



# 300-410<sup>Q&As</sup>

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

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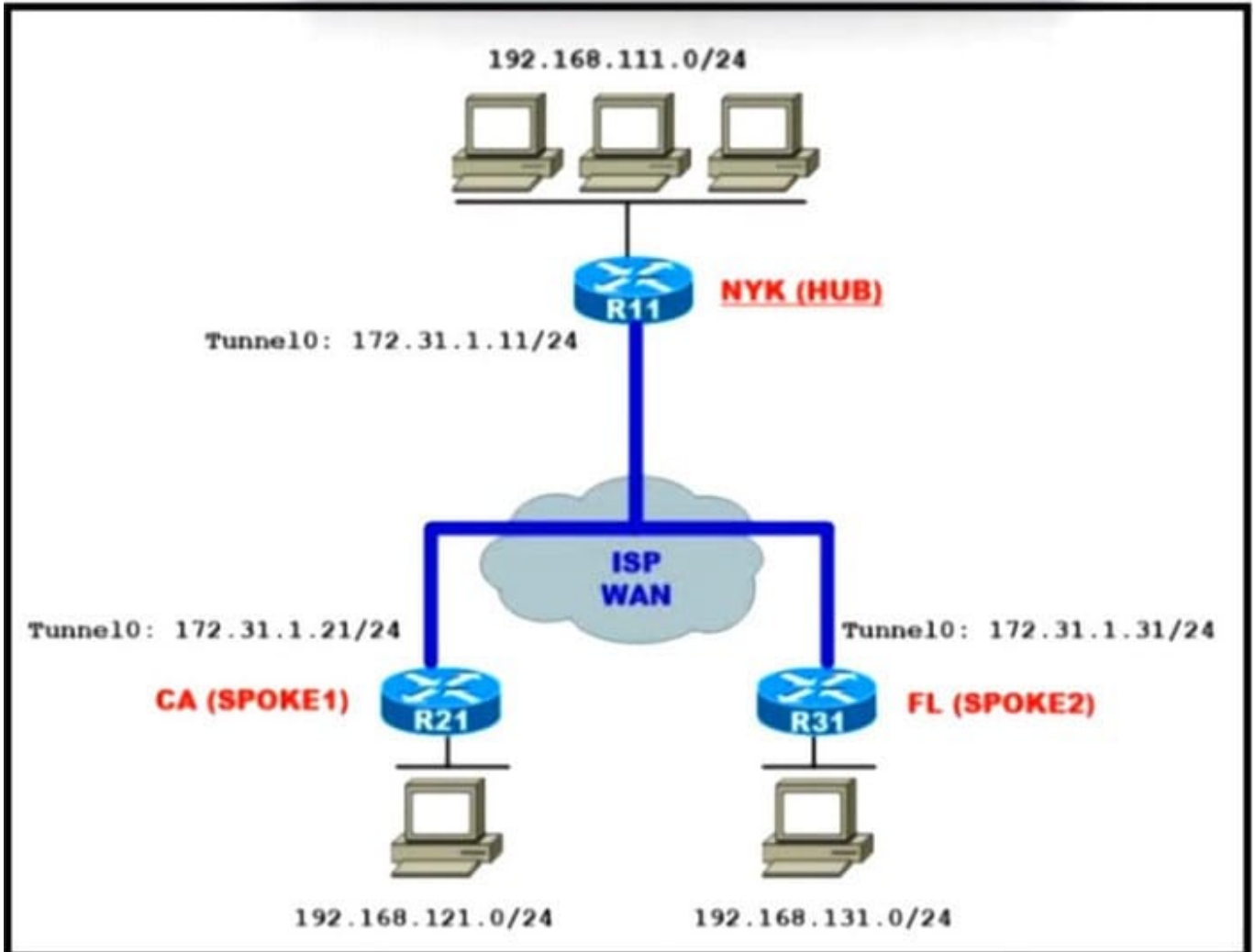
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QUESTION 1

Refer to the exhibit.



An engineer must configure the hub router to add new offices in the same infrastructure without performing any further configurations at the hub router. Which tunnel mode configuration on the hub router meets this requirement?



- A. `interface Tunnel0`  
`tunnel mode ipsec ipv4`
- B. `interface Tunnel0`  
`tunnel mode gre multipoint`
- C. `interface Tunnel0`  
`tunnel mode dvmrp`
- D. `interface Tunnel0`  
`tunnel mode ip`

A. Option A

B. Option B

C. Option C

D. Option D

Correct Answer: B

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## QUESTION 2

An administrator wants to implement security on his company's router. Please select three options that you will use on your router to secure it. (Choose three.)

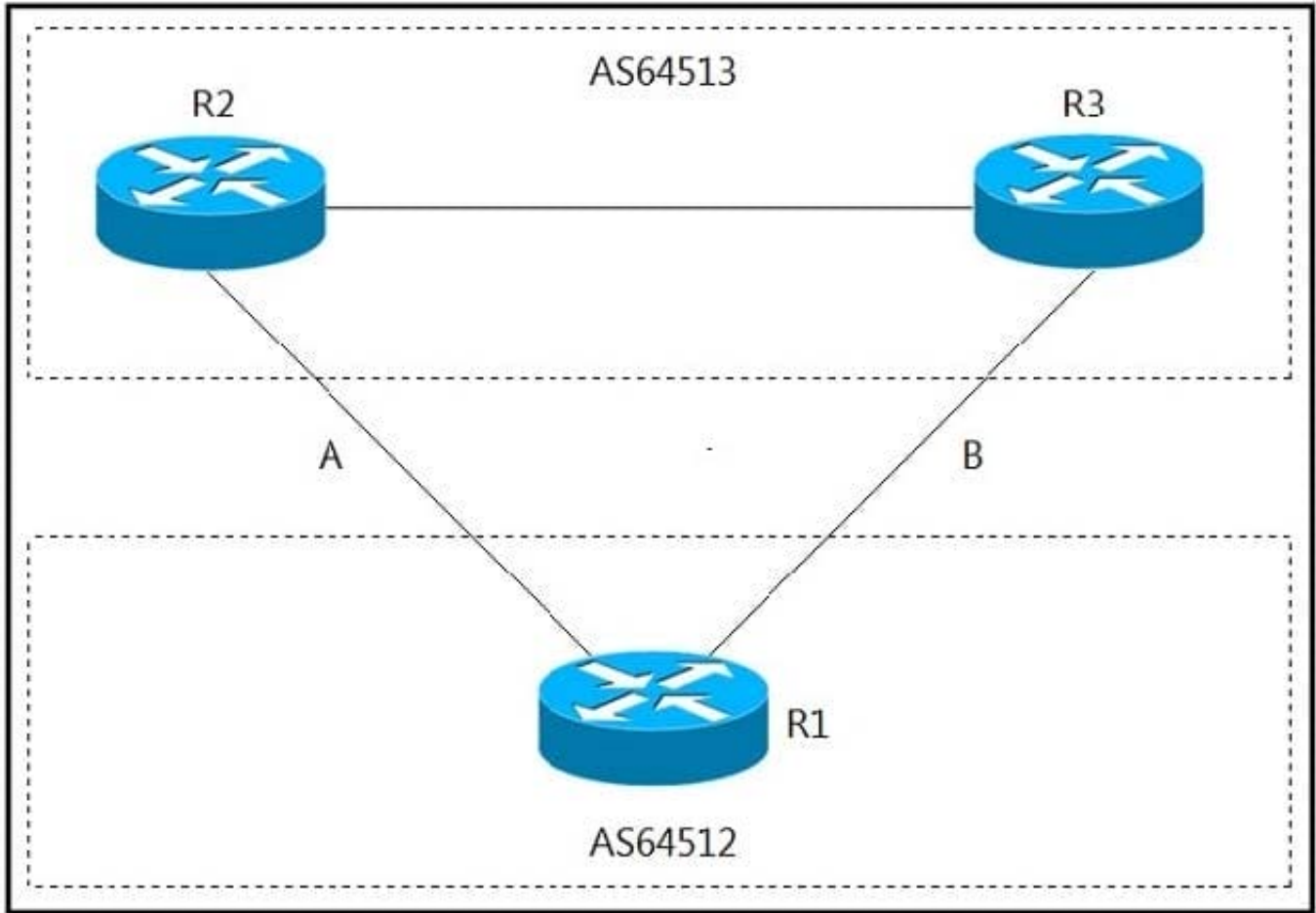
- A. Control Access to the router
- B. Restrict all traffic through the router
- C. Restrict SNMP
- D. Enable all unused services
- E. Encrypt all passwords
- F. Disable logging

Correct Answer: ACE

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## QUESTION 3

Refer to the exhibit.



A network engineer for AS64512 must remove the inbound and outbound traffic from link A during maintenance without closing the BGP session so that there is still a backup link over link A toward the ASN. Which BGP configuration on R1 accomplishes this goal?



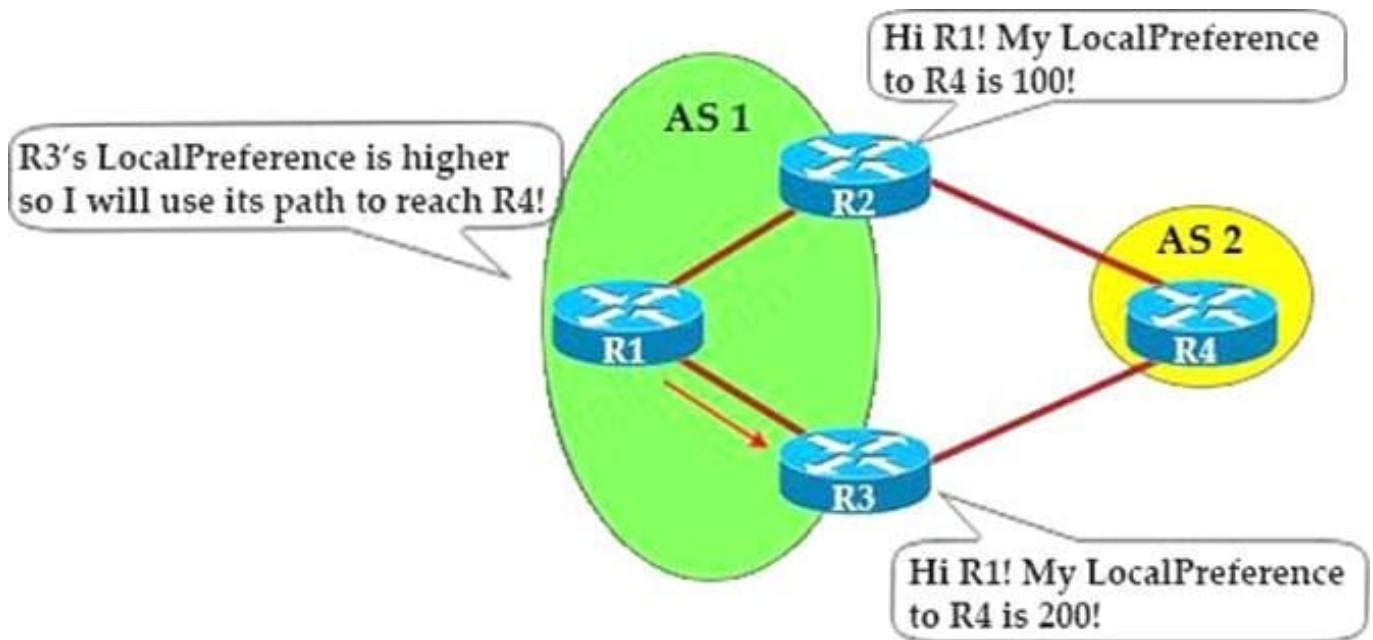
- A.
- route-map link-a-in permit 10
  - set weight 200
  - route-map link-a-out permit 10
  - set as-path prepend 64512
  - route-map link-b-in permit 10
  - set weight 100
  - route-map link-b-out permit 10
- B.
- route-map link-a-in permit 10
  - set weight 200
  - route-map link-a-out permit 10
  - route-map link-b-in permit 10
  - set weight 100
  - route-map link-b-out permit 10
  - set as-path prepend 64512
- C.
- route-map link-a-in permit 10
  - route-map link-a-out permit 10
  - set as-path prepend 64512
  - route-map link-b-in permit 10
  - set local-preference 200
  - route-map link-b-out permit 10
- D.
- route-map link-a-in permit 10
  - set local-preference 200
  - route-map link-a-out permit 10
  - route-map link-b-in permit 10
  - route-map link-b-out permit 10
  - set as-path prepend 64512



- A. Option A
- B. Option B
- C. Option C
- D. Option D

Correct Answer: C

Local preference is used to choose the path to external BGP neighbors. An example of using local-preference is shown below:



In this case all BGP prefixes advertised via Link B will have a local preference of 200, which is higher than the default value (100) so Link B is preferred over Link A to send traffic.

#### QUESTION 4

DRAG DROP

Drag and drop the OSPF adjacency states from the left onto the correct descriptions on the right.

Select and Place:



- Init
- 2-way
- Down
- Exchange
- ExStart
- Loading

- Each router compares the DBD packets that were received from the other router.
- Routers exchange information with other routers in the multiaccess network.
- The neighboring router requests the other routers to send missing entries.
- The network has already elected a DR and a backup BDR.
- The OSPF router ID of the receiving router was not contained in the hello message.
- No hellos have been received from a neighbor router.

Correct Answer:

- Exchange
- 2-way
- Loading
- ExStart
- Init
- Down



- + Each router compares the DBD packets that were received from the other router: Exchange
- + Routers exchange information with other routers in the multiaccess network: Exstart
- + The neighboring router requests the other routers to send missing entries: Loading
- + The network has already elected a DR and a backup BDR: 2-way
- + The OSPF router ID of the receiving router was not contained in the hello message: Init
- + No hellos have been received from a neighbor router: Down

#### Down

This is the first OSPF neighbor state. It means that no information (hellos) has been received from this neighbor, but hello packets can still be sent to the neighbor in this state. During the fully adjacent neighbor state, if a router doesn't receive

hello packet from a neighbor within the Router Dead Interval time ( $\text{RouterDeadInterval} = 4 * \text{HelloInterval}$  by default) or if the manually configured neighbor is being removed from the configuration, then the neighbor state changes from Full to

Down.

#### Attempt

This state is only valid for manually configured neighbors in an NBMA environment. In Attempt state, the router sends unicast hello packets every poll interval to the neighbor, from which hellos have not been received within the dead interval.

#### Init

This state specifies that the router has received a hello packet from its neighbor, but the receiving router's ID was not included in the hello packet. When a router receives a hello packet from a neighbor, it should list the sender's router ID in its

hello packet as an acknowledgment that it received a valid hello packet.

#### 2-Way

This state designates that bi-directional communication has been established between two routers. Bi-directional means that each router has seen the other's hello packet. This state is attained when the router receiving the hello packet sees

its own Router ID within the received hello packet's neighbor field. At this state, a router decides whether to become adjacent with this neighbor. On broadcast media and non-broadcast multiaccess networks, a router becomes full only with

the designated router (DR) and the backup designated router (BDR); it stays in the 2-way state with all other neighbors. On Point-to-point and Point-to-multipoint networks, a router becomes full with all connected routers.

At the end of this stage, the DR and BDR for broadcast and non-broadcast multiaccess networks are elected. For more information on the DR election process, refer to DR Election. Note: Receiving a Database Descriptor (DBD) packet from a

neighbor in the init state will also cause a transition to 2-way state.





## Exstart

Once the DR and BDR are elected, the actual process of exchanging link state information can start between the routers and their DR and BDR. (ie. Shared or NBMA networks). In this state, the routers and their DR and BDR establish a

master-slave relationship and choose the initial sequence number for adjacency formation. The router with the higher router ID becomes the master and starts the exchange, and as such, is the only router that can increment the sequence

number. Note that one would logically conclude that the DR/BDR with the highest router ID will become the master during this process of master-slave relation. Remember that the DR/BDR election might be purely by virtue of a higher priority

configured on the router instead of highest router ID. Thus, it is possible that a DR plays the role of slave. And also note that master/slave election is on a per-neighbor basis.

## Exchange

In the exchange state, OSPF routers exchange database descriptor (DBD) packets. Database descriptors contain link-state advertisement (LSA) headers only and describe the contents of the entire link-state database. Each DBD packet has

a sequence number which can be incremented only by master which is explicitly acknowledged by slave. Routers also send link-state request packets and link-state update packets (which contain the entire LSA) in this state. The contents of

the DBD received are compared to the information contained in the routers link-state database to check if new or more current link-state information is available with the neighbor.

## Loading

In this state, the actual exchange of link state information occurs. Based on the information provided by the DBDs, routers send link-state request packets. The neighbor then provides the requested link-state information in link-state update

packets. During the adjacency, if a router receives an outdated or missing LSA, it requests that LSA by sending a link-state request packet. All link-state update packets are acknowledged.

## Full

In this state, routers are fully adjacent with each other. All the router and network LSAs are exchanged and the routers' databases are fully synchronized. Full is the normal state for an OSPF router. If a router is stuck in another state, it is an

indication that there are problems in forming adjacencies. The only exception to this is the 2-way state, which is normal in a broadcast network. Routers achieve the FULL state with their DR and BDR in NBMA/broadcast media and FULL state

with every neighbor in the remaining media such as point-to-point and point-to-multipoint.

Note: The DR and BDR that achieve FULL state with every router on the segment will display FULL/DROTHER when you enter the show ip ospf neighbor command on either a DR or BDR. This simply means that the neighbor is not a DR or

BDR, but since the router on which the command was entered is either a DR or BDR, this shows the neighbor as FULL/DROTHER.

## Reference:



<https://www.cisco.com/c/en/us/support/docs/ip/open-shortest-path-first-ospf/13685-13.html>

+

Each router compares the DBD packets that were received from the other router: Exchange

+

Routers exchange information with other routers in the multiaccess network: Exstart

+

The neighboring router requests the other routers to send missing entries: Loading

+

The network has already elected a DR and a backup BDR: 2-way

+

The OSPF router ID of the receiving router was not contained in the hello message: Init

+

No hellos have been received from a neighbor router: Down

When OSPF adjacency is formed, a router goes through several state changes before it becomes fully adjacent with its neighbor.

The states are Down -> Attempt (optional) -> Init -> 2-Way -> Exstart -> Exchange -> Loading -> Full. Short descriptions about these states are listed below:

Down: no information (hellos) has been received from this neighbor. Attempt: only valid for manually configured neighbors in an NBMA environment. In Attempt state, the router sends unicast hello packets every poll interval to the neighbor,

from which hellos have not been received within the dead interval.

Init: specifies that the router has received a hello packet from its neighbor, but the receiving router's ID was not included in the hello packet

2-Way: indicates bi-directional communication has been established between two routers. Exstart: Once the DR and BDR are elected, the actual process of exchanging link state information can start between the routers and their DR and BDR.

Exchange: OSPF routers exchange and compare database descriptor (DBD) packets Loading: In this state, the actual exchange of link state information occurs. Outdated or missing entries are also requested to be resent.

Full: routers are fully adjacent with each other

[http://www.cisco.com/en/US/tech/tk365/technologies\\_tech\\_note09186a0080093f0e.shtml](http://www.cisco.com/en/US/tech/tk365/technologies_tech_note09186a0080093f0e.shtml)

Reference: <https://www.cisco.com/c/en/us/support/docs/ip/open-shortest-path-first-ospf/13685-13.html> Reference:  
<https://www.cisco.com/c/en/us/support/docs/ip/open-shortest-path-first-ospf/13685-13.html>

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**QUESTION 5**

Refer to the exhibit.

```
R1(config)#ip prefix-list EIGRP seq 10 permit 10.0.0.0/8
R1(config)#ip prefix-list EIGRP seq 20 deny 0.0.0.0/0 le 32
R1(config)#router eigrp 10
R1(config-router)#distribute-list prefix EIGRP in Ethernet0/0

R1#show ip route eigrp | include 10.
D EX 10.0.0.0/8 [170/2665332] via 192.168.10.1, 00:00:10,
Ethernet0/0
```

An engineer applies a prefix-list filter that filters most of the network 10 prefixes instead of allowing them. Which action resolves the issue?

- A. Modify the ip prefix-list EIGRP seq 20 permit 10.0.0.0/8 ge 9 command.
- B. Modify the ip prefix-list EIGRP seq 10 permit 10.0.0.0/8 le 9 command.
- C. Modify the ip prefix-list EIGRP seq 20 permit 0.0.0.0/0 le 32 command.
- D. Modify the ip prefix-list EIGRP seq 10 permit 10.0.0.0/8 le 32 command.

Correct Answer: D

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