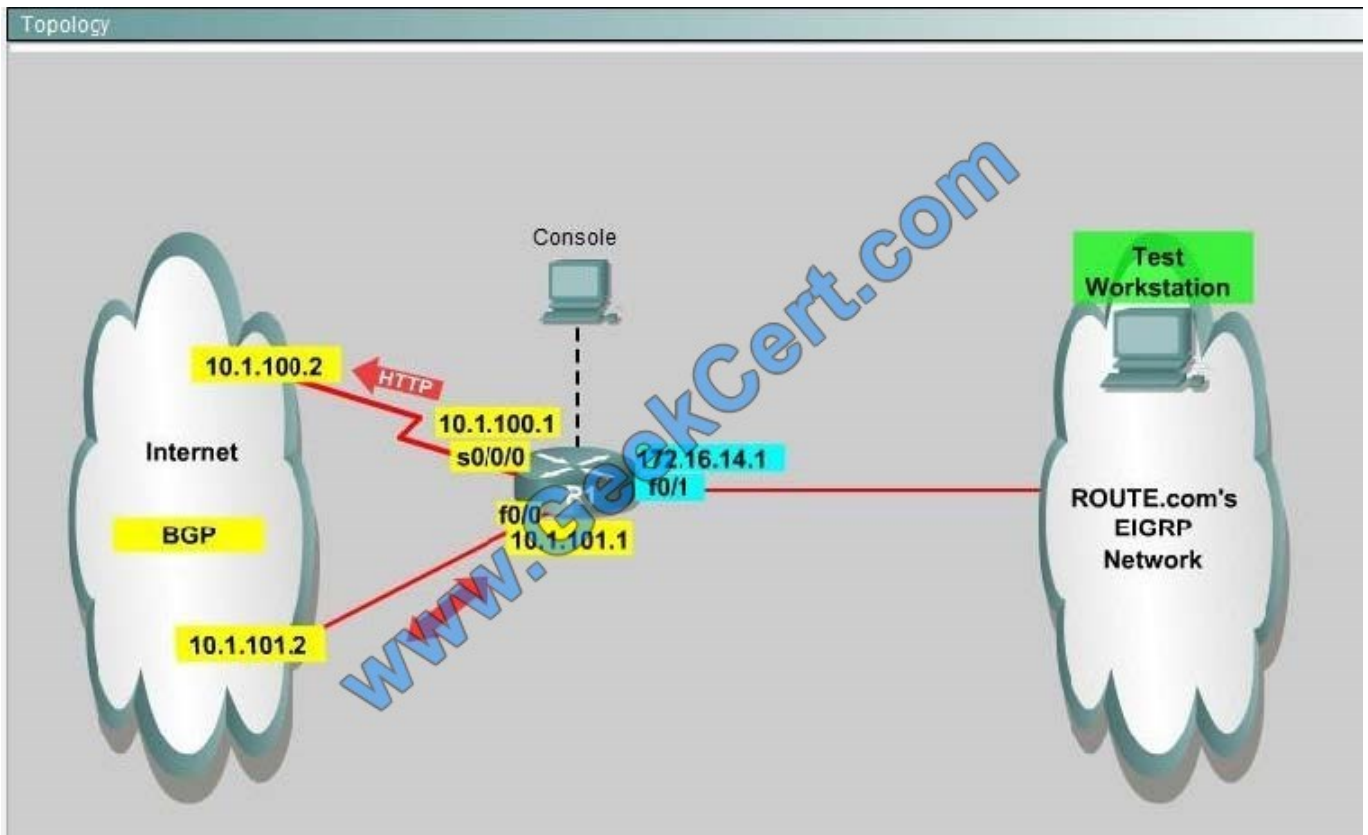
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### QUESTION 1



You are a Network Engineer with ROUTE.com, a small IT company. ROUTE.com has two connections to the internet: one via a frame relay link and one via an EoMPLS link. IT policy requires that all outbound HTTP traffic use the frame relay link when it is available. All other traffic may use either link. No static or default routing is allowed.

Choose and configure the appropriate path selection feature to accomplish this task. You may use the test workstation to generate HTTP traffic to validate your solution.

Correct Answer: For Answer please see explanation.

Explanation/Reference:

Here are the step by Step Solution for this:

1) First create the access list that catches the HTTP traffic:

```
R1#access-list 101 permit tcp any any eq www
```

```
R1#access-list 101 permit tcp any any eq www
```

2) Configure the route map that sets the next hop address to be ISP1 and permits the rest of the traffic:

```
R1(config)#route-map pbr permit 10
```

```
R1(config-route-map)#match ip address 101
```

```
R1(config-route-map)#set ip next-hop 10.1.100.2
```



```
R1(config-route-map)#exit
```

```
R1(config)#route-map pbr permit 20
```

3) Apply the route-map on the interface to the server in the EIGRP Network:

```
R1(config-route-map)#exit
```

```
R1(config)#int fa0/1
```

```
R1(config-if)#ip policy route-map pbr
```

```
R1(config-if)#exit
```

```
R1(config)#exit
```

First you need to configure access list to HTTP traffic and then configure that access list. After that configure the route map and then apply it on the interface to the server in EIGRP network.

## QUESTION 2

Refer to the exhibit.

```
Core1#show ip eigrp topology all-links
IP EIGRP Topology table for AS(65001) / ID (172.17.10.1)

Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,
       r - reply Status, s - sia Status

P 172.17.3.128/25, 2 successors, FD is 30720, serno 9
  via 172.17.10.2 (30720/28160), FastEthernet0/1
  via 172.17.3.2 (30720/28160), FastEthernet0/3
P 10.140.0.0/24, 1 successors, FD is 156160, serno 16
  via 172.17.3.2 (156160/123256), FastEthernet0/3
  via 172.17.10.2 (157720/156160), FastEthernet0/1
P 172.17.10.0/24, 1 successors, FD is 28160, serno 1
  via Connected, FastEthernet0/1
P 172.17.0.0/30, 1 successors, FD is 20514560, serno 15
  via 172.17.1.1 (20514560/205122000), FastEthernet0/2
  via 172.17.10.2 (20516120/20513560), FastEthernet0/1
P 172.17.1.0/24, 1 successors, FD is 28160, serno 2
  via Connected, FastEthernet0/2
P 172.17.2.0/24, 1 successors, FD is 30720, serno 8
  via 172.17.10.2 (30720/28160), FastEthernet0/1
  via 172.17.3.2 (33280/30720), FastEthernet0/3
P 172.17.3.0/25, 1 successors, FD is 28160, serno 3
  via Connected, FastEthernet0/3
Core1#
```

BigBids Incorporated is a worldwide auction provider. The network uses EIGRP as its routing protocol throughout the corporation. The network administrator does not understand the convergence of EIGRP. Using the output of the show ip

eigrp topology all-links command, answer the administrator's question.



Which three networks is the router at 172.17.10.2 directly connected to? (Choose three)

- A. 172.17.0.0/30
- B. 172.17.1.0/24
- C. 172.17.2.0/24
- D. 172.17.3.0/25
- E. 172.17.3.128/25
- F. 172.17.10.0/24

Correct Answer: CEF

```
Core1#show ip eigrp topology all-links
IP EIGRP Topology table for AS(65001) / ID (172.17.10.1)

Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,
       r - reply Status, s - sia Status

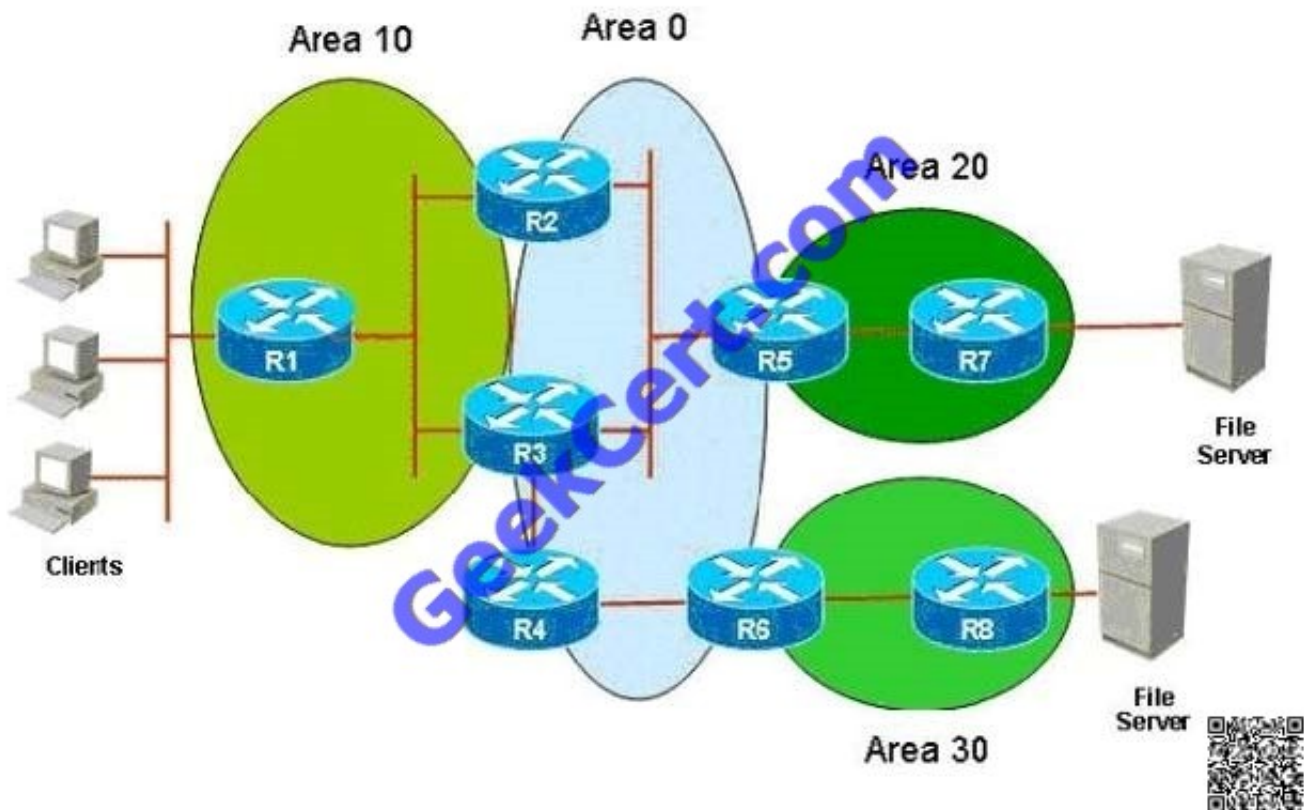
P 172.17.3.128/25, 2 successors, FD is 30720, serno 9
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P 10.140.0.0/24, 1 successors, FD is 156160, serno 16
  via 172.17.3.2 (156160/128256), FastEthernet0/3
  via 172.17.10.2 (157720/155160), FastEthernet0/1
P 172.17.10.0/24, 1 successors, FD is 28160, serno 1
  via Connected, FastEthernet0/1
P 172.17.0.0/30, 1 successors, FD is 20514560, serno 15
  via 172.17.1.1 (20514560/205122000), FastEthernet0/2
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P 172.17.1.0/24, 1 successors, FD is 28160, serno 2
  via Connected, FastEthernet0/2
P 172.17.2.0/24, 1 successors, FD is 30720, serno 8
  via 172.17.10.2 (30720/28160), FastEthernet0/1
  via 172.17.3.2 (33280/30720), FastEthernet0/3
P 172.17.3.0/25, 1 successors, FD is 28160, serno 3
  via Connected, FastEthernet0/3
Core1#
```

First, we should notice about the entry in the orange box, it shows that the network 172.17.10.0/24 is directly connected with this router and has a FD of 28160. So we can guess the networks that directly connected with router at 172.17.10.2 will be shown with an AD of 28160. From that, we find out 3 networks which are directly connected to the router at 172.17.10.2 (they are green underlined). The network 172.17.10.0/24 is surely directly connected to the router at 172.17.10.2 (in fact it is the network that links the router at 172.17.10.2 with Core1 router).

### QUESTION 3



Refer to the exhibit. Which two Cisco IOS commands on R2 would verify its OSPF neighbor relationships? (Choose two.)



- A. show ip ospf
- B. show ip ospf interface
- C. show ip ospf neighbor
- D. show ip ospf database
- E. show ip ospf statistics
- F. show running-config | begin router ospf

Correct Answer: BC

The show ip ospf interface command shows us information about the neighbor count and adjacent neighbor count:





```
RouterA# show ip ospf int s1/0
Serial 1/0 is up, line protocol is up
Internet Address 10.100.3.253/30, Area 1
Process ID 1, Router ID 1.1.1.1, Network Type BROADCAST, Cost:64
Transmit Delay is 1 sec, State DROTHER, Priority 0
No designated router on this network
No backup designated router on this network
Old designated Router (ID) 2.2.2.2, Interface address 10.100.3.254
Flush timer for old DR LSA due in 00:01:12
Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
oob-resync timeout 40
Hello due in 00:00:01
Supports Link-Local Signaling (LLS)
Index 1/2, flood queue length 0
Next 0x0(0)/0x0(0)
Last flood scan length is 1, maximum is 3
Last flood scan time is 0 msec, maximum is 0 msec
Neighbor Count is 1, Adjacent neighbor count is 1
Suppress hello for 0 neighbor(s)
```



The show ip ospf neighbor command shows us the role of each neighbor (DR, BDR, DROTHER).

```
Dev-1#sh ip ospf neighbor

Neighbor ID    Pri  State           Dead Time   Address     Interface
10.200.200.13  1    FULL/BDR       00:00:33   10.1.1.3   Ethernet 0/0

Dev-3#sh ip ospf neighbor

Neighbor ID    Pri  State           Dead Time   Address     Interface
172.31.1.1     2    FULL/DR        00:00:31   10.1.1.1   Ethernet
```



#### QUESTION 4

Based on the need to limit processing and bandwidth utilization due to dynamic routing protocol operation, the following routing requirements have been specified for your network.

- Partial and incremental routing updates
- Only the devices affected by a topology change perform route recomputation
- Route recomputation only occurs for routes that were affected

Which dynamic routing protocol should be deployed in your network to best meet these requirements?

- A. BGP
- B. OSPF



C. IS-IS

D. EIGRP

E. RIPv2

Correct Answer: D

The bandwidth utilization issue has been addressed by implementing partial and incremental updates. Therefore, only when a topology change occurs does routing information get sent. Regarding processor utilization, the feasible successor

technology greatly reduces the total processor utilization of an AS by requiring only the routers that were affected by a topology change to perform the route recomputation. Furthermore, the route recomputation only occurs for routes that

were affected. Only those data structures are accessed and used. This greatly reduces search time in complex data structures.

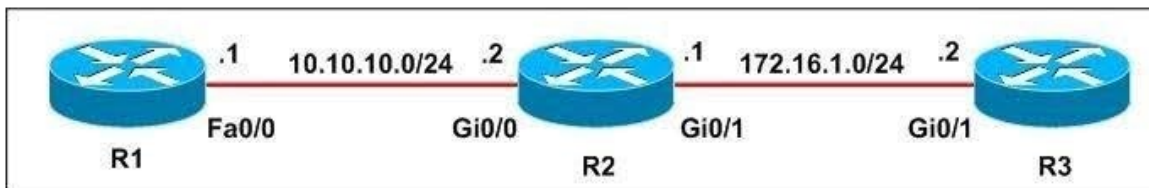
Reference:

[http://www.cisco.com/en/US/tech/tk365/technologies\\_tech\\_note09186a0080093f07.shtml](http://www.cisco.com/en/US/tech/tk365/technologies_tech_note09186a0080093f07.shtml) (See frequently asked questions)

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## QUESTION 5

Refer to the exhibit.



```
R1#show running-config
<output omitted>
key chain troy
key 1
  key-string 0987654321
key 2
  key-string 1234576890
<output omitted>
interface FastEthernet0/0
ip address 10.10.10.1 255.255.255.0
ip authentication mode eigrp 1 md5
ip authentication key-chain eigrp 1 troy
<output omitted>
router eigrp 1
network 10.0.0.0
no auto-summary
```

```
R2#show running-config
<output omitted>
key chain albany
key 1
  key-string 0987654321
key 2
  key-string 1234576890
<output omitted>
interface GigabitEthernet0/0
ip address 10.10.10.2 255.255.255.0
ip authentication mode eigrp 1 md5
ip authentication key-chain eigrp 1 albany
!
interface GigabitEthernet0/1
ip address 172.16.1.1 255.255.255.0
ip authentication mode eigrp 1 md5
ip authentication key-chain eigrp 1 albany
<output omitted>
router eigrp 1
network 10.0.0.0
network 172.16.0.0
no auto-summary
```







```
R3#show running-config
<output omitted>
key chain schenectady
key 1
  key-string 0987654321
key 2
  key-string 1234576890
<output omitted>
interface GigabitEthernet0/1
ip address 172.16.1.2 255.255.255.0
ip authentication mode eigrp 1 md5
ip authentication key-chain eigrp 1 schenectady
<output omitted>
router eigrp 1
network 172.16.0.0
no auto-summary
```



EIGRP is configured on all routers in the network. On the basis of the output provided, which statement is true?

- A. Because the key chain names do not match, router R1 will not be able to ping routers R2 and R3 .
- B. Because the key strings do not match, router R1 will not be able to ping routers R2 and R3.
- C. Because authentication is misconfigured on interfaces Gi0/0 and Gi0/1 on router R2, router R1 will not be able to ping routers R2 and R3.
- D. Because autosummarization needs to be turned on for EIGRP on all routers, router R1 will not be able to ping routers R2 and R3.
- E. Router R1 will be able to ping routers R2 and R3.

Correct Answer: E

Here we see that all of the routers have correctly included the proper networks in the EIGRP process, and the authentication is also correct so all networks would be reachable from R1. Even though the name of the authentication keys are different, the actual keys are identical so authentication will work.

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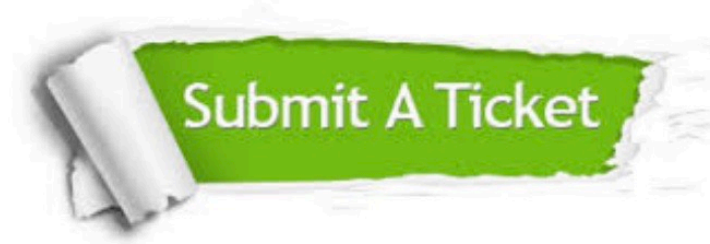
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