



Cisco Certified Network Professional Enterprise (CCNP 2023)

Exam 350-401 Implementing and Operating Cisco Enterprise Network Core Technologies (ENCOR)

(Demo Questions)



(350-401) Implementing Cisco Enterprise Network Core Technologies

注意：題目有  標記只代表近期出過的題目， 數量越多，代表過去三個月出的次數越多，但同學必須溫習“整份”題目才可提升考試合格機會。(=Apr, =May, =Jun)

QUESTION 1

What is a characteristic of a Type 1 hypervisor?

- A. It is completely independent of the operating system.
- B. It is installed on an operating system and supports other operating systems above it.
- C. It is referred to as a hosted hypervisor.
- D. Problems in the base operating system can affect the entire system.

Answer: A

Type 1 Hypervisor: This is also known as Bare Metal or Embedded or Native Hypervisor. It works directly on the hardware of the host and can monitor operating systems that run above the hypervisor. **It is completely independent from the Operating System.** The hypervisor is small as its main task is sharing and managing hardware resources between different operating systems. A major advantage is that any problems in one virtual machine or guest operating system do not affect the other guest operating systems running on the hypervisor.

Reference: <https://www.examguides.com/CCNP-ENCOR/ccnp-encor-cramnotes-6.htm>

QUESTION 2

What is a characteristic of a Type 2 hypervisor?

- A. It is completely independent of the operating system.
- B. Problems in the base operating system can affect the entire system.
- C. Its main task is to manage hardware resources between different operating systems.
- D. It eliminates the need for an underlying operating system.

Answer: B

Type 2 Hypervisor: This is also known as Hosted Hypervisor. In this case, the hypervisor is installed on an operating system and then supports other operating systems above it. It is completely dependent on host Operating System for its operations. While having a base operating system allows better specification of policies, any **problems in the base operating system affects the entire system** as well even if the hypervisor running above the base OS is secure.

Reference: <https://www.examguides.com/CCNP-ENCOR/ccnp-encor-cramnotes-6.htm>

QUESTION 3

What is a Type 2 hypervisor?

- A. supports over-allocation of physical resources
- B. installed as an application on an already installed operation system
- C. runs directly on a physical server an includes its own operating system
- D. also referred to as a "bare metal hypervisor" because it sits directly on the physical server

Answer: B

QUESTION 4 

Which element is unique to a Type 2 hypervisor?

- A. host hardware
- B. host OS
- C. VM OS
- D. memory

Answer: C

QUESTION 5    

Which resource is able to be shared among virtual machines deployed on the same physical server?

- A. VM configuration file
- B. operating system
- C. applications
- D. disk

Answer: D

QUESTION 6  

Which action limits the total amount of memory and CPU that is used by a collection of VMs?

- A. Place the collection of VMs in a vApp.
- B. Place the collection of VMs in a resource pool
- C. Limit the amount of memory and CPU that is available to the cluster.
- D. Limit the amount of memory and CPU that is available to the individual VMs.

Answer: C

QUESTION 7  

What is the process for moving a virtual machine from one host machine to another with no downtime?

- A. high availability
- B. disaster recovery
- C. live migration
- D. multisite replication

Answer: C

QUESTION 8 

How do cloud deployments compare to on-premises deployments?

- A. Cloud deployments mandate a secure architecture, whereas on-premises deployments are inherently unsecure.
- B. Cloud deployments must include automation infrastructure, whereas on-premises deployments often lack the ability for automation.
- C. Cloud deployments provide a better user experience across world regions, whereas on-premises deployments depend upon region-specific conditions.**
- D. Cloud deployments are inherently unsecure, whereas a secure architecture is mandatory for on-premises deployments.

Answer: C

QUESTION 9 

How do cloud deployments differ from on-premises deployments?

- A. Cloud deployments are more customizable than on-premises deployments
- B. Cloud deployments have lower upfront cost than on-premises deployments**
- C. Cloud deployments require longer implementation times than on-premises deployments
- D. Cloud deployments require less frequent upgrades than on-premises deployments

Answer: B

QUESTION 10 

Why would a small or mid-size business choose a cloud solution over an on-premises solution?

- A. Cloud provides higher data security than on-premises.
- B. Cloud provides lower upfront cost than on-premises.**
- C. Cloud provides greater ability for customization than on-premises.
- D. Cloud provides more control over the implementation process than on-premises.

Answer: B

中小企業使用 cloud 模式可減少設備投資成本。

QUESTION 11 

How does an on-premises infrastructure compare to a cloud infrastructure?

- A. On-premises can increase compute power faster than cloud
- B. On-premises requires less power and cooling resources than cloud
- C. On-premises offers faster deployment than cloud
- D. On-premises offers lower latency for physically adjacent systems than cloud.**

Answer: D

QUESTION 12

Why would a customer implement an on-premises solution instead of a cloud solution?

- A. On-premises is more secure than cloud
- B. On-premises offers greater scalability than cloud**
- C. On-premises offers greater compliance for government regulations than cloud
- D. On-premises offers short deployment time than cloud

Answer: B

On-premises 相比 Cloud 較為靈活，可以隨時改動硬件或設備。

QUESTION 13

In which two ways does TCAM differ from CAM? (Choose two)

- A. CAM is used to make Layer 2 forwarding decisions, and TCAM is used for Layer 3 address lookups**
- B. CAM is used for software switching mechanisms, and TCAM is used for hardware switching mechanisms
- C. CAM is used by routers for IP address lookups, and TCAM is used to make Layer 2 forwarding decisions
- D. The MAC address table is contained in CAM, and ACL and QoS information is stored in TCAM**
- E. The MAC address table is contained in TCAM, and ACL and QoS information is stored in CAM

Answer: A, D

When using Ternary Content Addressable Memory (TCAM) inside routers it's used for faster address lookup that enables fast routing. In switches Content Addressable Memory (CAM) is used for building and lookup of MAC address table that enables L2 forwarding decisions. Besides Longest-Prefix Matching, TCAM in today's routers and multilayer Switch devices are used to store ACL, QoS and other things from upper-layer processing.

<https://community.cisco.com/t5/networking-documents/cam-content-addressable-memory-vs-tcam-ternary-conte>

QUESTION 14

Which method does Cisco DNA Center use to allow management of non-Cisco device through southbound protocols?

- A. It creates device packs through the use of an SDK**
- B. It uses an API call to interrogate the devices and register the returned data
- C. It obtains MIBs from each vendor that details the APIs available
- D. It imports available APIs for the non-Cisco device in a CSV format

Answer: A

Multivendor Support (Southbound)

Cisco DNA Center allows customers to manage their non-Cisco devices through the use of a Software Development Kit (SDK) that can be used to create Device Packages for third-party devices.

Encapsulation of third-party components allows for an integrated view of the network consistent with the DNA Center abstraction. A Device Package enables Cisco DNA Center to communicate to third-party devices by mapping Cisco DNA Center features to their southbound protocols.

<https://developer.cisco.com/docs/dna-center/#!cisco-dna-center-platform-overview/multivendor-support-southbound>

QUESTION 15 ★★★★★

```
R2#
*May 27 15:33:59:642: OSPF-1 ADJ Gi1: Send DBD to 192.168.201.137 seq 0xDE7 opt 0x52 flag 0x7 len 32
*May 27 15:33:59:642: OSPF-1 ADJ Gi1: Retransmitting DBD to 192.168.201.137 [15]
*May 27 15:33:59:642: OSPF-1 ADJ Gi1: Rcv DBD from 192.168.201.137 seq 0xDE7 opt 0x52 flag 0x2 len 112 mtu 9100 state EXSTART
```

Refer to the exhibit. The OSPF neighborship fails between two routers. What is the cause of this issue?

- A. The OSPF router ID is missing on this router
- B. The OSPF router ID is missing on the neighbor router
- C. The OSPF process is stopped on the neighbor router
- D. There is an MTU mismatch between the two routers**

Answer: D

除了 Timer mismatch，Area mismatch 等，如果雙方 Router 的 MTU mismatch 一樣不能建立 OSPF adjacency 鄰接關係。

QUESTION 16 ★★★★★

```
Chicago#show ip ospf nei
Neighbor ID Pri State Dead Time Address Interface
3.3.3.3 1 FULL/BDR 00:00:37 192.168.2.3 FastEthernet0/0
2.2.2.2 0 FULL/- 00:00:32 192.168.0.2 Serial0/0
Chicago#
Chicago#show ip ospf int bri
Interface PID Area IP Address/Mask Cost State Nbrs F/C
Fa0/0 1 1 192.168.2.1/24 40000 DR 1/1
Se0/0 1 1 192.168.0.1/24 65535 P2P 1/1
Chicago#
```

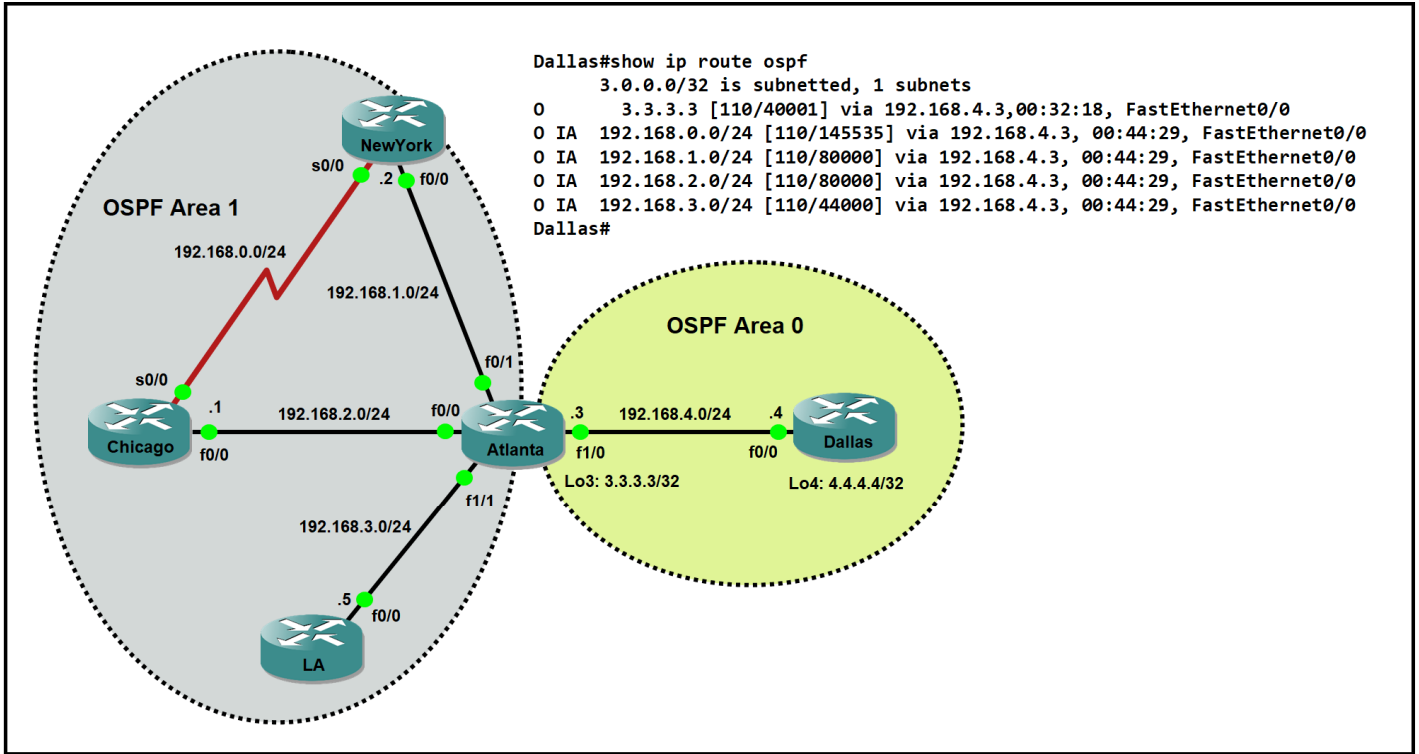
Refer to the exhibit. Which router is the designated router on the segment 192.168.0.0/24?

- A. Router NewYork because it has a higher router ID.
- B. This segment has no designated router because it is a non-broadcast network type.
- C. This segment has no designated router because it is a p2p network type.**
- D. Router Chicago because it has a lower router ID

Answer: C

OSPF Point-to-Point 網絡類型下，是不會和另一方 Router 做 DR 選舉。根據 Chicago 的 show ip ospf nei 顯示和 NewYork router 2.2.2.2 是 Full /- 狀態，即大家已建立鄰接關係，但沒有角色之分。

QUESTION 17 ★★☆☆☆☆



Refer to the exhibit. When applied to the Atlanta router, which command reduces type 3 LSA flooding into the backbone area and summarizes the inter-area routes on the Dallas router?

- A. Atlanta(config-router)# area 0 range 192.168.0.0 255.255.248.0
- B. Atlanta(config-router)# area 0 range 192.168.0.0 255.255.252.0
- C. Atlanta(config-router)# area 1 range 192.168.0.0 255.255.248.0
- D. Atlanta(config-router)# area 1 range 192.168.0.0 255.255.252.0

Answer: D

QUESTION 18 ★★☆☆☆☆

The Gig0/0 interface of two routers is directly connected with a 1G Ethernet link. Which configuration must be applied to the interface of both routers to establish an OSPF adjacency without maintaining a DR/BDR relationship?

- A. **interface Gi0/0**
ip ospf network point-to-point
- B. interface Gi0/0
ip ospf network broadcast
- C. interface Gi0/0
ip ospf network non-broadcast
- D. interface Gi0/0
ip ospf network point-to-multipoint

Answer: A

GigabitEthernet 在 OSPF network type 屬於 broadcast multi-access 類別，如果在同一個網絡下的 Router 會選舉 DR/BDR，整個過程須要 40 秒，最終影響連線時間。如果不想有 DR/BDR 選舉的話可轉換成 point-to-point 模式，效果便是一接即通。

QUESTION 19 ★★★★★

```

Router# show ip ospf interface
GigabitEthernet0/1.40 is up, line protocol is up
  Internet Address 10.3.5.254/24, Area 0, Attached via Network Statement
  Process ID 1, Router ID 172.16.11.29, Network Type BROADCAST, Cost 1
  Topology-MTID      Cost      Disabled      Shutdown      Topology Name
      0          1          no            no            Base
  Transmit Delay is 1 sec, State DR, Priority 1
  Designated Router (ID) 172.16.11.29, Interface address 10.3.5.254
  No backup designated router on this network
  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
    oob-resync timeout 40
  No Hello (Passive interface)
  Supports Link-local Signaling (LLS)
  ! lines omitted for brevity
GigabitEthernet0/1 is up, line protocol is up
  Internet Address 172.16.30.1/24, Area 0, Attached via Network Statement
  Process ID 1, Router ID 172.16.11.29, Network Type BROADCAST, Cost 1
  Topology-MTID      Cost      Disabled      Shutdown      Topology Name
      0          1          no            no            Base
  Transmit Delay is 1 sec, State DR, Priority 1
  Designated Router (ID) 172.16.11.29, Interface address 172.16.30.1
  No backup designated router on this network
  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
    oob-resync timeout 40
  No Hello (Passive interface)
  Supports Link-local Signaling (LLS)
  ! lines omitted for brevity
GigabitEthernet0/0 is up, line protocol is up
  Internet Address 172.16.11.29/24, Area 0, Attached via Network Statement
  Process ID 1, Router ID 172.16.11.29, Network Type BROADCAST, Cost 1
  Topology-MTID      Cost      Disabled      Shutdown      Topology Name
      0          1          no            no            Base
  Transmit Delay is 1 sec, State DR, Priority 1
  Designated Router (ID) 172.16.11.27, Interface address 172.16.11.27
  Backup designated router (ID) 172.16.11.30, Interface address 172.16.11.30
  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
    oob-resync timeout 40
  Hello due in 00:00:07
  Supports Link-local Signaling (LLS)
  ! lines omitted for brevity

```

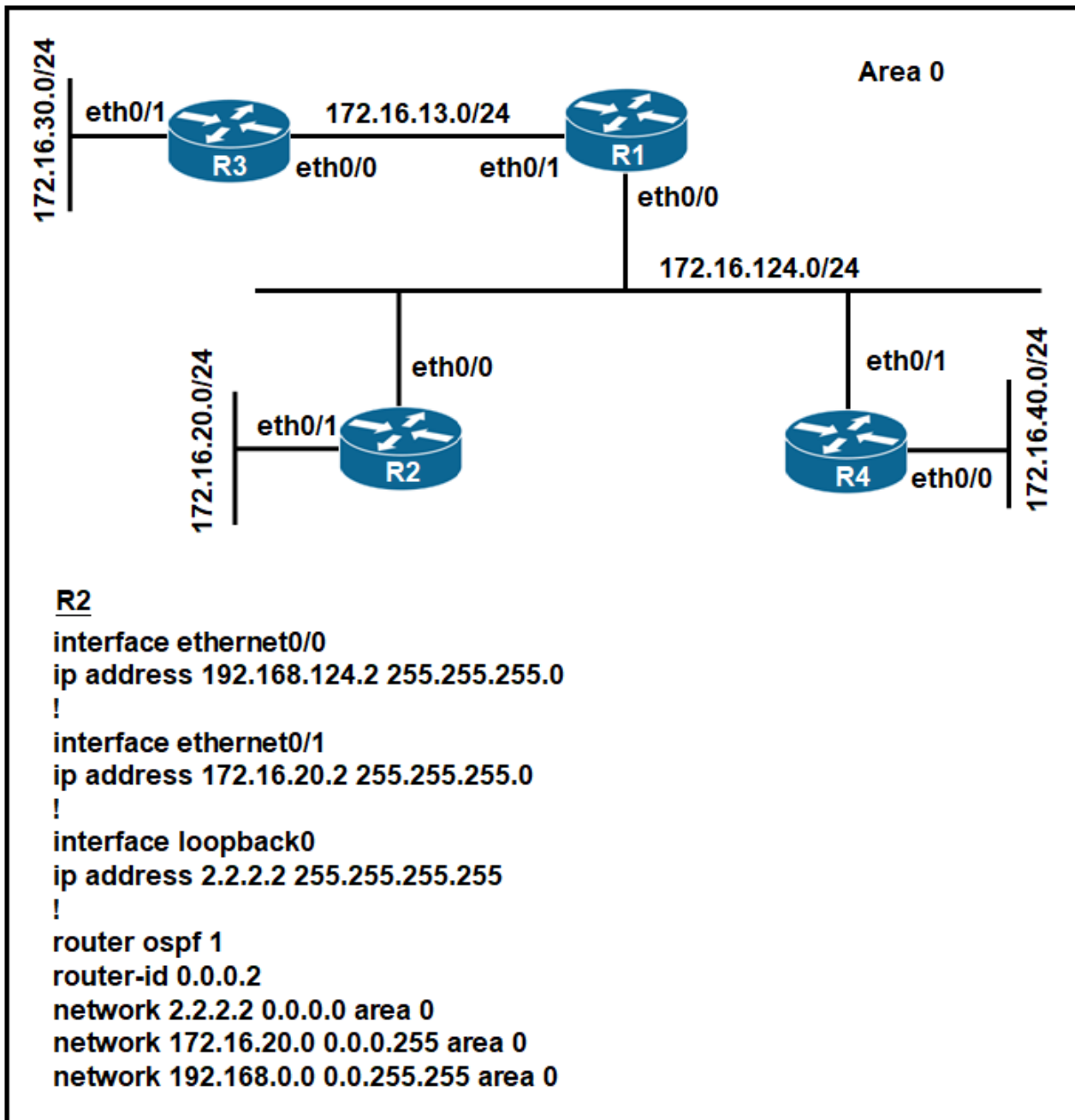
Refer to the exhibit. A network engineer configures OSPF and reviews the router configuration. Which interface or interfaces are able to establish OSPF adjacency?

- A. only GigabitEthernet0/1
- B. only GigabitEthernet0/0**
- C. GigabitEthernet0/1 and GigabitEthernet0/1.40
- D. GigabitEthernet0/1 and GigabitEthernet0/1

Answer: B

GigabitEthernet0/1.40 和 GigabitEthernet0/1 都顯示 **No Hello (Passive Interface)**。不會傳送 Hello Packet 繼而不會和鄰接 Router 建立 OSPF adjacency。

QUESTION 20 ★



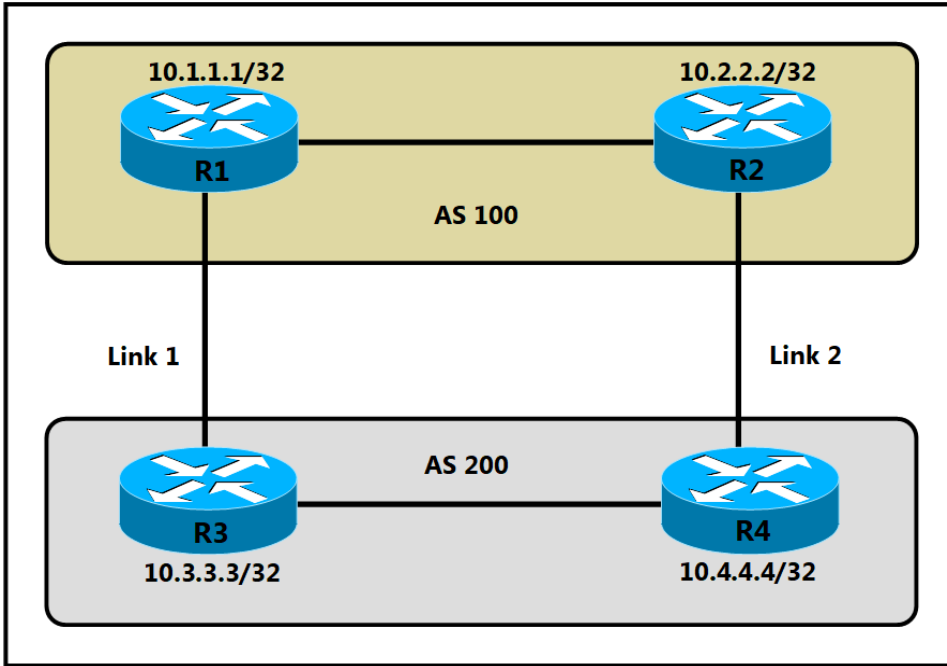
Refer to the exhibit. An attacker can advertise OSPF fake routes from 172.16.20.0 network to the OSPF domain and black hole traffic. Which action must be taken to avoid this attack and still be able to advertise this subnet into OSPF?

- A. Apply a policy to filter OSPF packets on R2
- B. Configure 172.16.20.0 as a stub network
- C. Configure a passive interface on R2 toward 172.16.20.0**
- D. Configure graceful restart on the 172.16.20.0 interface

Answer: C

在 R2 連接著 172.16.20.0/24 的 e0/1 介面設定 passive interface 防止和其它 Router 建立鄰接關係和接收路由。

QUESTION 21 ★★☆☆



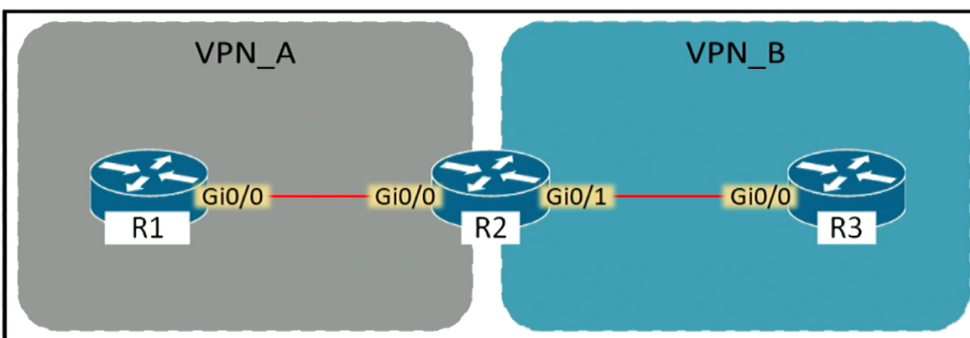
Refer to the exhibit. An engineer must ensure that all traffic leaving AS 200 will choose Link 2 as the exit point. Assuming that all BGP neighbor relationships have been formed and that the attributes have not been changed on any of the routers, which configuration accomplishes this task?

- A. R3 (config-router)# neighbor 10.1.1.1 weight 200
- B. R4 (config-router)# neighbor 10.2.2.2 weight 200
- C. R3 (config-router)# bgp default local-preference 200
- D. R4 (config-router)# bgp default local-preference 200

Answer: D

BGP 首先會根據最高的 Local Preference 選擇 routing path，(預設值是 100)，如果想指定所有離開 AS200 的 packet 都經 R4 Link 2 離開的話，只要調高 R4 的 Local Preference 至 200 便可。

QUESTION 22 ★★☆☆



Refer to the exhibit. Assuming that R1 is a CE router, which VRF is assigned to Gi0/0 on R1?

- A. default VRF
- B. VRF VPN_A
- C. VRF VPN_B
- D. management VRF

Answer: A

QUESTION 23 

```
R1#show ip bgp
BGP table version is 32, local router ID is 192.168.101.5
Status codes: S suppressed, d damped, h history, * valid, > best, i - internal,
               r RIB-failure, S Stale, m multipath, b backup-path, f RT-Filter,
               x best-external, a additional-path, c RIB-compressed,
Origin codes: i - IGP, e - EGP, ? - incomplete
RPKI validation codes: V valid, I invalid, N Not found
```

	Network	Next Hop	Metric	LocPrf	Weight	Path
*	192.168.102.0	192.168.101.18	80		0	64517 i
*		192.168.101.14	80	80	0	64516 i
*		192.168.101.10			0	64515 64515 i
*>		192.168.101.2			32768	64513 i
*		192.168.101.6		80	0	64514 64514 i

Refer to the exhibit. Which IP address becomes the active next hop for 192.168.102.0/24 when 192.168.101.2 fails?

- A. 192.168.101.18
- B. 192.168.101.14
- C. 192.168.101.10
- D. 192.168.101.6

Answer: A

BGP Local Preference 預設值是 100，而 IP .14 和 .6 的 Local Preference 設定為 80，這兩條 path 都首先被 out，剩餘的 .18 和 .10，就會比較哪一 path 較短，所以正確答案係 A。

QUESTION 24 

What does the number in an NTP stratum level represent?

- A. The amount of offset between the device clock and true time
- B. The amount of drift between the device clock and true time
- C. The number of hops it takes to reach the authoritative time source
- D. The number of hops it takes to reach the primary time server

Answer: C

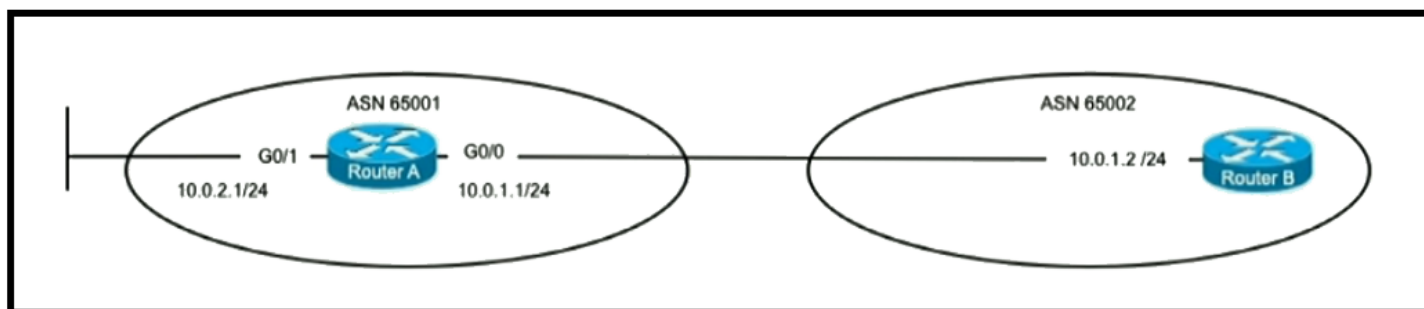
QUESTION 25 

Which measure is used by an NTP server to indicate its closeness to the authoritative time source?

- A. stratum
- B. time zone
- C. hop count
- D. latency

Answer: A

QUESTION 26 



Refer to the exhibit. An engineer must configure an eBGP neighborship to Router B on Router A. The network that is connected to G0/1 on Router A must be advertised to Router B. Which configuration should be applied?

- A. `router bgp 65001`
`neighbor 10.0.1.2 remote-as 65002`
`network 10.0.1.0 255.255.255.0`
- B. `router bgp 65001`
`neighbor 10.0.1.2 remote-as 65002`
`network 10.0.2.0 255.255.255.0`
- C. `router bgp 65001`
`neighbor 10.0.1.2 remote-as 65002`
`redistribute static`
- D. `router bgp 65002`
`neighbor 10.0.1.2 remote-as 65002`
`network 10.0.2.0 255.255.255.0`

Answer: C

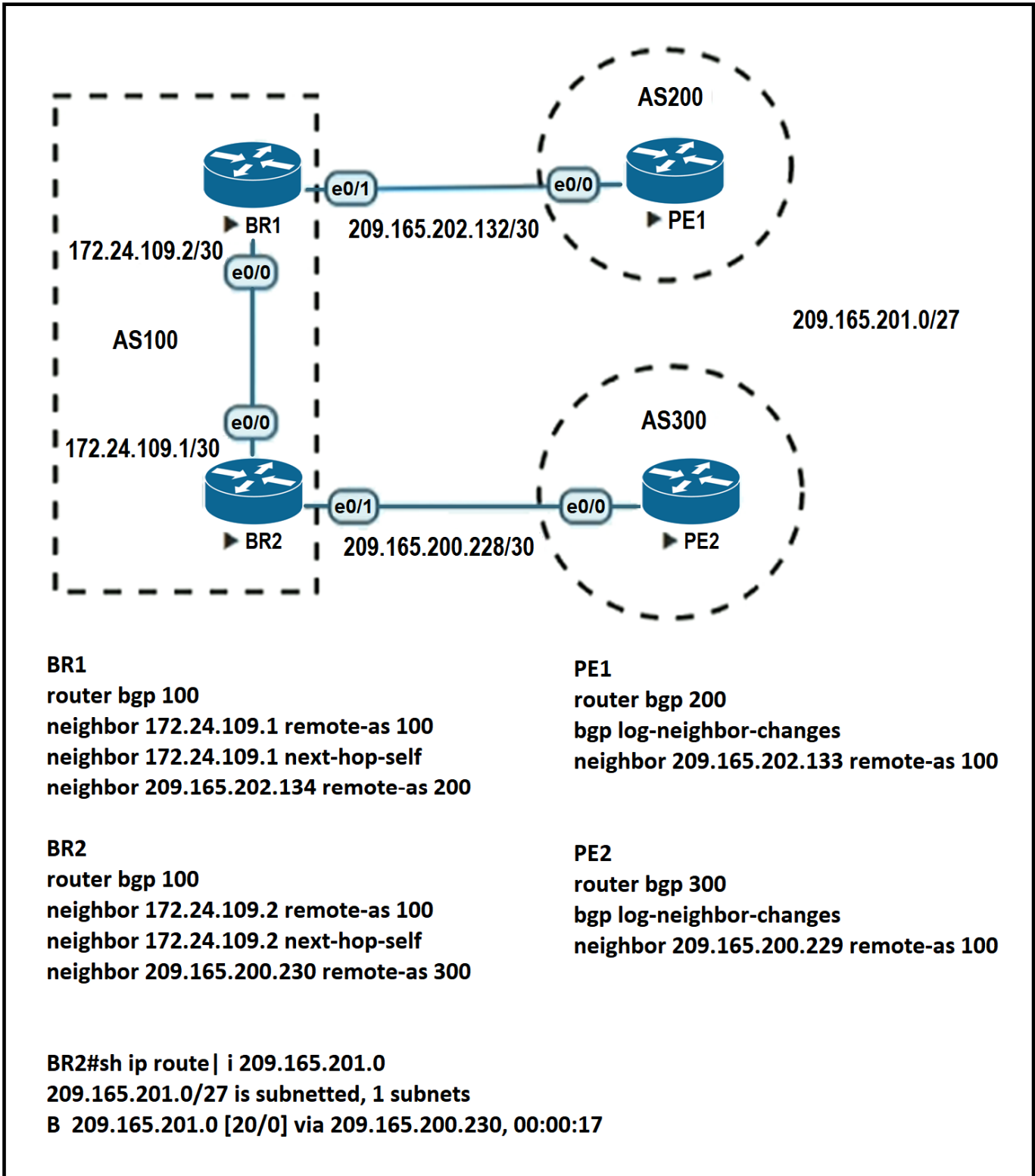
QUESTION 27 

What is one different between EIGRP and OSPF?

- A. OSPF is a Cisco proprietary protocol, and EIGRP is an IETF open standard protocol.
- B. OSPF uses the DUAL distance vector algorithm, and OSPF uses the Dijkstra link-state algorithm.
- C. EIGRP uses the DUAL distance vector algorithm, and OSPF uses the Dijkstra link-state algorithm.
- D. EIGRP uses the variance command for unequal cost load balancing, and OSPF supports unequal cost balancing by default.

Answer: C

QUESTION 28 ★☆☆

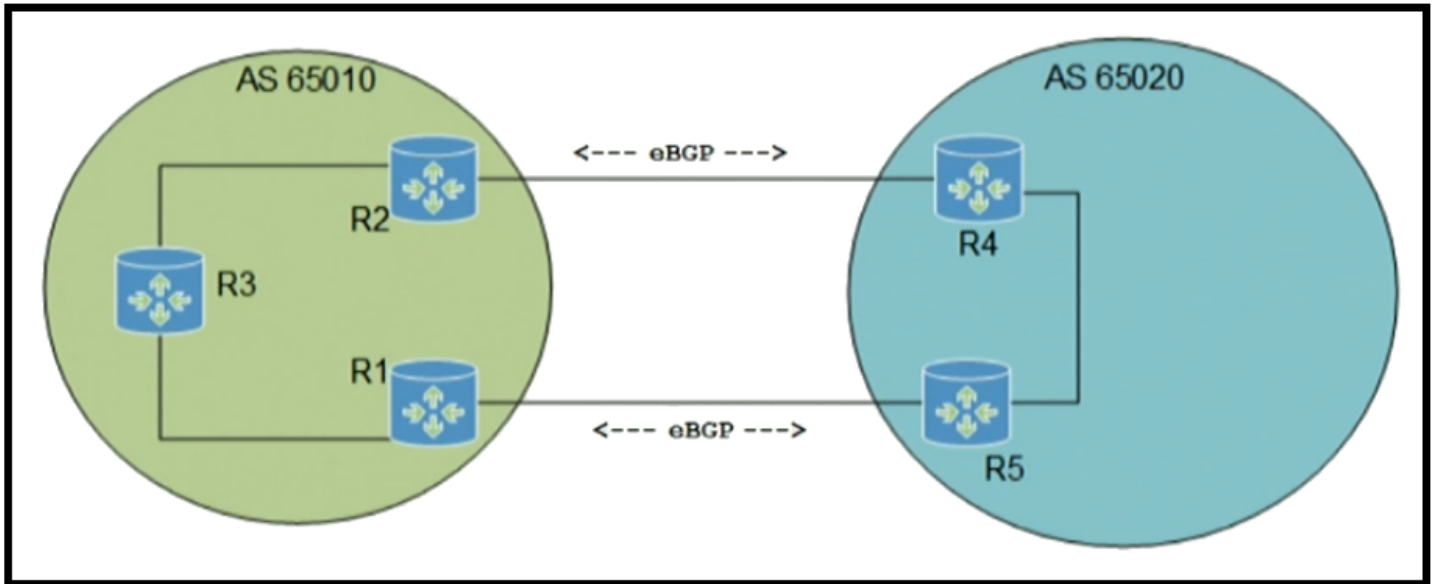


Refer to the exhibit. Which configuration change will force BR2 to reach 209.165.201.0/27 via BR1?

- A. Set the MED to 1 on PE2 toward BR2 outbound
- B. Set the origin to igp on BR2 toward PE2 inbound
- C. Set the weight attribute to 65,535 on BR1 toward PE1
- D. Set the local preference to 150 on PE1 toward BR1 outbound

Answer: A

QUESTION 29 ★★☆☆



Refer to the exhibit. Which configuration must be applied to ensure that the preferred path for traffic from AS 65010 toward AS 65020 uses the R2 to R4 path?

- A.

```
R2 (config)# router bgp 65010
R2 (config-router)# bgp default local-preference 200
R1 (config)# router bgp 65010
R1 (config-router)# bgp default local-preference 300
```
- B.

```
R2 (config)# router bgp 65010
R2 (config-router)# bgp default local-preference 300
R1 (config)# router bgp 65010
R1 (config-router)# bgp default local-preference 200
```
- C.

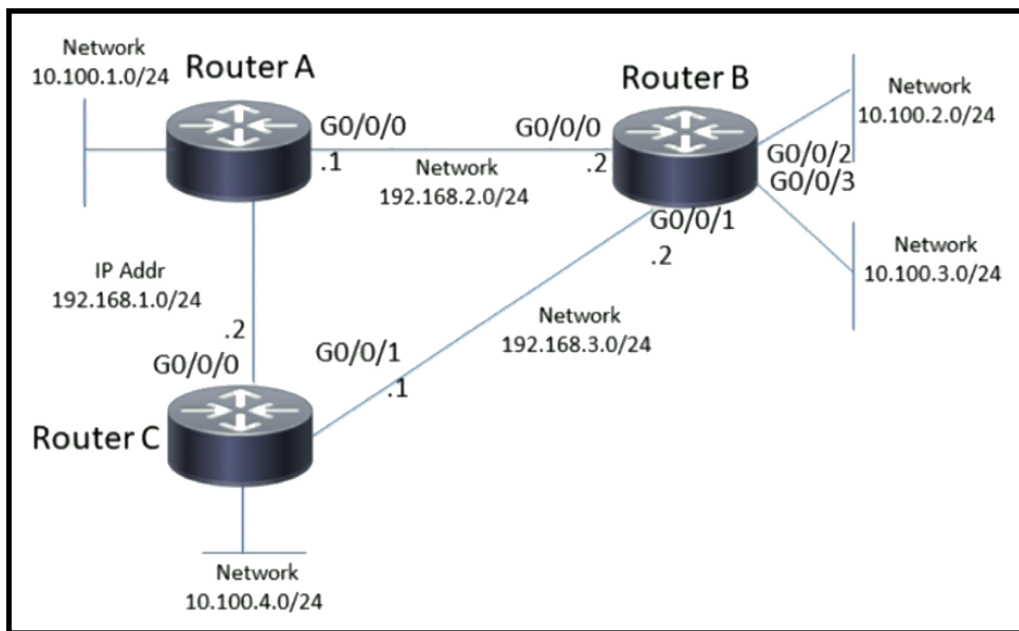
```
R2 (config)# router bgp 65020
R2 (config-router)# bgp default local-preference 200
R1 (config)# router bgp 65020
R1 (config-router)# bgp default local-preference 300
```
- D.

```
R2 (config)# router bgp 65020
R2 (config-router)# bgp default local-preference 300
R1 (config)# router bgp 65020
R1 (config-router)# bgp default local-preference 200
```

Answer: B

BGP 首先會根據最高的 Local Preference 選擇 routing path，(預設值是 100)，如果想指定所有從 AS65010 去 AS65020 的 packet 都經 R2 to R4 的路徑離開的話，只要將 R2 的 Local Preference 調高至 300，而 R1 的 Local Preference 調低至 200 便可。

QUESTION 30 ★★☆☆☆☆



Refer to the exhibit. A network administrator must configure router B to allow traffic only from network 10.100.2.0 to networks outside of router B. Which configuration must be applied?

- A. RouterB(config)# access-list 101 permit ip 10.100.2.0 0.0.0.255 any
RouterB(config)# access-list 101 deny any
RouterB(config)# int g0/0/0
RouterB(config-if)# ip access-group 101 out
- B. RouterB(config)# access-list 101 permit ip 10.100.2.0 0.0.0.255 any
RouterB(config)# access-list 101 deny any
RouterB(config)# int g0/0/2
RouterB(config-if)# ip access-group 101 in
- C. RouterB(config)# access-list 101 permit ip 10.100.2.0 0.0.0.255 any
RouterB(config)# int g0/0/0
RouterB(config-if)# ip access-group 101 out
RouterB(config)# int g0/0/1
RouterB(config-if)# ip access-group 101 out
- D. RouterB(config)# access-list 101 permit ip 10.100.3.0 0.0.0.255 any
RouterB(config)# access-list 101 deny any
RouterB(config)# int g0/0/0
RouterB(config-if)# ip access-group 101 out
RouterB(config)# int g0/0/1
RouterB(config-if)# ip access-group 101 out

Answer: C

答案 C 正確，首先設定 access list 只容許 permit 10.100.2.0/24 去任何目的地網絡，然後在 Router B 的 G0/0/0 和 G0/0/1 介面 out 的方向檢查和執行便可。

Drag and Drop Questions

QUESTION 1 

Drag and drop the description from the left onto the routing protocol they describe on the right.

- supports unequal path load balancing
- link state routing protocol
- distance vector routing protocol
- metric is based on delay and bandwidth by default
- makes it easy to segment the network logically
- constructs three tables as part of its operation: neighbor table, topology table, and routing table

OSPF

EIGRP

Answer:

OSPF

- link state routing protocol
- makes it easy to segment the network logically
- constructs three tables as part of its operation: neighbor table, topology table, and routing table

EIGRP

- supports unequal path load balancing
- distance vector routing protocol
- metric is based on delay and bandwidth by default

QUESTION 2 

Drag and characteristics from the left onto the routing protocols they describe on the right.

- uses virtual links to link an area that does not have a connection to the backbone
- hello packets are sent by default every 5 seconds on high-bandwidth links
- default cost is based on interface bandwidth only
- metric is calculated using bandwidth and delay by default

EIGRP

[Empty box]

[Empty box]

OSPF

[Empty box]

[Empty box]

Answer:

EIGRP

hello packets are sent by default every 5 seconds on high-bandwidth links

metric is calculated using bandwidth and delay by default

OSPF

uses virtual links to link an area that does not have a connection to the backbone

default cost is based on interface bandwidth only

QUESTION 3 ★★☆☆

Drag and drop the characteristics from the left onto the switching mechanisms they describe on the right.

The forwarding table is created in advance.

The router processor is involved with every forwarding decision.

All forwarding decisions are made in software.

All packets are switched using hardware.

Cisco Express Forwarding

Process Switching

Answer:

Cisco Express Forwarding

The forwarding table is created in advance.

All forwarding decisions are made in software.

Process Switching

The router processor is involved with every forwarding decision.

All packets are switched using hardware.