

## 200-101 Dumps

### Interconnecting Cisco Networking Devices Part 2 (ICND2)

<https://www.certleader.com/200-101-dumps.html>



### NEW QUESTION 1

Refer to the exhibit.

```
Switch# show spanning-tree vlan 30
VLAN0030
Spanning tree enabled protocol rstp
Root ID Priority 24606
Address 00d0.047b.2800
This bridge is the root
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Bridge ID Priority 24606 (priority 24576 sys-id-ext 30)
Address 00d0.047b.2800
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Aging Time 300
Interface    Role    Sts    Cost    Prio.Nbr    Type
-----
Fa1/1        Desg FWD    4        128.1     p2p
Fa1/2        Desg FWD    4        128.2     p2p
Fa5/1        Desg FWD    4        128.257   p2p
```

The output that is shown is generated at a switch. Which three statements are true? (Choose three.)

- A. All ports will be in a state of discarding, learning, or forwarding.
- B. Thirty VLANs have been configured on this switch.
- C. The bridge priority is lower than the default value for spanning tree.
- D. All interfaces that are shown are on shared media.
- E. All designated ports are in a forwarding state.
- F. This switch must be the root bridge for all VLANs on this switch.

**Answer:** ACE

**Explanation:** From the output, we see that all ports are in Designated role (forwarding state) -> A and E are correct.

The command "show spanning-tree vlan 30 only shows us information about VLAN 30. We don't know how many VLAN exists in this switch -> B is not correct.

The bridge priority of this switch is 24606 which is lower than the default value bridge priority 32768 -> C is correct.

All three interfaces on this switch have the connection type "p2p", which means Point-to-point environment – not a shared media -> D is not correct.

The only thing we can specify is this switch is the root bridge for VLAN 30 but we can not guarantee it is also the root bridge for other VLANs -> F is not correct.

### NEW QUESTION 2

- A. RSTP cannot operate with PVST+.
- B. RSTP defines new port roles.
- C. RSTP defines no new port states.
- D. RSTP is a proprietary implementation of IEEE 802.1D STP.
- E. RSTP is compatible with the original IEEE 802.1D STP.

**Answer:** BE

**Explanation:** [http://www.cisco.com/en/US/tech/tk389/tk621/technologies\\_white\\_paper09186a0080094cf a.shtml](http://www.cisco.com/en/US/tech/tk389/tk621/technologies_white_paper09186a0080094cf a.shtml)

Port Roles

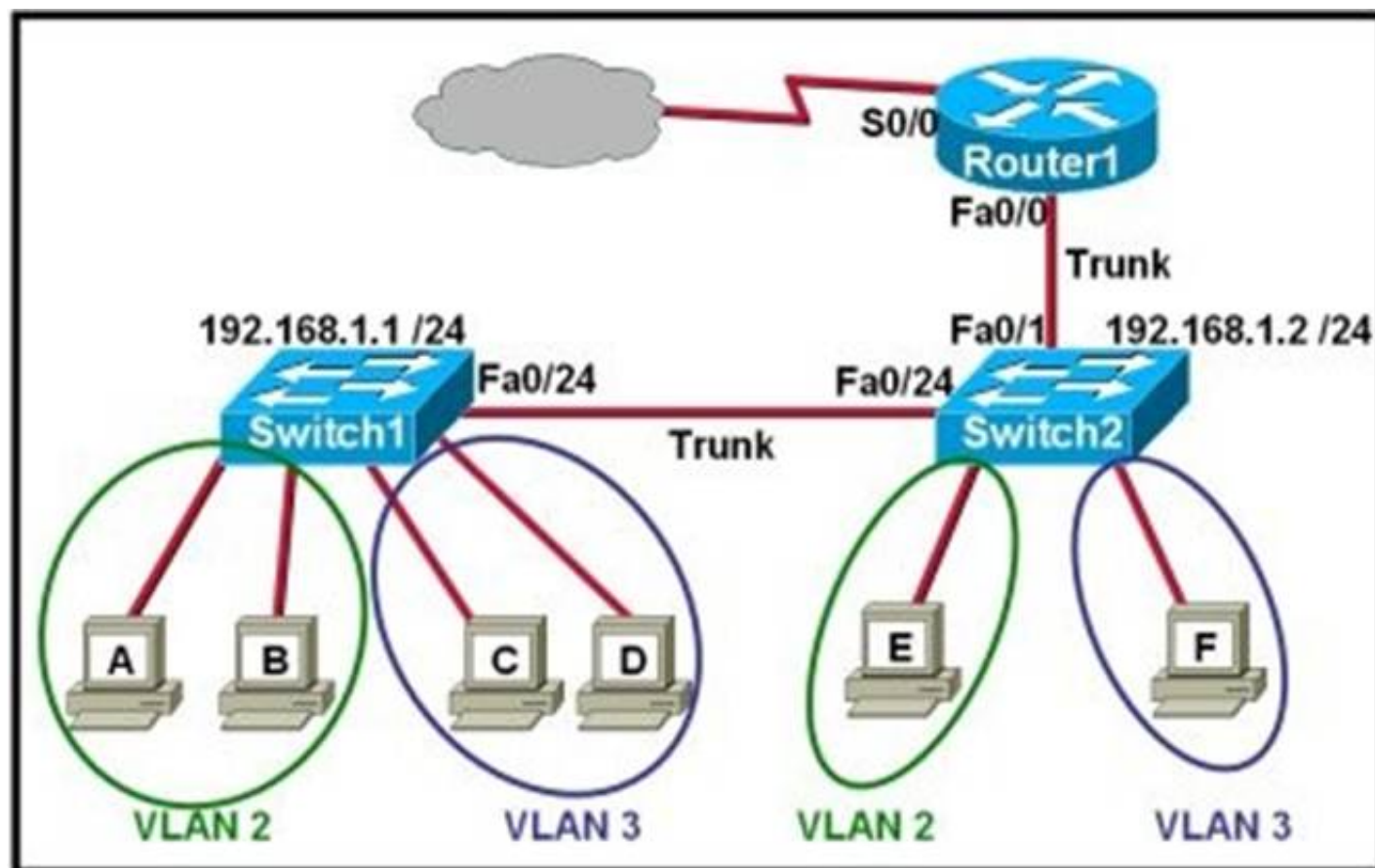
The role is now a variable assigned to a given port. The root port and designated port roles remain, while the blocking port role is split into the backup and alternate port roles. The Spanning Tree Algorithm (STA) determines the role of a port based on Bridge Protocol Data Units (BPDUs). In order to simplify matters, the thing to remember about a BPDU is there is always a method to compare any two of them and decide whether one is more useful than the other. This is based on the value stored in the BPDU and occasionally on the port on which they are received. This considered, the information in this section explains practical approaches to port roles.

Compatibility with 802.1D

RSTP is able to interoperate with legacy STP protocols. However, it is important to note that the inherent fast convergence benefits of 802.1w are lost when it interacts with legacy bridges.

### NEW QUESTION 3

Refer to the exhibit.



Which two statements are true about interVLAN routing in the topology that is shown in the exhibit? (Choose two.)

- A. Host E and host F use the same IP gateway address.
- B. Router1 and Switch2 should be connected via a crossover cable.
- C. Router1 will not play a role in communications between host A and host D.
- D. The FastEthernet 0/0 interface on Router1 must be configured with subinterfaces.
- E. Router1 needs more LAN interfaces to accommodate the VLANs that are shown in the exhibit.
- F. The FastEthernet 0/0 interface on Router1 and the FastEthernet 0/1 interface on Switch2 trunk ports must be configured using the same encapsulation type.

**Answer:** DF

**Explanation:** [http://www.cisco.com/en/US/tech/tk389/tk815/technologies\\_configuration\\_example09186a\\_00800949fd.shtml](http://www.cisco.com/en/US/tech/tk389/tk815/technologies_configuration_example09186a_00800949fd.shtml)

#### NEW QUESTION 4

At which layer of the OSI model is RSTP used to prevent loops?

- A. physical
- B. data link
- C. network
- D. transport

**Answer:** B

**Explanation:** RSTP and STP operate on switches and are based on the exchange of Bridge Protocol Data Units (BPDUs) between switches. One of the most important fields in BPDUs is the Bridge Priority in which the MAC address is used to elect the Root Bridge, RSTP operates at Layer 2.  
[http://www.cisco.com/en/US/tech/tk389/tk621/technologies\\_white\\_paper09186a0080094\\_cfa.shtml](http://www.cisco.com/en/US/tech/tk389/tk621/technologies_white_paper09186a0080094_cfa.shtml)

#### NEW QUESTION 5

Which term describes a spanning-tree network that has all switch ports in either the blocking or forwarding state?

- A. converged
- B. redundant
- C. provisioned
- D. spanned

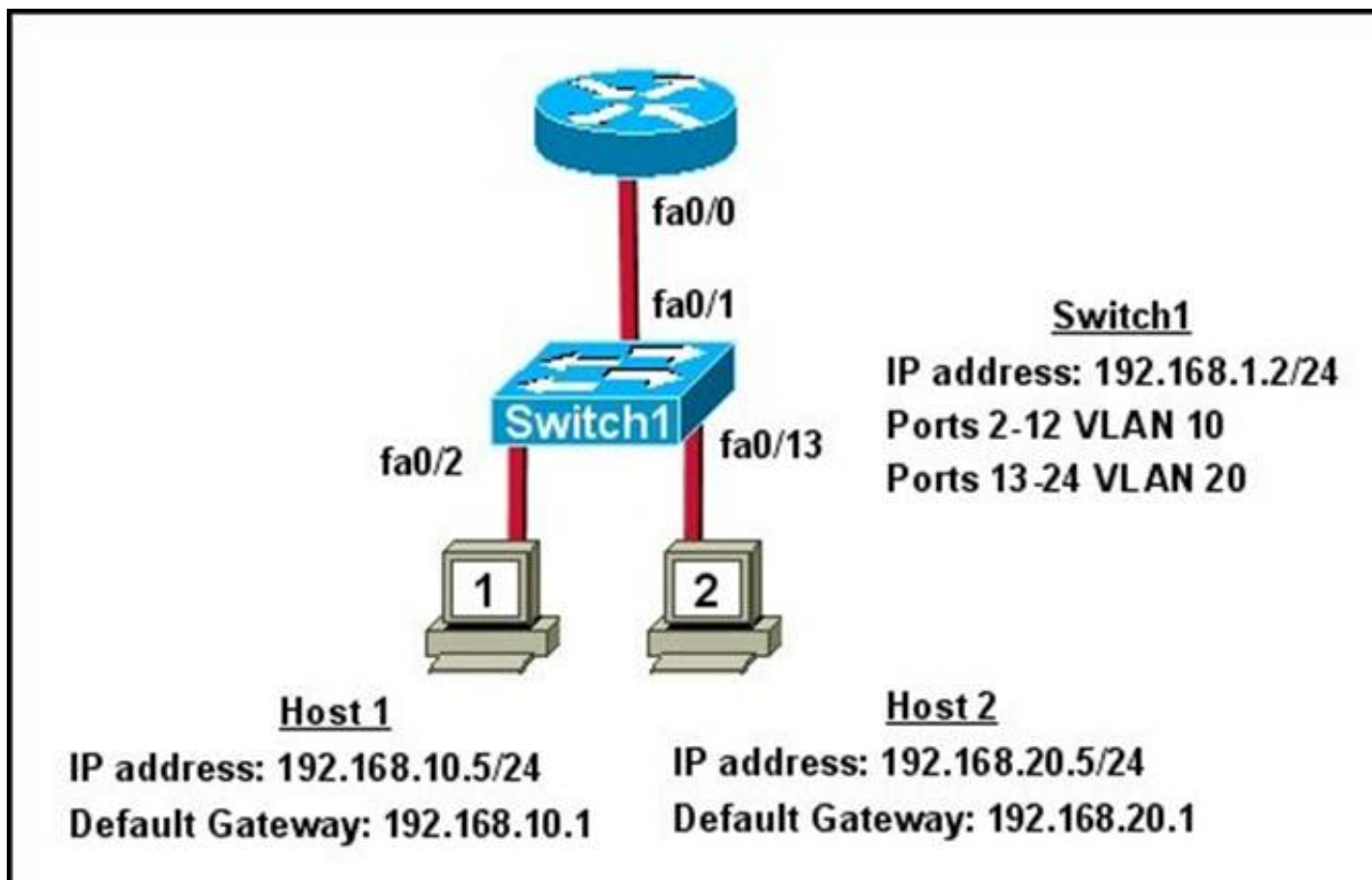
**Answer:** A

**Explanation:** Spanning Tree Protocol convergence (Layer 2 convergence) happens when bridges and switches have transitioned to either the forwarding or blocking state. When layer 2 is converged, root bridge is elected and all port roles (Root, Designated and Non-Designated) in all switches are selected.

#### NEW QUESTION 6

Refer to the exhibit.





What commands must be configured on the 2950 switch and the router to allow communication between host 1 and host 2? (Choose two.)

- A. Router(config)# interface fastethernet 0/0 Router(config-if)# ip address 192.168.1.1 255.255.255.0 Router(config-if)# no shut down
- B. Router(config)# interface fastethernet 0/0 Router(config-if)# no shut down Router(config)# interface fastethernet 0/0.1 Router(config-subif)# encapsulation dot1q 10 Router(config-subif)# ip address 192.168.10.1 255.255.255.0 Router(config)# interface fastethernet 0/0.2 Router(config-subif)# encapsulation dot1q 20 Router(config-subif)# ip address 192.168.20.1 255.255.255.0
- C. Router(config)# router eigrp 100 Router(config-router)# network 192.168.10.0 Router(config-router)# network 192.168.20.0
- D. Switch1(config)# vlan database Switch1(config-vlan)# vtp domain XYZ Switch1(config-vlan)# vtp server
- E. Switch1(config)# interface fastethernet 0/1 Switch1(config-if)# switchport mode trunk
- F. Switch1(config)# interface vlan 1 Switch1(config-if)# ip default-gateway 192.168.1.1

**Answer:** BE

**Explanation:** [http://www.cisco.com/en/US/tech/tk389/tk815/technologies\\_configuration\\_example09186a00800949fd.shtml](http://www.cisco.com/en/US/tech/tk389/tk815/technologies_configuration_example09186a00800949fd.shtml)  
<https://learningnetwork.cisco.com/servlet/JiveServlet/download/5669-2461/Router%20on%20a%20Stick.pdf>.

#### NEW QUESTION 7

Which port state is introduced by Rapid-PVST?

- A. learning
- B. listening
- C. discarding
- D. forwarding

**Answer:** C

**Explanation:** Spanning Tree from PVST+ to Rapid-PVST Migration Configuration Example

Reference 1: [http://www.cisco.com/en/US/products/hw/switches/ps708/products\\_configuration\\_example\\_09186a00807b0670.shtml](http://www.cisco.com/en/US/products/hw/switches/ps708/products_configuration_example_09186a00807b0670.shtml)

Reference 2: [http://www.cisco.com/en/US/tech/tk389/tk621/technologies\\_white\\_paper09186a0080094cf\\_a.shtml](http://www.cisco.com/en/US/tech/tk389/tk621/technologies_white_paper09186a0080094cf_a.shtml)

PVST+ is based on IEEE802.1D Spanning Tree Protocol (STP). But PVST+ has only 3 port states (discarding, learning and forwarding) while STP has 5 port states (blocking, listening, learning, forwarding and disabled). So discarding is a new port state in PVST+.

STP (802.1D) Port State	RSTP (802.1w) Port State	Is Port Included in Active Topology?	Is Port Learning MAC Addresses?
Disabled	Discarding	No	No
Blocking	Discarding	No	No
Listening	Discarding	Yes	No
Learning	Learning	Yes	Yes
Forwarding	Forwarding	Yes	Yes

Background Information

802.1D Spanning Tree Protocol (STP) has a drawback of slow convergence. Cisco Catalyst switches support three types of STPs, which are PVST+, rapid-PVST+ and MST. PVST+ is based on IEEE802.1D standard and includes Cisco proprietary extensions such as BackboneFast, UplinkFast, and PortFast. Rapid-PVST+ is based on IEEE 802.1w standard and has a faster convergence than 802.1D. RSTP (IEEE 802.1w) natively includes most of the Cisco proprietary enhancements to the 802.1D Spanning Tree, such as BackboneFast and UplinkFast. Rapid-PVST+ has these unique features:

Uses Bridge Protocol Data Unit (BPDU) version 2 which is backward compatible with the 802.1D STP, which uses BPDU version 0.

All the switches generate BPDUs and send out on all the ports every 2 seconds, whereas in 802.1D STP only the root bridge sends the configuration BPDUs.  
Port Roles—Root port, designated port, alternate port and backup port. Port States—Discarding, Learning, and Forwarding.  
Port Types—Edge Port (PortFast), Point-to-Point and Shared port.  
Rapid-PVST uses RSTP to provide faster convergence. When any RSTP port receives legacy 802.1D BPDU, it falls back to legacy STP and the inherent fast convergence benefits of 802.1w are lost when it interacts with legacy bridges.

#### NEW QUESTION 8

Which three of these statements regarding 802.1Q trunking are correct? (Choose three.)

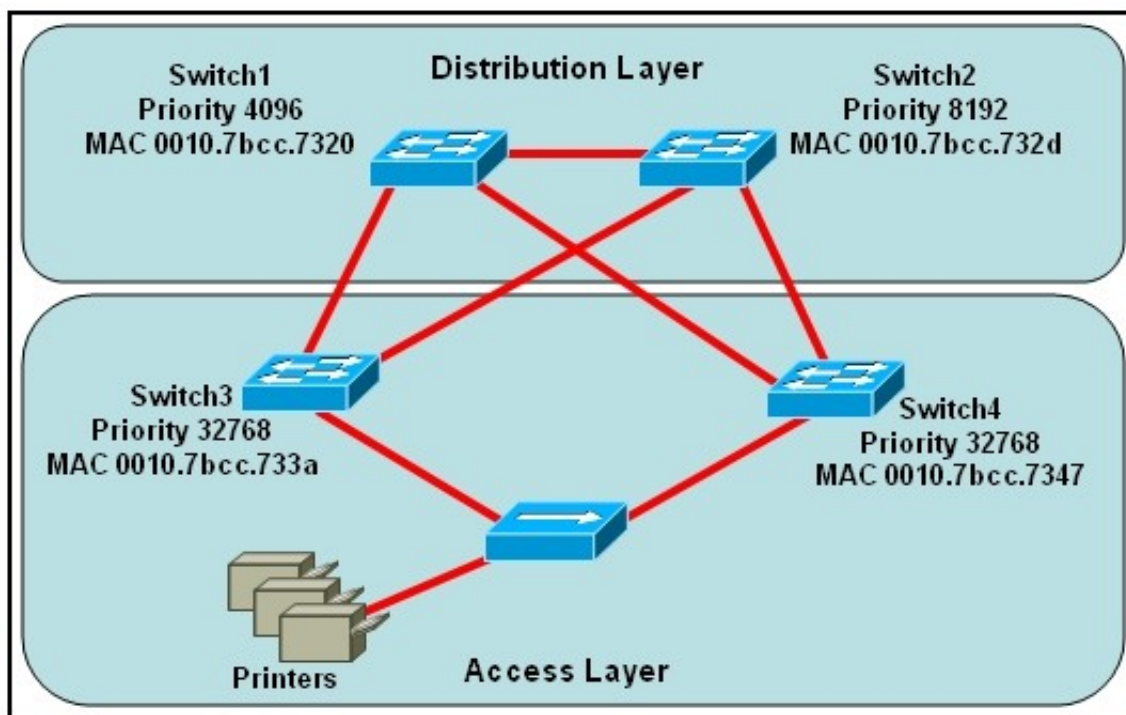
- A. 802.1Q native VLAN frames are untagged by default.
- B. 802.1Q trunking ports can also be secure ports.
- C. 802.1Q trunks can use 10 Mb/s Ethernet interfaces.
- D. 802.1Q trunks require full-duplex, point-to-point connectivity.
- E. 802.1Q trunks should have native VLANs that are the same at both ends.

**Answer:** ACE

**Explanation:** CCNA Self-Study (ICND Exam): Extending Switched Networks with Virtual LANs  
<http://www.ciscopress.com/articles/article.asp?p=102157&seqNum=2>

#### NEW QUESTION 9

Refer to the exhibit



Which switch provides the spanning-tree designated port role for the network segment that services the printers?

- A. Switch1
- B. Switch2
- C. Switch3
- D. Switch4

**Answer:** C

**Explanation:** First, the question asks what switch services the printers, so it can be Switch 3 or Switch 4 which is connected directly to the Printers. Designated port is a port that is in the forwarding state. All ports of the root bridge are designated ports. Switch 3 and Switch 4 has same priority so it will see on lowest MAC address and here switch 3 has lowest MAC address. So switch 3 segment will play a Designated port role. By comparing the MAC address of Switch 3 and Switch 4 we found that the MAC of Switch 3 is smaller. Therefore the interface connected to the Printers of Switch 3 will become designated interface and the interface of Switch 4 will be blocked.

#### NEW QUESTION 10

Which three statements are typical characteristics of VLAN arrangements? (Choose three.)

- A. A new switch has no VLANs configured.
- B. Connectivity between VLANs requires a Layer 3 device.
- C. VLANs typically decrease the number of collision domains.
- D. Each VLAN uses a separate address space.
- E. A switch maintains a separate bridging table for each VLAN.
- F. VLANs cannot span multiple switches.

**Answer:** BDE

**Explanation:** By default, all ports on a new switch belong to VLAN 1 (default & native VLAN). There are also some well-known VLANs (for example: VLAN 1002 for fddi-default; VLAN 1003 for token-ring...) configured by default -> A is not correct. To communicate between two different VLANs we need to use a Layer 3 device like router or Layer 3 switch -> B is correct. VLANs don't affect the number of collision domains, they are the same -> C is not correct. Typically, VLANs increase the number of broadcast domains. We must use a different network (or sub-network) for each VLAN. For example we can use 192.168.1.0/24 for VLAN 1, 192.168.2.0/24 for VLAN 2 -> D is correct. A switch maintains a separate bridging table for each VLAN so that it can send frame to ports on the same VLAN only. For example, if a PC in VLAN 2 sends a frame then the switch look-ups its bridging table and only sends frame out of its ports which belong to VLAN 2 (it also sends this frame on trunk ports) -> E is correct.

correct.

We can use multiple switches to expand VLAN -> F is not correct.

#### NEW QUESTION 10

Which two states are the port states when RSTP has converged? (Choose two.)

- A. discarding
- B. listening
- C. learning
- D. forwarding
- E. disabled

**Answer:** AD

**Explanation:** Understanding Rapid Spanning Tree Protocol (802.1w)

[http://www.cisco.com/en/US/tech/tk389/tk621/technologies\\_white\\_paper09186a0080094cf\\_a.shtml](http://www.cisco.com/en/US/tech/tk389/tk621/technologies_white_paper09186a0080094cf_a.shtml)

Port States

There are only three port states left in RSTP that correspond to the three possible operational states. The 802.1D disabled, blocking, and listening states are merged into a unique 802.1w discarding state.

RSTP only has 3 port states which are discarding, learning and forwarding. When RSTP has converged there are only 2 port states left: discarding and forwarding.

STP (802.1D) Port State	RSTP (802.1w) Port State	Is Port Included in Active Topology?	Is Port Learning MAC Addresses?
Disabled	Discarding	No	No
Blocking	Discarding	No	No
Listening	Discarding	Yes	No
Learning	Learning	Yes	Yes
Forwarding	Forwarding	Yes	Yes

#### NEW QUESTION 14

Refer to the exhibit.

```

Sw12#show vlan brief

VLAN  Name                Status  Ports
-----
1      default              active  Fa0/6, Fa0/7, Fa0/8, Fa0/9
10     Marketing            active  Fa0/10, Fa0/11, Fa0/12, Fa0/13
      Fa0/14, Fa0/15
15     Accounting           active  Fa0/16, Fa0/18, Fa0/19, Fa0/20
      Fa0/21, Fa0/22, Fa0/24
20     Admin                active  Fa0/2, Fa0/3, Fa0/4, Fa0/5
1002   fddi-default         active
1003   token-ring-default   active
1004   fddinet-default      active
1005   trnet-default        active
Sw12#
  
```

A technician has configured the FastEthernet 0/1 interface on Sw11 as an access link in VLAN 1. Based on the output from the show vlan brief command issued on Sw12, what will be the result of making this change on Sw11?

- A. Only the hosts in VLAN 1 on the two switches will be able to communicate with each other.
- B. The hosts in all VLANs on the two switches will be able to communicate with each other.
- C. Only the hosts in VLAN 10 and VLAN 15 on the two switches will be able to communicate with each other.
- D. Hosts will not be able to communicate between the two switches.

**Answer:** D

**Explanation:** VLANs are local to each switch's database, and VLAN information is not passed between switches without implementing VLAN Trunk Protocol (VTP). Trunks carry traffic from all VLANs to and from the switch by default but, can be configured to carry only specified VLAN traffic. Trunk links are required to pass VLAN information between switches. So Sw11 port should be trunk not access port. Additionally, there are no ports assigned to VLAN 1.

#### NEW QUESTION 17



What is one benefit of PVST+?

- A. PVST+ supports Layer 3 load balancing without loops.
- B. PVST+ reduces the CPU cycles for all the switches in the network.
- C. PVST+ allows the root switch location to be optimized per VLAN.
- D. PVST+ automatically selects the root bridge location, to provide optimized bandwidth usage.

**Answer: C**

**Explanation:** Per VLAN Spanning Tree (PVST)

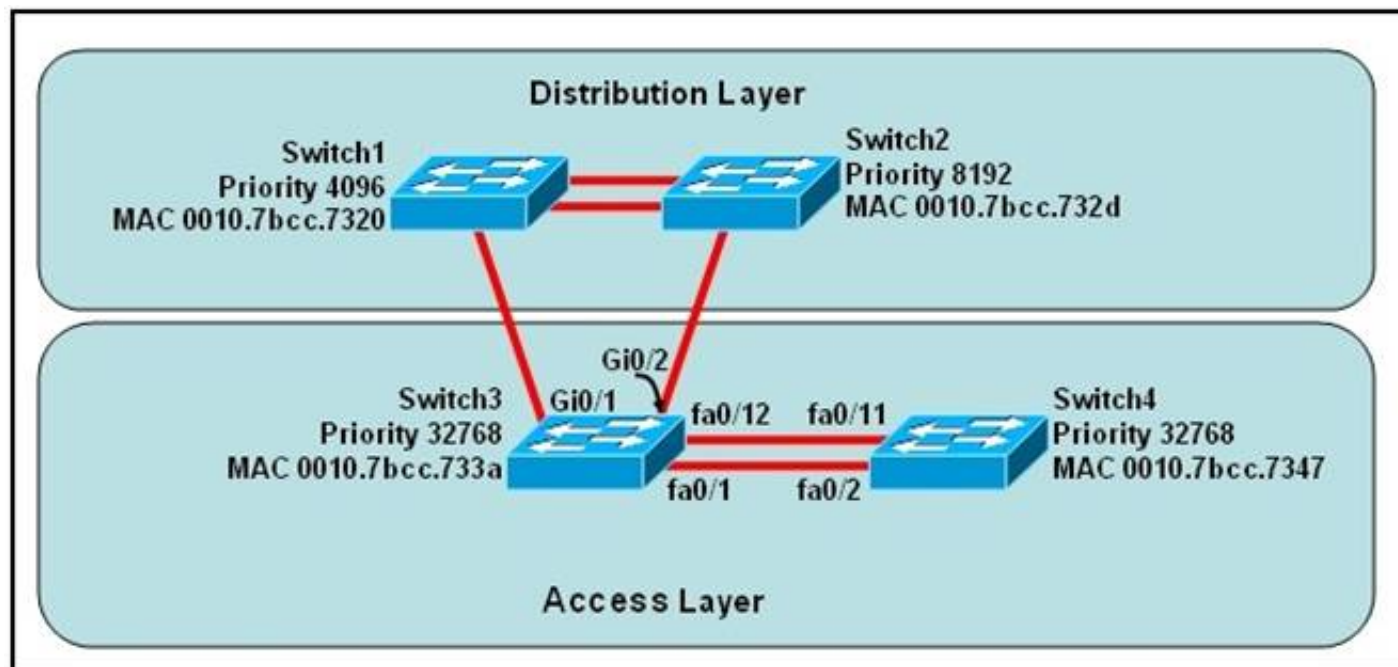
Introduction [http://www.cisco.com/en/US/tech/tk389/tk621/tk846/tsd\\_technology\\_support\\_sub-protocol\\_home.html](http://www.cisco.com/en/US/tech/tk389/tk621/tk846/tsd_technology_support_sub-protocol_home.html)

Per VLAN Spanning Tree (PVST) maintains a spanning tree instance for each VLAN configured in the network. This means a switch can be the root bridge of a VLAN while another switch can be the root bridge of other VLANs in a common topology. For example, Switch 1 can be the root bridge for Voice data while Switch 2 can be the root bridge for Video data. If designed correctly, it can optimize the network traffic.

<http://www.ciscopress.com/articles/article.asp?p=102157&seqNum=4>

#### NEW QUESTION 20

Refer to the exhibit.



At the end of an RSTP election process, which access layer switch port will assume the discarding role?

- A. Switch3, port fa0/1
- B. Switch3, port fa0/12
- C. Switch4, port fa0/11
- D. Switch4, port fa0/2
- E. Switch3, port Gi0/1
- F. Switch3, port Gi0/2

**Answer: C**

**Explanation:** In this question, we only care about the Access Layer switches (Switch3 & 4). Switch 3 has a lower bridge ID than Switch 4 (because the MAC of Switch3 is smaller than that of Switch4) so both ports of Switch3 will be in forwarding state. The alternative port will surely belong to Switch4.

Switch4 will need to block one of its ports to avoid a bridging loop between the two switches. But how does Switch4 select its blocked port? Well, the answer is based on the BPDUs it receives from Switch3. A BPDU is superior than another if it has:

1. A lower Root Bridge ID
2. A lower path cost to the Root
3. A lower Sending Bridge ID
4. A lower Sending Port ID

These four parameters are examined in order. In this specific case, all the BPDUs sent by Switch3 have the same Root Bridge ID, the same path cost to the Root and the same Sending Bridge ID. The only parameter left to select the best one is the Sending Port ID (Port ID = port priority + port index). In this case the port priorities are equal because they use the default value, so Switch4 will compare port index values, which are unique to each port on the switch, and because Fa0/12 is inferior to Fa0/1, Switch4 will select the port connected with Fa0/1 (of Switch3) as its root port and block the other port -> Port fa0/11 of Switch4 will be blocked (discarding role)

#### NEW QUESTION 21

Which two are advantages of static routing when compared to dynamic routing? (Choose two.)

- A. Configuration complexity decreases as network size increases.
- B. Security increases because only the network administrator may change the routing table.
- C. Route summarization is computed automatically by the router.
- D. Routing tables adapt automatically to topology changes.
- E. An efficient algorithm is used to build routing tables, using automatic updates.
- F. Routing updates are automatically sent to neighbors.
- G. Routing traffic load is reduced when used in stub network links.

**Answer: BG**

**Explanation:** <http://www.ciscopress.com/articles/article.asp?p=24090&seqNum=6> <http://www.ciscopress.com/articles/article.asp?p=24090>

#### NEW QUESTION 26

Which two statements describe the process identifier that is used in the command to configure OSPF on a router? (Choose two.)

Router(config)# router ospf 1

- A. All OSPF routers in an area must have the same process ID.
- B. Only one process number can be used on the same router.
- C. Different process identifiers can be used to run multiple OSPF processes
- D. The process number can be any number from 1 to 65,535.
- E. Hello packets are sent to each neighbor to determine the processor identifier.

**Answer:** CD

**Explanation:** we all know that The areas can be any number from 0 to 4.2 billion and 1 to 65,535 for the Process ID.

The process ID is the ID of the OSPF process to which the interface belongs. The process ID is local to the router, and two OSPF neighboring routers can have different OSPF process IDs. (This is not true of Enhanced Interior Gateway Routing Protocol [EIGRP], in which the routers need to be in the same autonomous system). Cisco IOS Software can run multiple OSPF processes on the same router, and the process ID merely distinguishes one process from the another. The process ID should be a positive integer.

#### NEW QUESTION 28

What information does a router running a link-state protocol use to build and maintain its topological database? (Choose two.)

- A. hello packets
- B. SAP messages sent by other routers
- C. LSAs from other routers
- D. beacons received on point-to-point links
- E. routing tables received from other link-state routers
- F. TTL packets from designated routers

**Answer:** AC

**Explanation:** Link State Routing Protocols <http://www.ciscopress.com/articles/article.asp?p=24090&seqNum=4>

Link state protocols, sometimes called shortest path first or distributed database protocols, are built around a well-known algorithm from graph theory, E. W. Dijkstra's shortest path algorithm. Examples of link state routing protocols are:

Open Shortest Path First (OSPF) for IP

The ISO's Intermediate System to Intermediate System (IS-IS) for CLNS and IP DEC's DNA Phase V

Novell's NetWare Link Services Protocol (NLSP)

Although link state protocols are rightly considered more complex than distance vector protocols, the basic functionality is not complex at all:

1. Each router establishes a relationship—an adjacency—with each of its neighbors.
2. Each router sends link state advertisements (LSAs), some
3. Each router stores a copy of all the LSAs it has seen in a database. If all works well, the databases in all routers should be identical.
4. The completed topological database, also called the link state database, describes a graph of the internetwork. Using the Dijkstra algorithm, each router calculates the shortest path to each network and enters this information into the route table.

OSPF Tutorial

<http://www.9tut.com/ospf-routing-protocol-tutorial>

#### NEW QUESTION 33

Which command is used to display the collection of OSPF link states?

- A. show ip ospf link-state
- B. show ip ospf lsa database
- C. show ip ospf neighbors
- D. show ip ospf database

**Answer:** D

**Explanation:** [http://www.cisco.com/en/US/docs/ios/iproute\\_ospf/command/reference/iro\\_osp3.html#wp1\\_01217](http://www.cisco.com/en/US/docs/ios/iproute_ospf/command/reference/iro_osp3.html#wp1_01217)

Examples

The following is sample output from the show ip ospf database command when no arguments or keywords are used:

Router# show ip ospf database

OSPF Router with id(192.168.239.66) (Process ID 300)



### Displaying Router Link States(Area 0.0.0.0)

Link ID	ADV Router	Age	Seq#	Checksum	Link count
172.16.21.6	172.16.21.6	1731	0x80002CFB	0x69BC	8
172.16.21.5	172.16.21.5	1112	0x800009D2	0xA2B8	5
172.16.1.2	172.16.1.2	1662	0x80000A98	0x4CB6	9
172.16.1.1	172.16.1.1	1115	0x800009B6	0x5F2C	1
172.16.1.5	172.16.1.5	1691	0x80002BC	0x2A1A	5
172.16.65.6	172.16.65.6	1395	0x80001947	0xEE1	4
172.16.241.5	172.16.241.5	1161	0x8000007C	0x7C70	1
172.16.27.6	172.16.27.6	1723	0x80000548	0x8641	4
172.16.70.6	172.16.70.6	1485	0x80000B97	0xEB84	6

### Displaying Net Link States(Area 0.0.0.0)

Link ID	ADV Router	Age	Seq#	Checksum
172.16.1.3	192.168.239.66	1245	0x800000EC	0x82E
172.16.240.0	172.16.241.5	1152	0x80000077	0x7A05
172.16.241.0	172.16.241.5	1152	0x80000070	0xAEB7
172.16.244.0	172.16.241.5	1152	0x80000071	0x95CB

#### NEW QUESTION 38

A router is running three routing processes: RIP, OSPF, and EIGRP, each configured with default characteristics. Each process learns a route to the same remote network.

If there are no static routes to the destination and none of the routes were redistributed, which route will be placed in the IP routing table?

- A. the route learned through EIGRP
- B. the route learned through OSPF
- C. the route learned through RIP
- D. the route with the lowest metric
- E. all three routes with the router load balancing

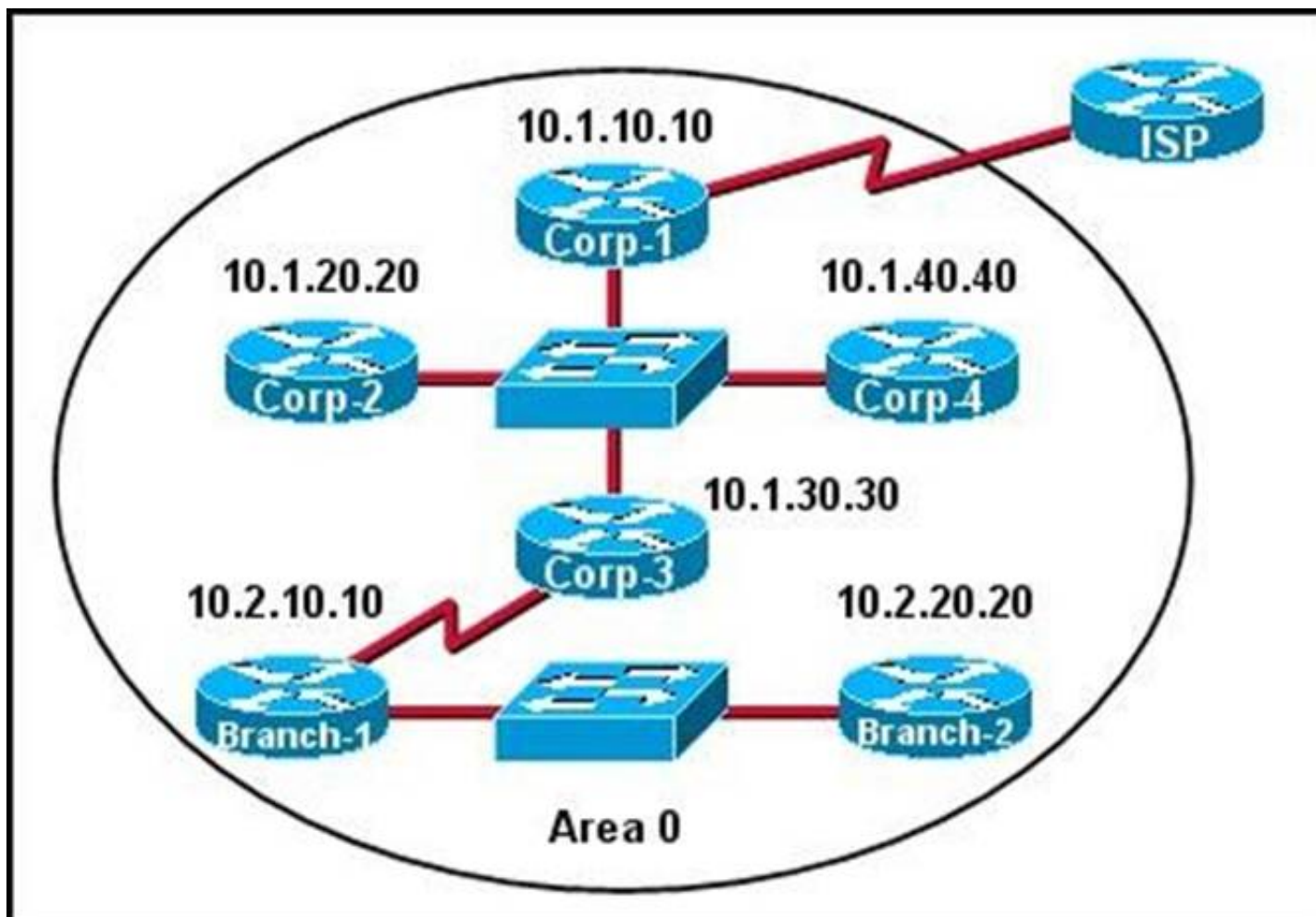
**Answer:** A

**Explanation:** Reference: [http://www.cisco.com/en/US/tech/tk365/technologies\\_tech\\_note09186a0080094195.shtml](http://www.cisco.com/en/US/tech/tk365/technologies_tech_note09186a0080094195.shtml)

Administrative distance is the feature that routers use in order to select the best path. Administrative distance defines the reliability of a routing protocol. Each routing protocol is prioritized in order of most to least reliable (believable) with the help of an administrative distance value. Lowest Administrative distance will be chosen first.

#### NEW QUESTION 41

The internetwork infrastructure of company XYZ consists of a single OSPF area as shown in the graphic. There is concern that a lack of router resources is impeding internetwork performance. As part of examining the router resources, the OSPF DRs need to be known. All the router OSPF priorities are at the default and the router IDs are shown with each router.



Which routers are likely to have been elected as DR? (Choose two.)

- A. Corp-1
- B. Corp-2
- C. Corp-3
- D. Corp-4
- E. Branch-1
- F. Branch-2

**Answer:** DF

**Explanation:** There are 2 segments on the topology above which are separated by Corp-3 router. Each segment will have a DR so we have 2 DRs. To select which router will become DR they will compare their router-IDs. The router with highest (best) router-ID will become DR. The router-ID is chosen in the order below:

The highest IP address assigned to a loopback (logical) interface.

If a loopback interface is not defined, the highest IP address of all active router's physical interfaces will be chosen.

In this question, the IP addresses of loopback interfaces are not mentioned so we will consider IP addresses of all active router's physical interfaces. Router Corp-4 (10.1.40.40)

& Branch-2 (10.2.20.20) have highest "active" IP addresses so they will become DRs.

#### NEW QUESTION 44

Which statements are true about EIGRP successor routes? (Choose two.)

- A. A successor route is used by EIGRP to forward traffic to a destination.
- B. Successor routes are saved in the topology table to be used if the primary route fails.
- C. Successor routes are flagged as 'active' in the routing table.
- D. A successor route may be backed up by a feasible successor route.
- E. Successor routes are stored in the neighbor table following the discovery process.

**Answer:** AD

**Explanation:** Introduction to EIGRP [http://www.cisco.com/en/US/tech/tk365/technologies\\_tech\\_note09186a0080093f07.shtml](http://www.cisco.com/en/US/tech/tk365/technologies_tech_note09186a0080093f07.shtml)

Feasible Successors

A destination entry is moved from the topology table to the routing table when there is a feasible successor. All minimum cost paths to the destination form a set. From this set, the neighbors that have an advertised metric less than the current routing table metric are considered feasible successors.

Feasible successors are viewed by a router as neighbors that are downstream with respect to the destination.

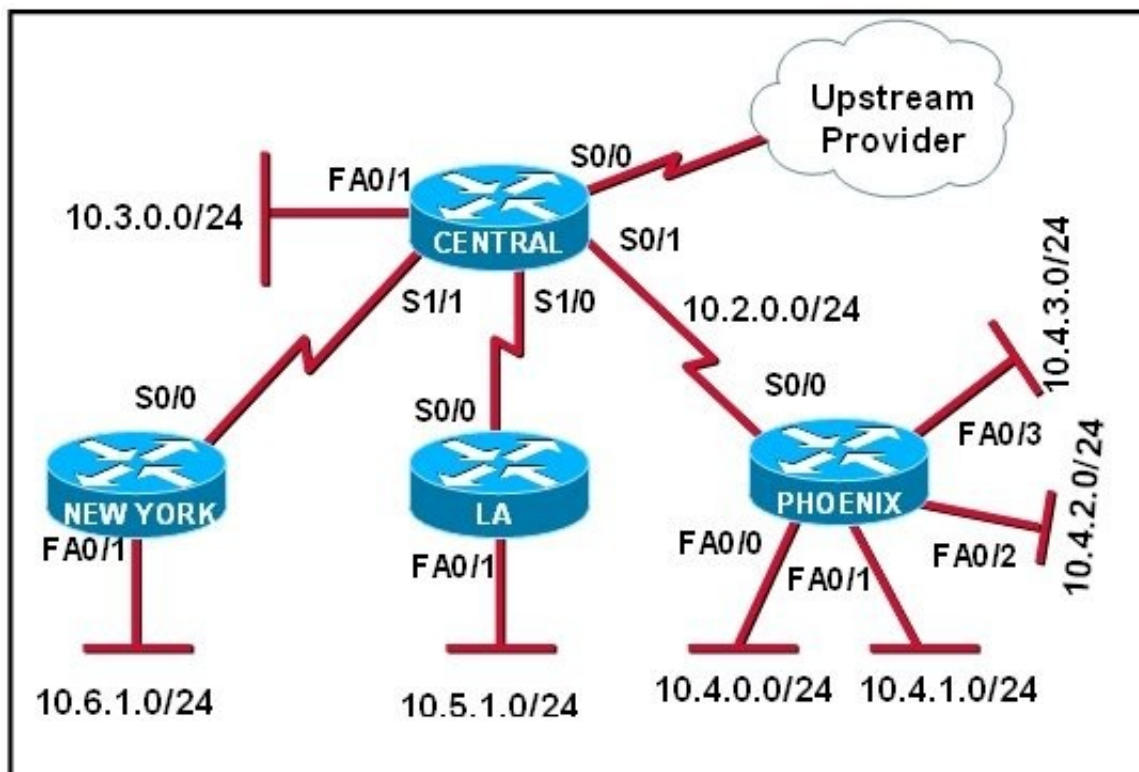
These neighbors and the associated metrics are placed in the forwarding table.

When a neighbor changes the metric it has been advertising or a topology change occurs in the network, the set of feasible successors may have to be re-evaluated. However, this is not categorized as a route recomputation.

#### NEW QUESTION 45

Refer to the exhibit.





The Lakeside Company has the internetwork in the exhibit. The administrator would like to reduce the size of the routing table on the Central router. Which partial routing table entry in the Central router represents a route summary that represents the LANs in Phoenix but no additional subnets?

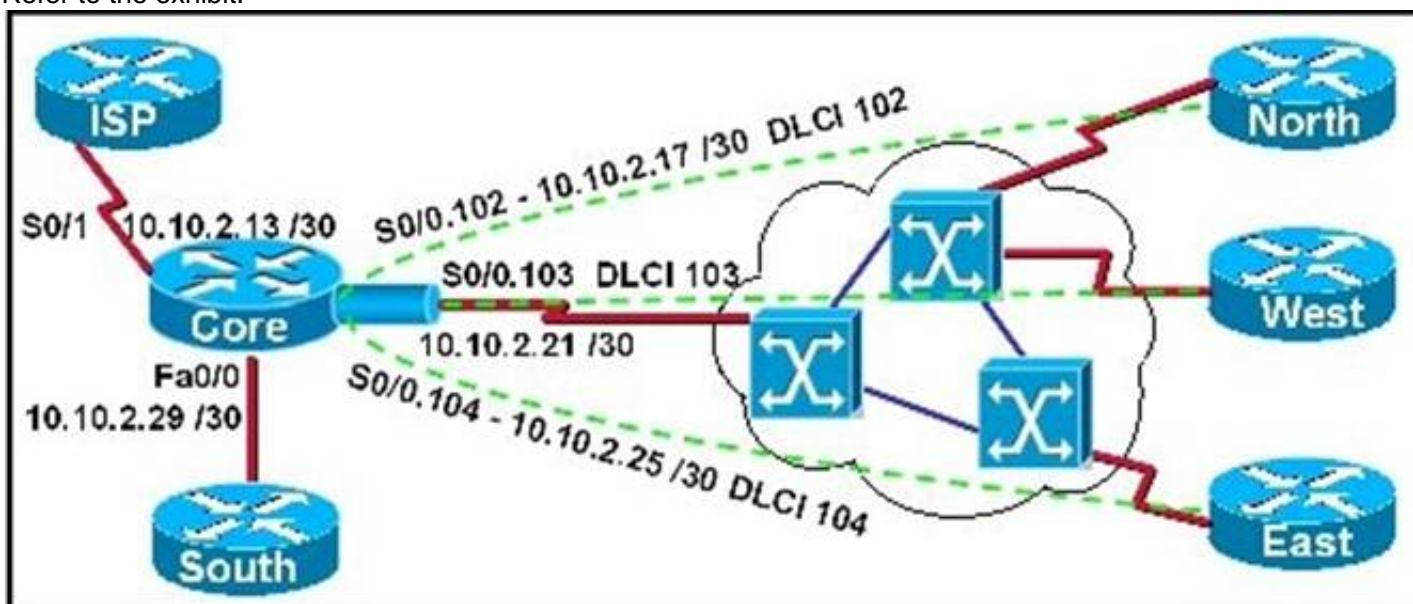
- A. 10.0.0.0/22 is subnetted, 1 subnets D 10.0.0.0 [90/20514560] via 10.2.0.2, 6w0d, Serial0/1
- B. 10.0.0.0/28 is subnetted, 1 subnets D 10.2.0.0 [90/20514560] via 10.2.0.2, 6w0d, Serial0/1
- C. 10.0.0.0/30 is subnetted, 1 subnets D 10.2.2.0 [90/20514560] via 10.2.0.2, 6w0d, Serial0/1
- D. 10.0.0.0/22 is subnetted, 1 subnets D 10.4.0.0 [90/20514560] via 10.2.0.2, 6w0d, Serial0/1
- E. 10.0.0.0/28 is subnetted, 1 subnets D 10.4.4.0 [90/20514560] via 10.2.0.2, 6w0d, Serial0/1
- F. 10.0.0.0/30 is subnetted, 1 subnets D 10.4.4.4 [90/20514560] via 10.2.0.2, 6w0d, Serial0/1

**Answer: D**

**Explanation:** All the above networks can be summarized to 10.0.0.0 network but the question requires to “represent the LANs in Phoenix but no additional subnets” so we must summarize to 10.4.0.0 network. The Phoenix router has 4 subnets so we need to “move left” 2 bits of “/24-> /22 is the best choice - D is correct.

#### NEW QUESTION 50

Refer to the exhibit.



The network associate is configuring OSPF on the Core router. All the connections to the branches should be participating in OSPF. The link to the ISP should NOT participate in OSPF and should only be advertised as the default route. What set of commands will properly configure the Core router?

- A. Core(config-router)# default-information originate Core(config-router)# network 10.0.0.0 0.255.255.255 area 0 Core(config-router)# exitCore(config)# ip route 0.0.0.0 0.0.0.0 10.10.2.14
- B. Core(config-router)# default-information originate Core(config-router)# network 10.10.2.13 0.0.0.242 area 0 Core(config-router)# exitCore(config)# ip route 0.0.0.0 0.0.0.0 10.10.2.14
- C. Core(config-router)# default-information originate Core(config-router)# network 10.10.2.16 0.0.0.15 area 0 Core(config-router)# exitCore(config)# ip route 0.0.0.0 0.0.0.0 10.10.2.14
- D. Core(config-router)# default-information originate Core(config-router)# network 10.10.2.32 0.0.0.31 area 0 Core(config-router)# exitCore(config)# ip route 0.0.0.0 0.0.0.0 10.10.2.14

**Answer: C**

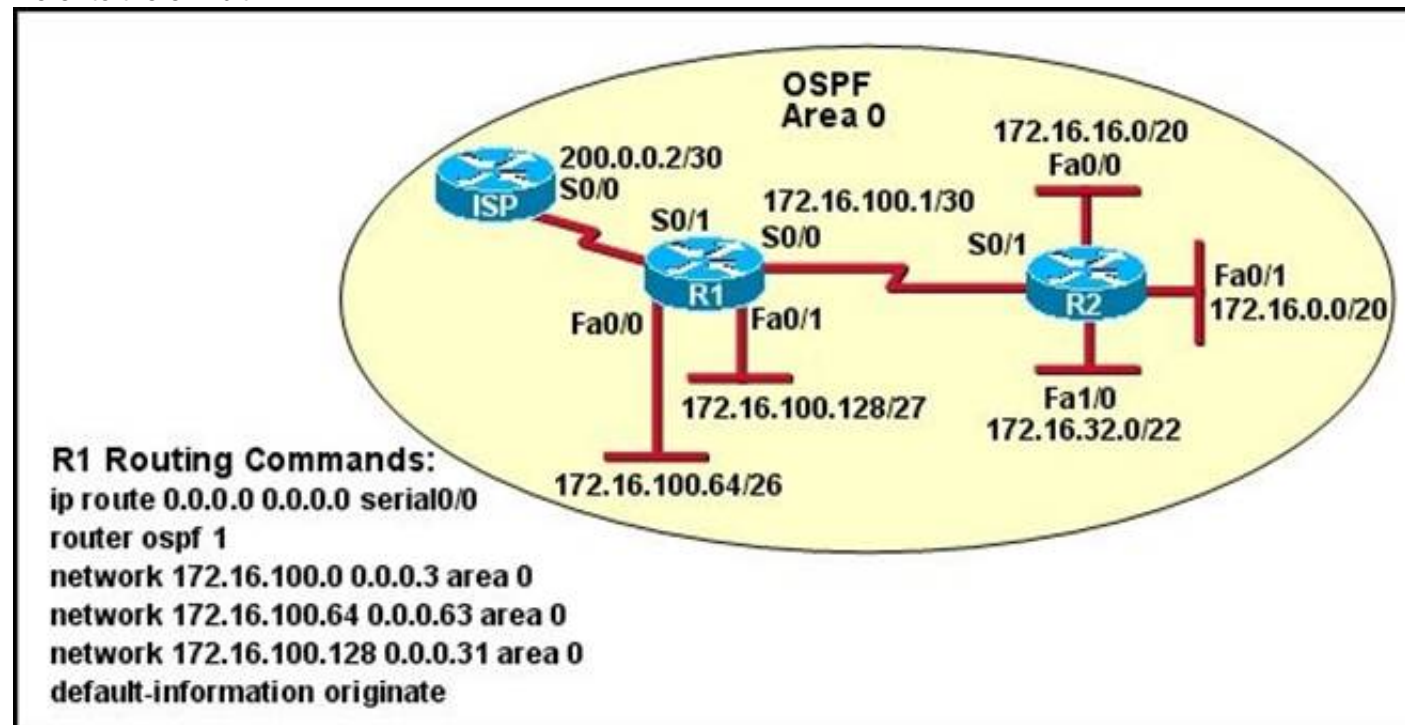
**Explanation:** There are two ways to inject a default route into a normal area.1. If the ASBR already has the default route in its routing table, you can advertise the existing 0.0.0.0/0 into the OSPF domain with the default-information originate router configuration command.2. If the ASBR doesn't have a default route, you can add the keyword always to the default-information originate command (default-information originate always).This command will advertise a default route into the OSPF domain, regardless of whether it has a route to 0.0.0.0. Another benefit of adding always keyword is that it can add stability to the internetwork. For example, if the ASBR is learning a default route from another routing domain such as RIP and this route is flapping, then without the always keyword, each time the route flaps, the ASBR will send a new Type 5 LSA into the OSPF domain causing some instability inside the OSPF domain. With the always keyword, the ASBR will advertise the default inside the OSPF domain always.



the example shown here, only choice C is correct as the wildcard mask correctly specifies the 10.10.2.16 0.0.0.15 networks, which include all IP addresses in the 10.10.2.16-10.10.2.31 range. In this question we were told that the ISP link should NOT be configured for OSPF, making choice A incorrect.  
[http://www.cisco.com/en/US/tech/tk365/technologies\\_configuration\\_example09186a00801\\_ec9f0.shtml](http://www.cisco.com/en/US/tech/tk365/technologies_configuration_example09186a00801_ec9f0.shtml)

#### NEW QUESTION 51

Refer to the exhibit.



Assume that all router interfaces are operational and correctly configured. In addition, assume that OSPF has been correctly configured on router R2. How will the default route configured on R1 affect the operation of R2?

- A. Any packet destined for a network that is not directly connected to router R1 will be dropped.
- B. Any packet destined for a network that is not directly connected to router R2 will be dropped immediately.
- C. Any packet destined for a network that is not directly connected to router R2 will be dropped immediately because of the lack of a gateway on R1.
- D. The networks directly connected to router R2 will not be able to communicate with the 172.16.100.0, 172.16.100.128, and 172.16.100.64 subnetworks.
- E. Any packet destined for a network that is not referenced in the routing table of router R2 will be directed to R1. R1 will then send that packet back to R2 and a routing loop will occur.

**Answer: E**

**Explanation:** First, notice that the more-specific routes will always be favored over less-specific routes regardless of the administrative distance set for a protocol. In this case, because we use OSPF for three networks (172.16.100.0 0.0.0.3, 172.16.100.64 0.0.0.63, 172.16.100.128 0.0.0.31) so the packets destined for these networks will not be affected by the default route. The default route configured on R1 "ip route 0.0.0.0 0.0.0.0 serial0/0" will send any packet whose destination network is not referenced in the routing table of router R1 to R2, it doesn't drop anything so answers A, B and C are not correct. D is not correct too because these routes are declared in R1 and the question says that "OSPF has been correctly configured on router R2, so network directly connected to router R2 can communicate with those three subnetworks. As said above, the default route configured on R1 will send any packet destined for a network that is not referenced in its routing table to R2; R2 in turn sends it to R1 because it is the only way and a routing loop will occur.

#### NEW QUESTION 54

Which parameter or parameters are used to calculate OSPF cost in Cisco routers?

- A. Bandwidth
- B. Bandwidth and Delay
- C. Bandwidth, Delay, and MTU
- D. Bandwidth, MTU, Reliability, Delay, and Load

**Answer: A**

**Explanation:** [http://www.cisco.com/en/US/tech/tk365/technologies\\_white\\_paper09186a0080094e9e.shtml#6](http://www.cisco.com/en/US/tech/tk365/technologies_white_paper09186a0080094e9e.shtml#6)  
OSPF Cost

The cost (also called metric) of an interface in OSPF is an indication of the overhead required to send packets across a certain interface. The cost of an interface is inversely proportional to the bandwidth of that interface. A higher bandwidth indicates a lower cost. There is more overhead (higher cost) and time delays involved in crossing a 56k serial line than crossing a 10M Ethernet line. The formula used to calculate the cost is:

Cost = 100000000 / bandwidth in bps

For example, it will cost 10 EXP8 / 10 EXP7 = 10 to cross a 10M Ethernet line and will cost

10 EXP8 / 1544000 = 64 to cross a T1 line. By default, the cost of an interface is calculated based on the bandwidth; you can force the cost of an interface with the ip ospf cost

<value> interface sub configuration mode command.

#### NEW QUESTION 55

Which type of EIGRP route entry describes a feasible successor?

- A. a backup route, stored in the routing table
- B. a primary route, stored in the routing table
- C. a backup route, stored in the topology table
- D. a primary route, stored in the topology table

**Answer: C**

**Explanation:** [http://www.cisco.com/en/US/tech/tk365/technologies\\_tech\\_note09186a0080093f07.shtml](http://www.cisco.com/en/US/tech/tk365/technologies_tech_note09186a0080093f07.shtml)

Feasible Successors

A destination entry is moved from the topology table to the routing table when there is a feasible successor. All minimum cost paths to the destination form a set. From this set, the neighbors that have an advertised metric less than the current routing table metric are considered feasible successors.

Feasible successors are viewed by a router as neighbors that are downstream with respect to the destination.

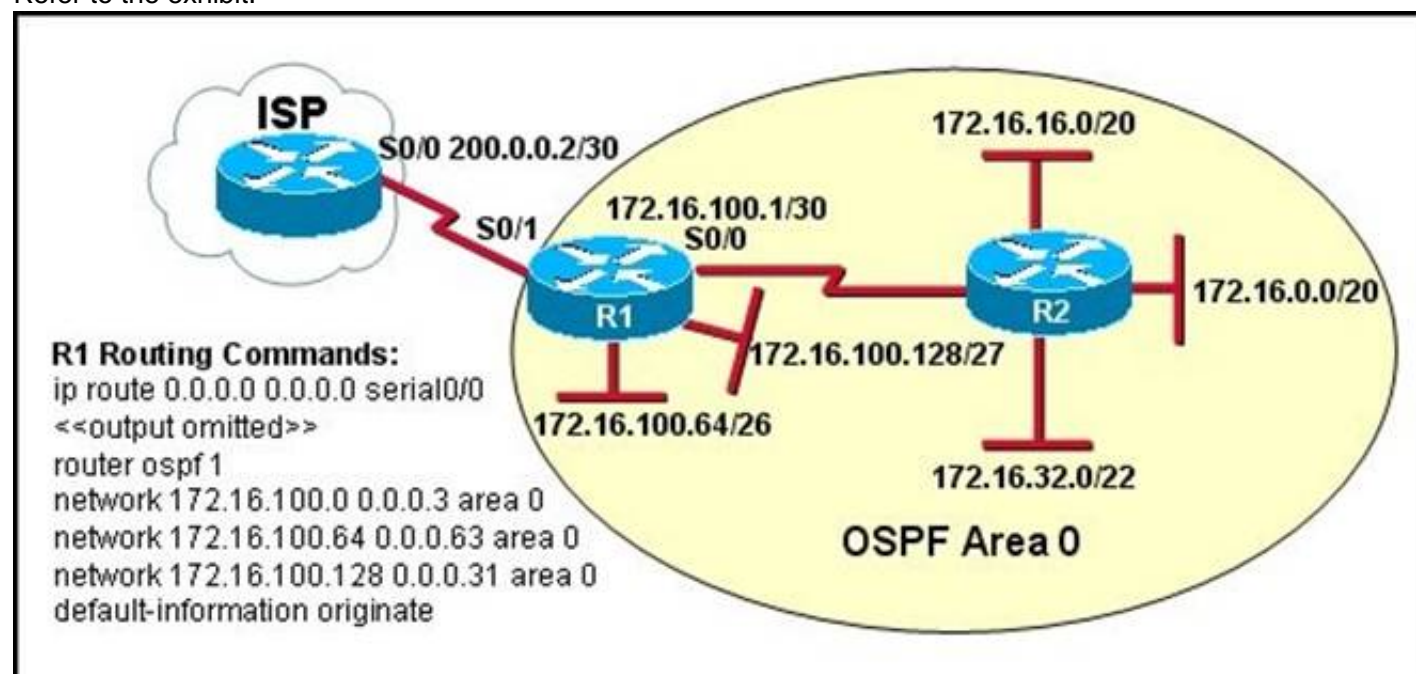
These neighbors and the associated metrics are placed in the forwarding table.

When a neighbor changes the metric it has been advertising or a topology change occurs in the network, the set of feasible successors may have to be re-evaluated. However, this is not categorized as a route recomputation.

Feasible successor is a route whose Advertised Distance (AD) is less than the Feasible Distance (FD) of the current best path. A feasible successor is a backup route, which is not stored in the routing table but, stored in the topology table.

#### NEW QUESTION 56

Refer to the exhibit.



Assume that all of the router interfaces are operational and configured correctly. How will router R2 be affected by the configuration of R1 that is shown in the exhibit?

- A. Router R2 will not form a neighbor relationship with R1.
- B. Router R2 will obtain a full routing table, including a default route, from R1.
- C. R2 will obtain OSPF updates from R1, but will not obtain a default route from R1.
- D. R2 will not have a route for the directly connected serial network, but all other directly connected networks will be present, as well as the two Ethernet networks connected to R1.

**Answer:** A

**Explanation:** Open Shortest Path First

[http://en.wikipedia.org/wiki/Open\\_Shortest\\_Path\\_First](http://en.wikipedia.org/wiki/Open_Shortest_Path_First)

The configuration of R1 shows "router ospf 1" however, the diagram also shows that both routers should be in the backbone OSPF Area of "0". When routers are in different OSPF areas they will not form a neighbor relationship.

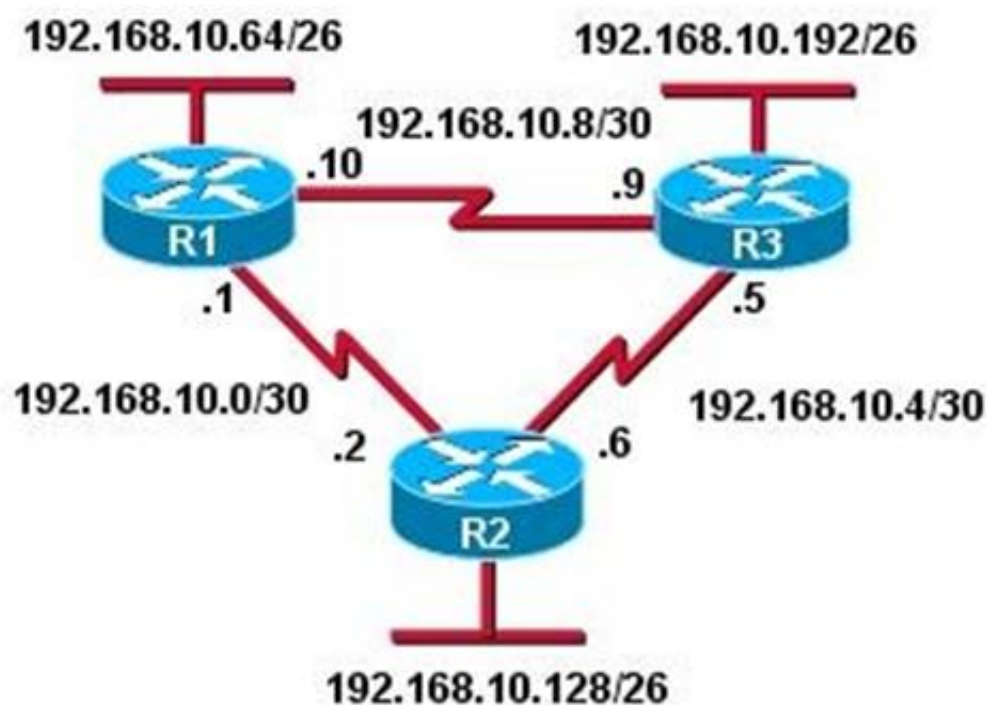
Neighbor relationships

As a link state routing protocol, OSPF establishes and maintains neighbor relationships in order to exchange routing updates with other routers. The neighbor relationship table is called an adjacency database in OSPF.

Provided that OSPF is configured correctly, OSPF forms neighbor relationships only with the routers directly connected to it. In order to form a neighbor relationship between two routers, the interfaces used to form the relationship must be in the same area. Generally an interface is only configured in a single area, however you can configure an interface to belong to multiple areas. In the second area, such an interface must be configured as a secondary interface. (A neighbor state simulation shows how neighbor state changes from Down to Full Adjacency progressively with exchanging Hello, DD, Request, Update, and Ack packets).

#### NEW QUESTION 60

Refer to the exhibit.



R3# show ip route

Gateway of last resort is not set

192.168.10.0/24 is variably subnetted, 6 subnets, 2 masks

```

D    192.168.10.64/26 [90/2195456] via 192.168.10.9, 00:03:31, Serial0/0
D    192.168.10.0/30 [90/2681856] via 192.168.10.9, 00:03:31, Serial0/0
      [90/2681856] via 192.168.10.5, 00:03:31, Serial0/1
C    192.168.10.4/30 is directly connected, Serial 0/1
C    192.168.10.8/30 is directly connected, Serial 0/0
C    192.168.10.192/26 is directly connected, FastEthernet0/0
D    192.168.10.128/26 [90/2195456] via 192.168.10.5, 00:03:31, Serial 0/1
    
```

Based on the exhibited routing table, how will packets from a host within the 192.168.10.192/26 LAN be forwarded to 192.168.10.1?

- A. The router will forward packets from R3 to R2 to R1.
- B. The router will forward packets from R3 to R1 to R2.
- C. The router will forward packets from R3 to R2 to R1 AND from R3 to R1.
- D. The router will forward packets from R3 to R1.

**Answer: C**

**Explanation:** From the routing table we learn that network 192.168.10.0/30 is learned via 2 equal- cost paths (192.168.10.9 & 192.168.10.5) - traffic to this network will be load-balanced.

#### NEW QUESTION 61

What does a router do if it has no EIGRP feasible successor route to a destination network and the successor route to that destination network is in active status?

- A. It routes all traffic that is addressed to the destination network to the interface indicated in the routing table.
- B. It sends a copy of its neighbor table to all adjacent routers.
- C. It sends a multicast query packet to all adjacent neighbors requesting available routing paths to the destination network.
- D. It broadcasts Hello packets to all routers in the network to re-establish neighbor adjacencies.

**Answer: C**

**Explanation:** Feasible Successors

A destination entry is moved from the topology table to the routing table when there is a feasible successor. All minimum cost paths to the destination form a set. From this set, the neighbors that have an advertised metric less than the current routing table metric are considered feasible successors.

Feasible successors are viewed by a router as neighbors that are downstream with respect to the destination.

These neighbors and the associated metrics are placed in the forwarding table.

When a neighbor changes the metric it has been advertising or a topology change occurs in the network, the set of feasible successors may have to be re-evaluated. However, this is not categorized as a route recomputation.

Route States

A topology table entry for a destination can have one of two states. A route is considered in the Passive state when a router is not performing a route recomputation. The route is in Active state when a router is undergoing a route recomputation. If there are always feasible successors, a route never has to go into Active state and avoids a route recomputation.

When there are no feasible successors, a route goes into Active state and a route recomputation occurs. A route recomputation commences with a router sending a query packet to all neighbors. Neighboring routers can either reply if they have feasible successors for the destination or optionally return a query indicating that they are performing a route recomputation. While in Active state, a router cannot change the next- hop neighbor it is using to forward packets. Once all replies are received for a given query, the destination can transition to Passive state and a new successor can be selected.

When a link to a neighbor that is the only feasible successor goes down, all routes through that neighbor commence a route recomputation and enter the Active state.



### NEW QUESTION 63

Which commands are required to properly configure a router to run OSPF and to add network 192.168.16.0/24 to OSPF area 0? (Choose two.)

- A. Router(config)# router ospf 0
- B. Router(config)# router ospf 1
- C. Router(config)# router ospf area 0
- D. Router(config-router)# network 192.168.16.0 0.0.0.255 0
- E. Router(config-router)# network 192.168.16.0 0.0.0.255 area 0
- F. Router(config-router)# network 192.168.16.0 255.255.255.0 area 0

**Answer:** BE

**Explanation:** In the router ospf

Command, the ranges from 1 to 65535 so 0 is an invalid number - B is correct but A is not correct. To configure OSPF, we need a wildcard in the "network" statement, not a subnet mask. We also need to assign an area to this process - E is correct.

### NEW QUESTION 66

Refer to the exhibit.

```
RouterD# show ip interface brief
Interface      IP-Address      OK? Method Status Protocol
FastEthernet0/0 192.168.5.3     YES manual up      up
FastEthernet0/1 10.1.1.2        YES manual up      up
Loopback0       172.16.5.1     YES NVRAM  up      up
Loopback1       10.154.154.1    YES NVRAM  up      up
```

Given the output for this command, if the router ID has not been manually set, what router ID will OSPF use for this router?

- A. 10.1.1.2
- B. 10.154.154.1
- C. 172.16.5.1
- D. 192.168.5.3

**Answer:** C

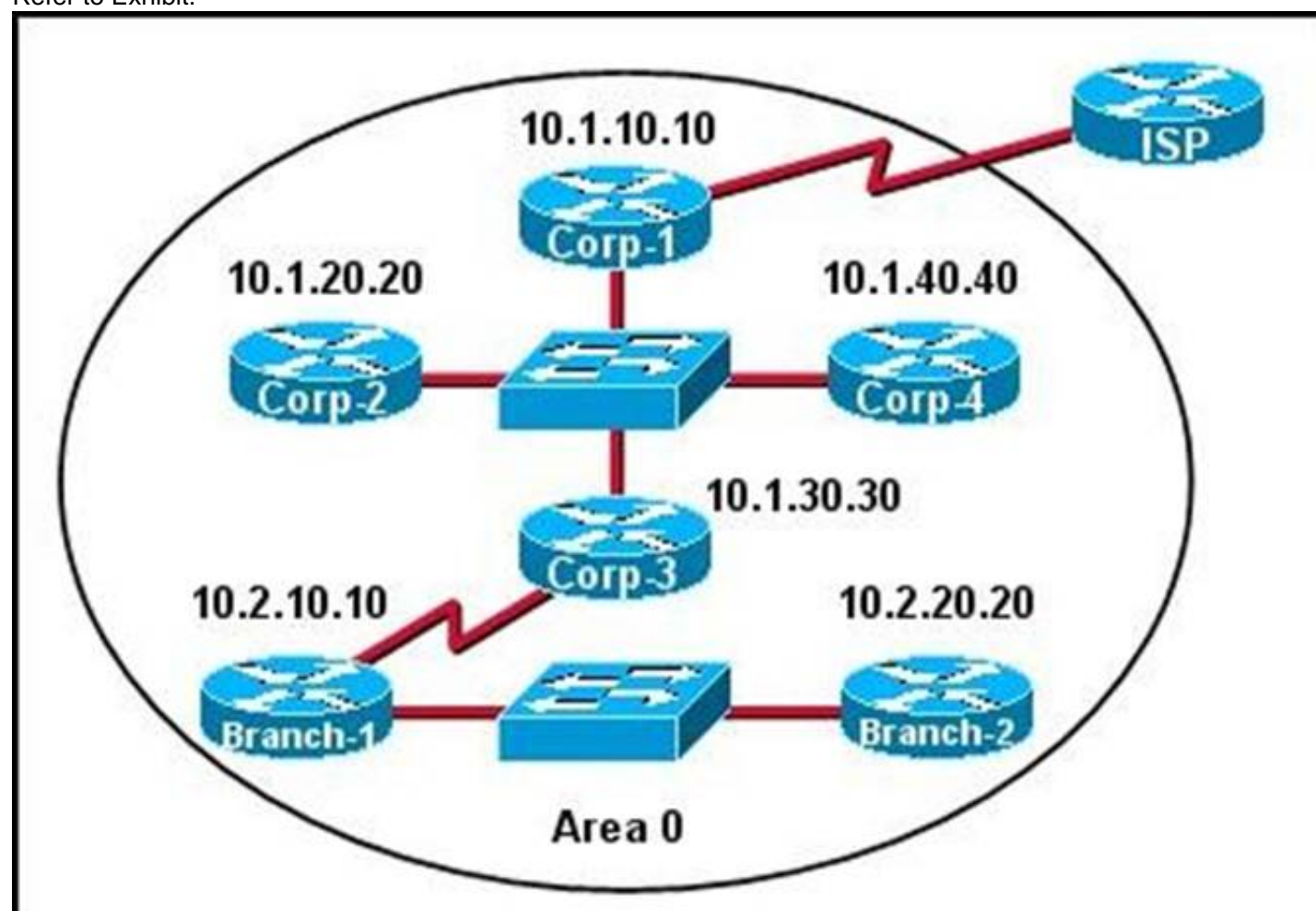
**Explanation:** CCNA Tutorial: The OSPF Router ID (RID) <http://www.thebryantadvantage.com/CCNACertificationExamTutorialOSPFRouterIDRID.htm>

When determining the Router ID (RID) of an OSPF-enabled router, OSPF will always use the numerically highest IP address on the router's loopback interfaces, regardless of whether that loopback is OSPF-enabled.

What if there is no loopback? OSPF will then use the numerically highest IP address of the physical interfaces, regardless of whether that interface is OSPF-enabled.

### NEW QUESTION 70

Refer to Exhibit:



The internetwork infrastructure of company XYZ consists of a single OSPF area as shown in the graphic. There is concern that a lack of router resources is impeding internetwork performance. As part of examining the router resources, the OSPF DRs need to be known. All the router OSPF priorities are at the default and the router IDs are shown with each router. Which routers are likely to have been elected as DR? (Choose two.)

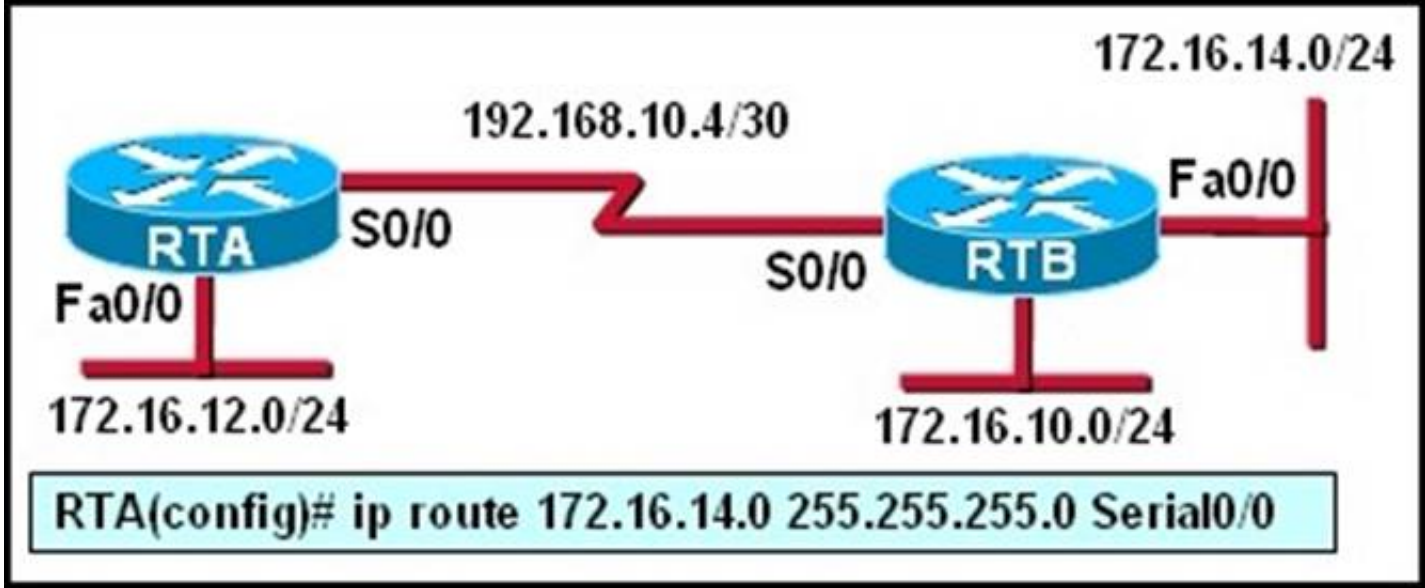
- A. Corp-1
- B. Corp-2
- C. Corp-3
- D. Corp-4
- E. Branch-1
- F. Branch-2

**Answer:** DF

**Explanation:** There are 2 segments on the topology above which are separated by Corp-3 router. Each segment will have a DR so we have 2 DRs. To select which router will become DR they will compare their router-IDs. The router with highest (best) router-ID will become DR. The router-ID is chosen in the order below:  
The highest IP address assigned to a loopback (logical) interface.  
If a loopback interface is not defined, the highest IP address of all active router's physical interfaces will be chosen.  
In this question, the IP addresses of loopback interfaces are not mentioned so we will consider IP addresses of all active router's physical interfaces. Router Corp-4 (10.1.40.40) & Branch-2 (10.2.20.20) have highest "active" IP addresses so they will become DRs.

**NEW QUESTION 75**

Refer to the exhibit.



RTA is configured with a basic configuration. The link between the two routers is operational and no routing protocols are configured on either router. The line shown in the exhibit is then added to router RTA. Should interface Fa0/0 on router RTB shut down, what effect will the shutdown have on router RTA?

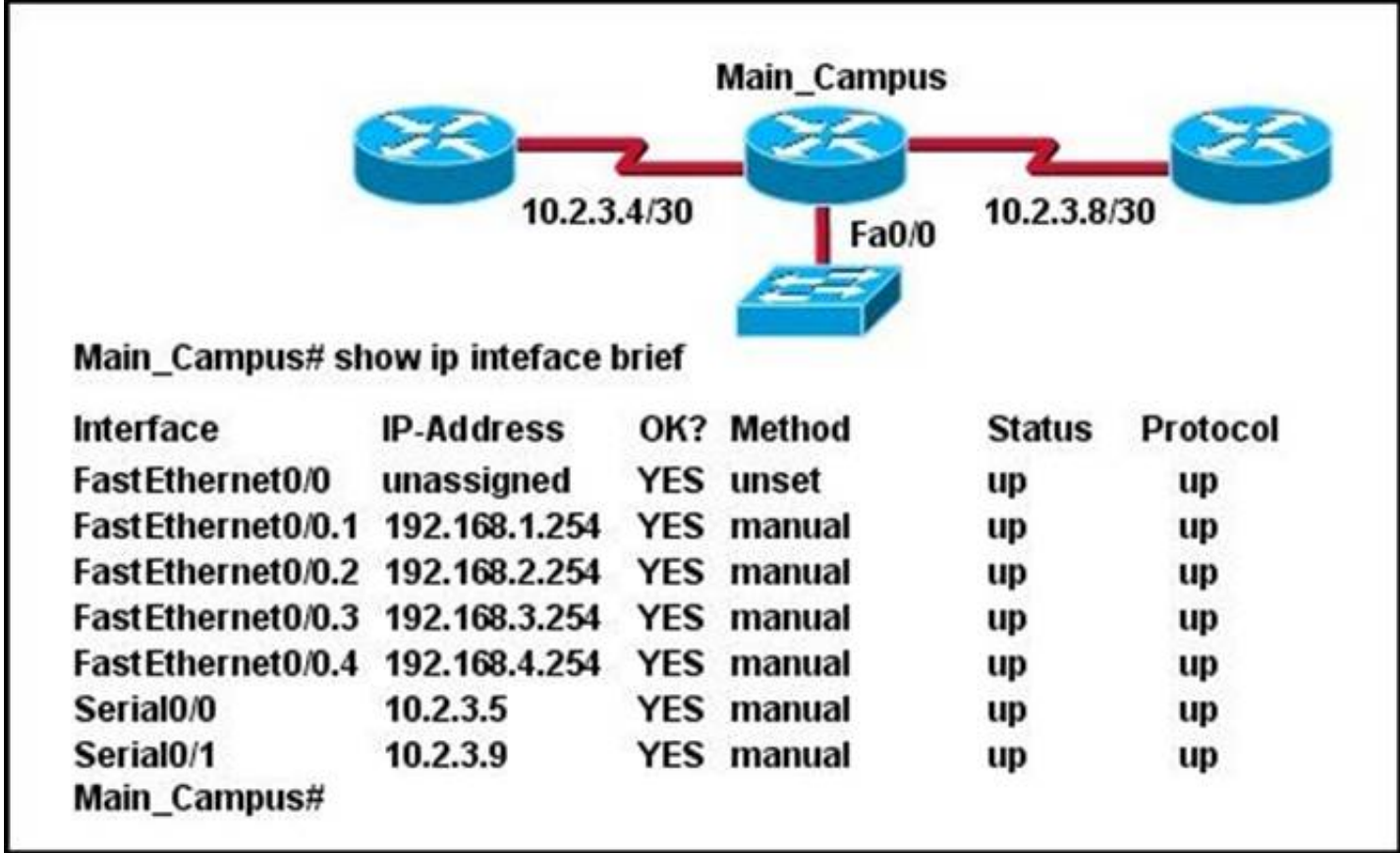
- A. A route to 172.16.14.0/24 will remain in the RTA routing table.
- B. A packet to host 172.16.14.225 will be dropped by router RTA.
- C. Router RTA will send an ICMP packet to attempt to verify the route.
- D. Because router RTB will send a poison reverse packet to router RTA, RTA will remove the route.

**Answer:** A

**Explanation:** [http://www.cisco.com/en/US/tech/tk365/technologies\\_tech\\_note09186a00800ef7b2.shtml](http://www.cisco.com/en/US/tech/tk365/technologies_tech_note09186a00800ef7b2.shtml)

**NEW QUESTION 80**

Refer to the exhibit.



What information about the interfaces on the Main\_Campus router is true?



- A. The LAN interfaces are configured on different subnets.
- B. Interface FastEthernet 0/0 is configured as a trunk.
- C. The Layer 2 protocol of interface Serial 0/1 is NOT operational.
- D. The router is a modular router with five FastEthernet interfaces.
- E. Interface FastEthernet 0/0 is administratively deactivated.

**Answer:** B

**Explanation:** Interface fa0/0 breaks into sub-interfaces and Main\_Campus router is connected with switch via fa0/0 .Subinterfaces configured with different subnet mask so the seem switch has multiple vlans and allows communication between these VLAN's. For routing and inter- vlan we need to configure a trunk port. So B will be the correct answer.

#### NEW QUESTION 85

What are three characteristics of the OSPF routing protocol? (Choose three.)

- A. It converges quickly.
- B. OSPF is a classful routing protocol.
- C. It uses cost to determine the best route.
- D. It uses the DUAL algorithm to determine the best route.
- E. OSPF routers send the complete routing table to all directly attached routers.
- F. OSPF routers discover neighbors before exchanging routing information.

**Answer:** ACF

**Explanation:** Open Shortest Path First Reference:

[http://docwiki.cisco.com/wiki/Open\\_Shortest\\_Path\\_First](http://docwiki.cisco.com/wiki/Open_Shortest_Path_First)

Additional OSPF features include equal-cost, multipath routing, and routing based on upper-layer type-of-service (TOS) requests. TOS-based routing supports those upper-layer protocols that can specify particular types of service. An application, for example, might specify that certain data is urgent. If OSPF has high-priority links at its disposal, these can be used to transport the urgent datagram.

OSPF supports one or more metrics. If only one metric is used, it is considered to be arbitrary, and TOS is not supported. If more than one metric is used, TOS is optionally supported through the use of a separate metric (and, therefore, a separate routing table) for each of the eight combinations created by the three IP TOS bits (the delay, throughput, and reliability bits). For example, if the IP TOS bits specify low delay, low throughput, and high reliability, OSPF calculates routes to all destinations based on this TOS designation. IP subnet masks are included with each advertised destination, enabling variable-length subnet masks. With variable-length subnet masks, an IP network can be broken into many subnets of various sizes. This provides network administrators with extra network- configuration flexibility.

Topic 3, IP Services

#### NEW QUESTION 89

Refer to the exhibit.

```
Switch# show port-security interface fa0/20
Port Security                : Enabled
Port Status                  : Secure-up
Violation Mode                : Restrict
Aging Time                   : 3 mins
Aging Type                   : Inactivity
SecureStatic Address Aging   : Disabled
Maximum MAC Addresses        : 2
Total MAC Addresses          : 2
Configured MAC Addresses     : 0
Sticky MAC Addresses         : 2
Last Source Address:Vlan     : 0009.7C10.8E8C:50
Security Violation Count     : 1
```

What three actions will the switch take when a frame with an unknown source MAC address arrives at the interface? (Select three.)

- A. Send an SNMP trap.
- B. Send a syslog message.
- C. Increment the Security Violation counter.
- D. Forward the traffic.
- E. Write the MAC address to the startup-config.
- F. Shut down the port.

**Answer:** ABC

**Explanation:** Switchport Security Concepts and Configuration

<http://www.ciscopress.com/articles/article.asp?p=1722561>

Switchport Security Violations

The second piece of switchport port-security that must be understood is a security violation including what it is what causes it and what the different violation modes that exist. A switchport violation occurs in one of two situations:



When the maximum number of secure MAC addresses has been reached (by default, the maximum number of secure MAC addresses per switchport is limited to 1)

An address learned or configured on one secure interface is seen on another secure interface in the same VLAN

The action that the device takes when one of these violations occurs can be configured: Protect—This mode permits traffic from known MAC addresses to continue to be forwarded while dropping traffic from unknown MAC addresses when over the allowed MAC address limit. When configured with this mode, no notification action is taken when traffic is dropped.

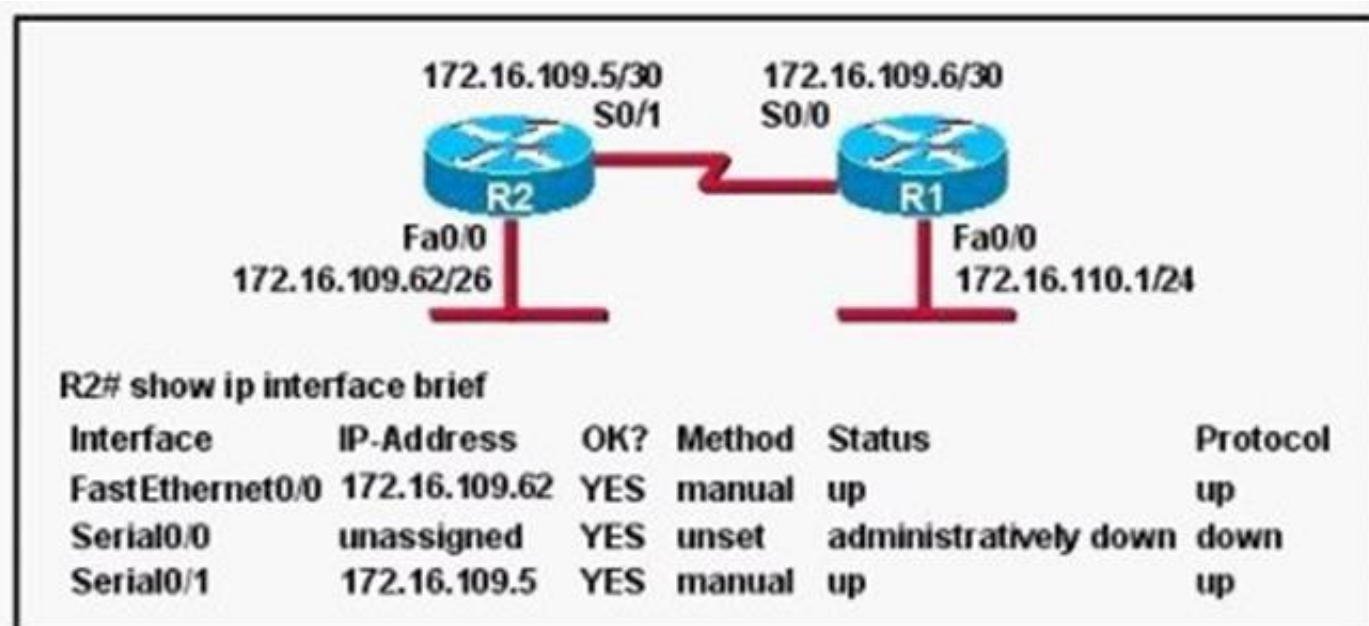
Restrict—This mode permits traffic from known MAC addresses to continue to be forwarded while dropping traffic from unknown MAC addresses when over the allowed MAC address limit. When configured with this mode, a syslog message is logged, a Simple Network Management Protocol (SNMP) trap is sent, and a violation counter is incremented when traffic is dropped.

Shutdown—This mode is the default violation mode; when in this mode, the switch will automatically force the switchport into an error disabled (err-disable) state when a violation occurs. While in this state, the switchport forwards no traffic. The switchport can be brought out of this error disabled state by issuing the errdisable recovery cause CLI command or by disabling and re-enabling the switchport.

Shutdown VLAN—This mode mimics the behavior of the shutdown mode but limits the error disabled state the specific violating VLAN.

#### NEW QUESTION 90

Refer to the exhibit.



Assuming that the entire network topology is shown, what is the operational status of the interfaces of R2 as indicated by the command output shown?

- A. One interface has a problem.
- B. Two interfaces have problems.
- C. The interfaces are functioning correctly.
- D. The operational status of the interfaces cannot be determined from the output shown.

**Answer:** C

**Explanation:** R2 has setup with two interface s0/1 and fa0/0 and both are interfaces configured with IP address and up. "show ip interface brief" showing the status of R2 interfaces.

#### NEW QUESTION 91

**Instructions**

This item contains several questions that you must answer. You can view these questions by clicking on the corresponding button to the left. Changing questions can be accomplished by clicking the numbers to the left of each question. In order to complete the questions, you will need to refer to the topology.

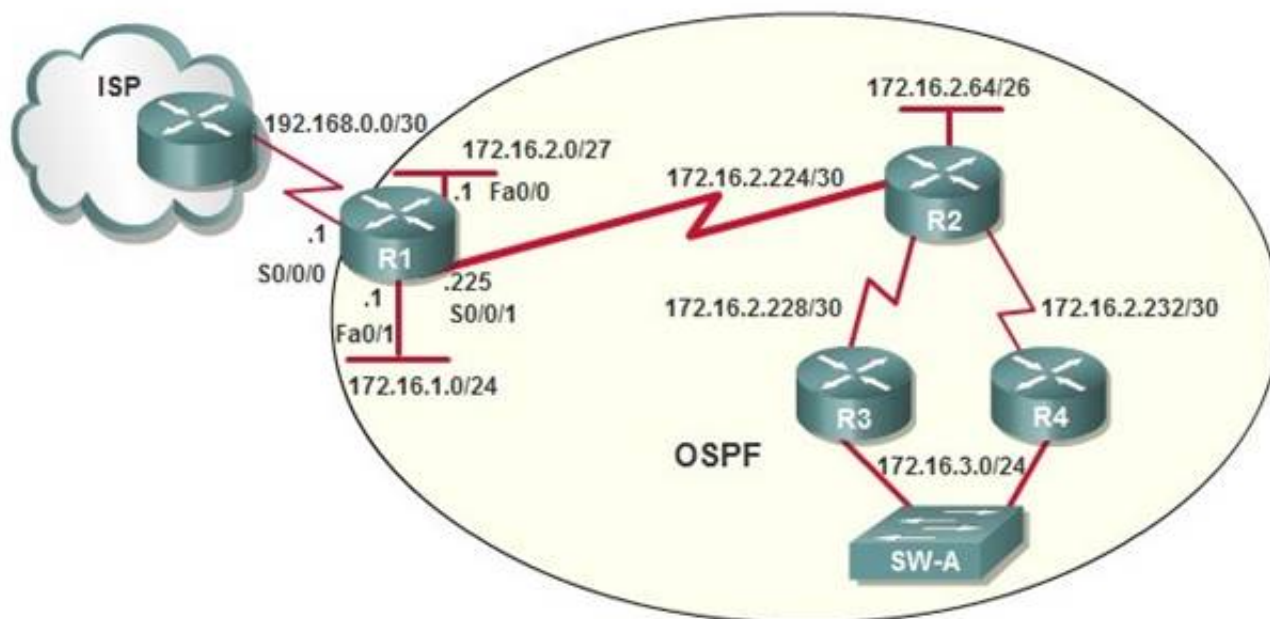
To gain access to the topology, click on the topology button at the bottom of the screen. When you have finished viewing the topology, you can return to your questions by clicking on the Questions button to the left.

Each of the windows can be minimized by clicking on the [-]. You can also reposition a window by dragging it by the title bar.

**Scenario**

Refer to the topology. Using the information shown, answer the four questions shown on the Questions tab.

Topology



R1 is configured with the default configuration of OSPF.

From the following list of IP addresses configured on R1, which address will the OSPF process select as the router ID?

- A. 192.168.0.1
- B. 172.16.1.1
- C. 172.16.2.1
- D. 172.16.2.225

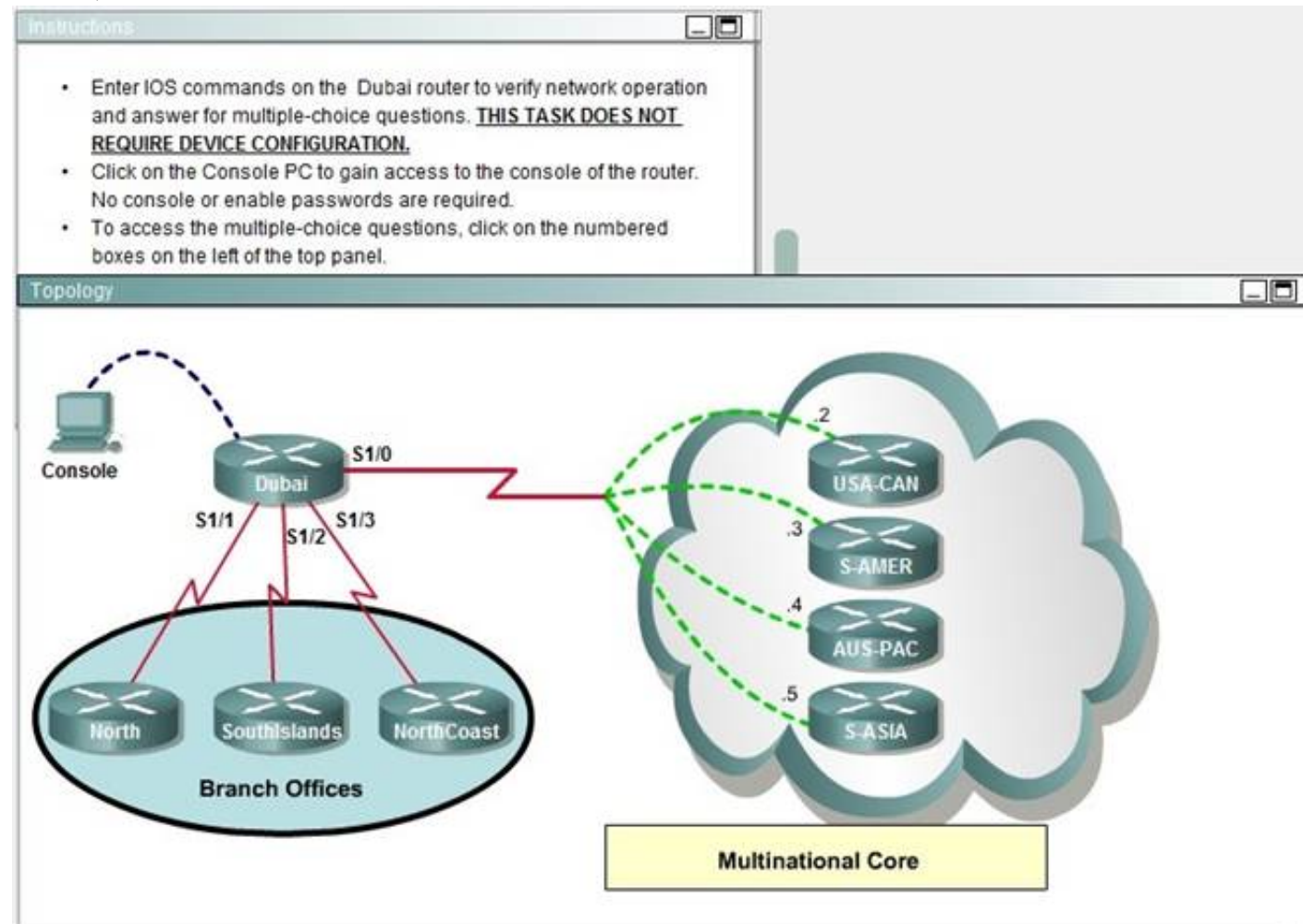
**Answer:** A

**Explanation:** The Router ID (RID) is an IP address used to identify the router and is chosen using the following sequence:

- + The highest IP address assigned to a loopback (logical) interface.
- + If a loopback interface is not defined, the highest IP address of all active router's physical interfaces will be chosen.
- + The router ID can be manually assigned

In this case, because a loopback interface is not configured so the highest active IP address 192.168.0.1 is chosen as the router ID.

NEW QUESTION 95





```
Dubai

%LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to administratively down
%LINK-3-UPDOWN: Interface Serial1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial1/0, changed state to up
%LINK-3-UPDOWN: Interface Serial1/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial1/1, changed state to up
%LINK-3-UPDOWN: Interface Serial1/2, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial1/2, changed state to up
%LINK-3-UPDOWN: Interface Serial1/3, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial1/3, changed state to up
Press RETURN to get started!
Dubai>
```

```
Dubai#sh frame-relay map
Serial1/0 (up): ip 172.30.0.2 dlci 825 (0x7B,0x1CB0), dynamic,
                broadcast,, status defined, active
Serial1/0 (up): ip 172.30.0.3 dlci 230 (0xEA,0x38A0), dynamic,
                broadcast,, status defined, active
Serial1/0 (up): ip 172.30.0.4 dlci 694 (0x159,0x5490), dynamic,
                broadcast,, status defined, active
Serial1/0 (up): ip 172.30.0.5 dlci 387 (0x1C8,0x7080), dynamic,
                broadcast,, status defined, active
```

```
Dubai#
interface FastEthernet0/0
 no ip address
 shutdown
!
interface Serial1/0
 ip address 172.30.0.1 255.255.255.240
 encapsulation frame-relay
 no fair-queue
!
interface Serial1/1
 ip address 192.168.0.1 255.255.255.252
!
interface Serial1/2
 ip address 192.168.0.5 255.255.255.252
 encapsulation ppp
!
interface Serial1/3
 ip address 192.168.0.9 255.255.255.252
 encapsulation ppp
 ppp authentication chap
!
router rip
 version 2
 network 172.30.0.0
 network 192.168.0.0
 no auto-summary
!
line con 0
 exec-timeout 0 0
line aux 0
line vty 0 4
 password Tlnet
 login
!
end
```



If required, what password should be configured on the DeepSouth router in the branch office to allow a connection to be established with the MidEast router?

- A. No password is required.
- B. Enable
- C. Secret
- D. Telnet
- E. Console

**Answer: B**

**Explanation:** In the diagram, DeepSouth is connected to Dubai's S1/2 interface and is configured as follows:

Interface Serial1/2

IP address 192.168.0.5 255.255.255.252

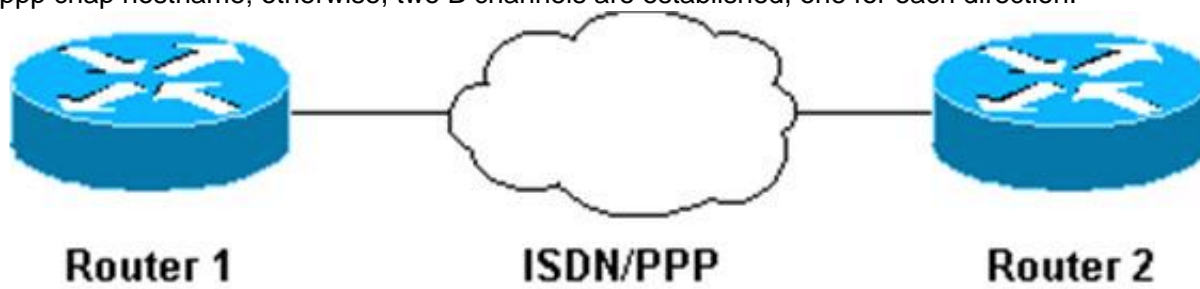
Encapsulation PPP ; Encapsulation for this interface is PPP Check out the following Cisco Link:

[http://www.cisco.com/en/US/tech/tk713/tk507/technologies\\_configuration\\_example09186a0080094333.shtml#configuringausernamefromtheroutersname](http://www.cisco.com/en/US/tech/tk713/tk507/technologies_configuration_example09186a0080094333.shtml#configuringausernamefromtheroutersname)

Here is a snippet of an example:

Network Diagram

If Router 1 initiates a call to Router 2, Router 2 would challenge Router 1, but Router 1 would not challenge Router 2. This occurs because the ppp authentication chap callin command is configured on Router 1. This is an example of a unidirectional authentication. In this setup, the ppp chap hostname alias-r1 command is configured on Router 1. Router 1 uses "alias-r1" as its hostname for CHAP authentication instead of "r1." The Router 2 dialer map name should match Router 1's ppp chap hostname; otherwise, two B channels are established, one for each direction.



## Configurations

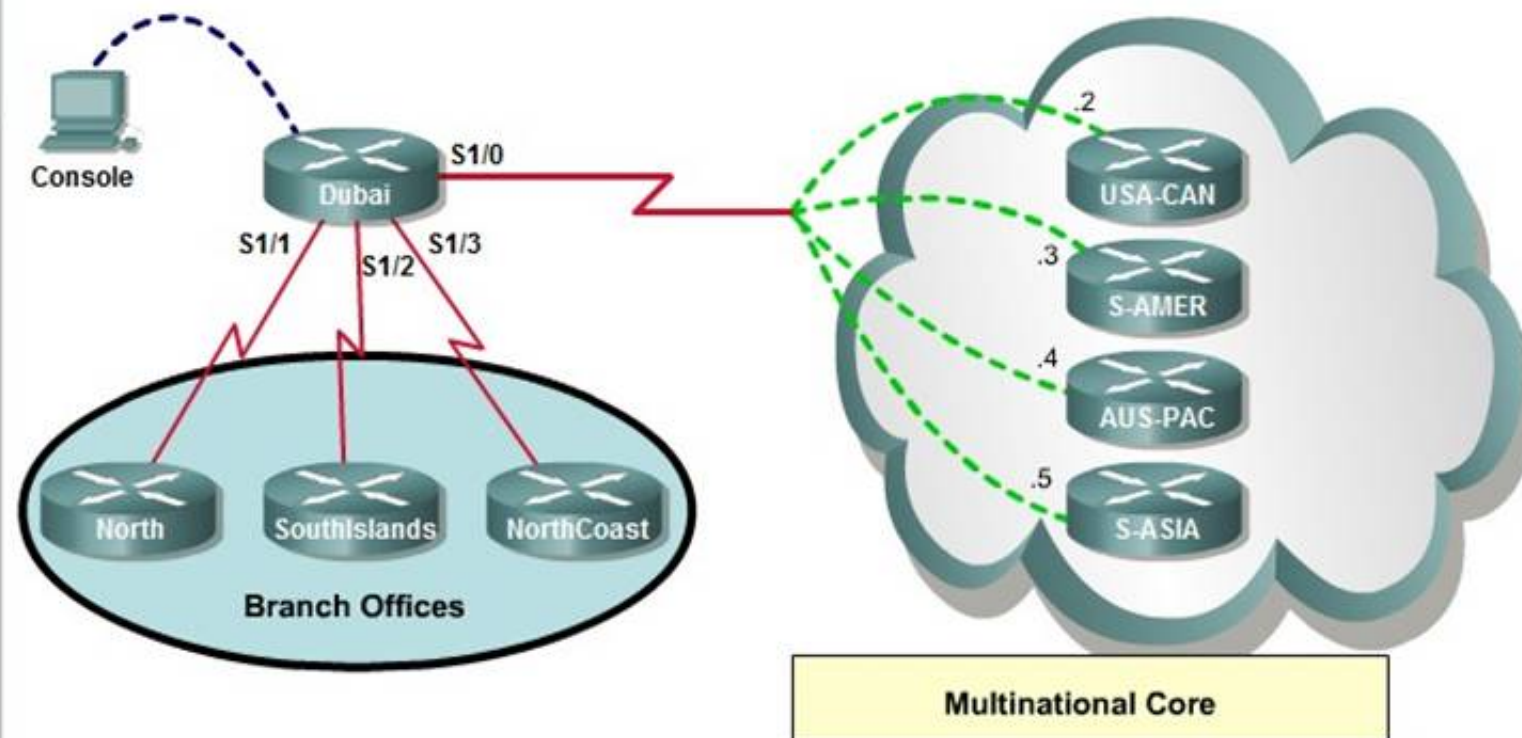
Router 1
<pre> ! isdn switch-type basic-5ess ! hostname r1 ! username r2 password 0 cisco  ! -- Hostname of other router and shared secret  ! interface BRI0/0  ip address 20.1.1.1 255.255.255.0  no ip directed-broadcast  encapsulation ppp  dialer map ip 20.1.1.2 name r2 broadcast 5772222  dialer-group 1  isdn switch-type basic-5ess  ppp authentication chap callin  ! -- Authentication on incoming calls only  ppp chap hostname alias-r1  ! -- Alternate CHAP hostname </pre>

**NEW QUESTION 96**

### Instructions

- Enter IOS commands on the Dubai router to verify network operation and answer for multiple-choice questions. **THIS TASK DOES NOT REQUIRE DEVICE CONFIGURATION.**
- Click on the Console PC to gain access to the console of the router. No console or enable passwords are required.
- To access the multiple-choice questions, click on the numbered boxes on the left of the top panel.

### Topology



### Dubai

```
%LINK-3-UPDOWN: Interface FastEthernet0/0, changed state to administratively down
%LINK-3-UPDOWN: Interface Serial1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial1/0, changed state to up
%LINK-3-UPDOWN: Interface Serial1/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial1/1, changed state to up
%LINK-3-UPDOWN: Interface Serial1/2, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial1/2, changed state to up
%LINK-3-UPDOWN: Interface Serial1/3, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial1/3, changed state to up
Press RETURN to get started!
Dubai>
```

```
Dubai#sh frame-relay map
Serial1/0 (up): ip 172.30.0.2 dlci 825 (0x7B,0x1CB0), dynamic,
                broadcast,, status defined, active
Serial1/0 (up): ip 172.30.0.3 dlci 230 (0xEA,0x38A0), dynamic,
                broadcast,, status defined, active
Serial1/0 (up): ip 172.30.0.4 dlci 694 (0x159,0x5490), dynamic,
                broadcast,, status defined, active
Serial1/0 (up): ip 172.30.0.5 dlci 387 (0x1C8,0x7080), dynamic,
                broadcast,, status defined, active

Dubai#
interface FastEthernet0/0
  no ip address
  shutdown
!
interface Serial1/0
  ip address 172.30.0.1 255.255.255.240
  encapsulation frame-relay
  no fair-queue
!
interface Serial1/1
  ip address 192.168.0.1 255.255.255.252
!
interface Serial1/2
  ip address 192.168.0.5 255.255.255.252
  encapsulation ppp
!
interface Serial1/3
  ip address 192.168.0.9 255.255.255.252
  encapsulation ppp
  ppp authentication chap
!
router rip
  version 2
  network 172.30.0.0
  network 192.168.0.0
  no auto-summary
!
line con 0
  exec-timeout 0 0
line aux 0
line vty 0 4
  password Tlnet
  login
!
end
```

What would be the destination Layer 2 address in the frame header for a frame that is being forwarded by Dubai to the host address of 172.30.4.4?

- A. 825
- B. 230
- C. 694
- D. 387

**Answer:** C

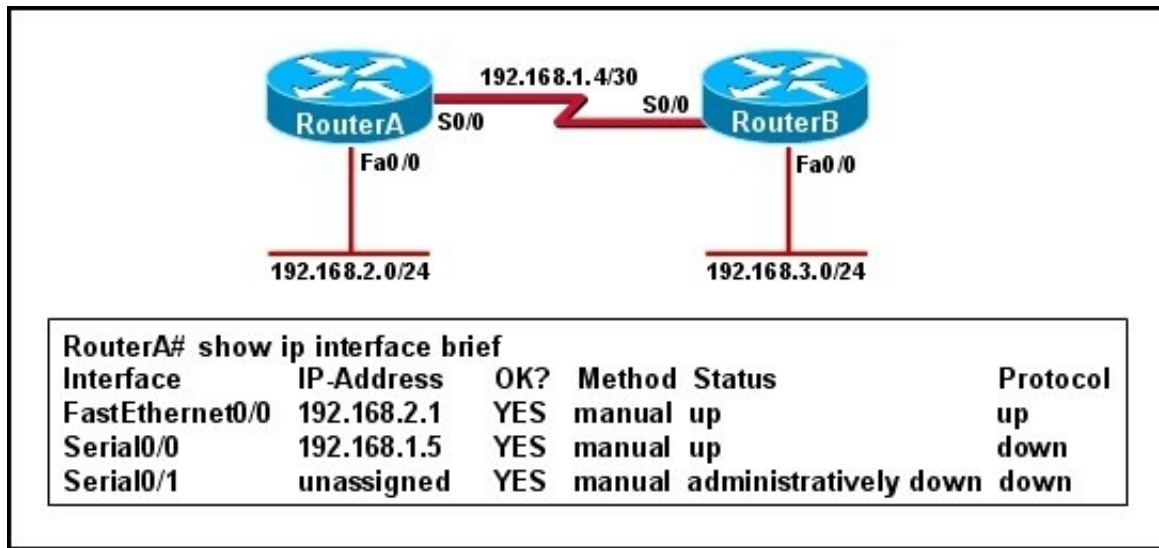
**Explanation:** According to command output 172.30.4.4 is using the 694 dlci value.

[http://www.cisco.com/en/US/docs/ios/12\\_2/wan/command/reference/wrffr4.html#wp102934](http://www.cisco.com/en/US/docs/ios/12_2/wan/command/reference/wrffr4.html#wp102934) 3

#### NEW QUESTION 100

Refer to the exhibit.





Hosts in network 192.168.2.0 are unable to reach hosts in network 192.168.3.0. Based on the output from RouterA, what are two possible reasons for the failure? (Choose two.)

- A. The cable that is connected to S0/0 on RouterA is faulty.
- B. Interface S0/0 on RouterB is administratively down.
- C. Interface S0/0 on RouterA is configured with an incorrect subnet mask.
- D. The IP address that is configured on S0/0 of RouterB is not in the correct subnet.
- E. Interface S0/0 on RouterA is not receiving a clock signal from the CSU/DSU.
- F. The encapsulation that is configured on S0/0 of RouterB does not match the encapsulation that is configured on S0/0 of RouterA.

**Answer:** EF

**Explanation:** [http://www.cisco.com/en/US/docs/routers/access/800/819/software/configuration/Guide/6se\\_r\\_conf.html](http://www.cisco.com/en/US/docs/routers/access/800/819/software/configuration/Guide/6se_r_conf.html)

## NEW QUESTION 102

**Instructions**

This item contains several questions that you must answer. You can view these questions by clicking on the corresponding button to the left. Changing questions can be accomplished by clicking the numbers to the left of each question. In order to complete the questions, you will need to refer to the topology.

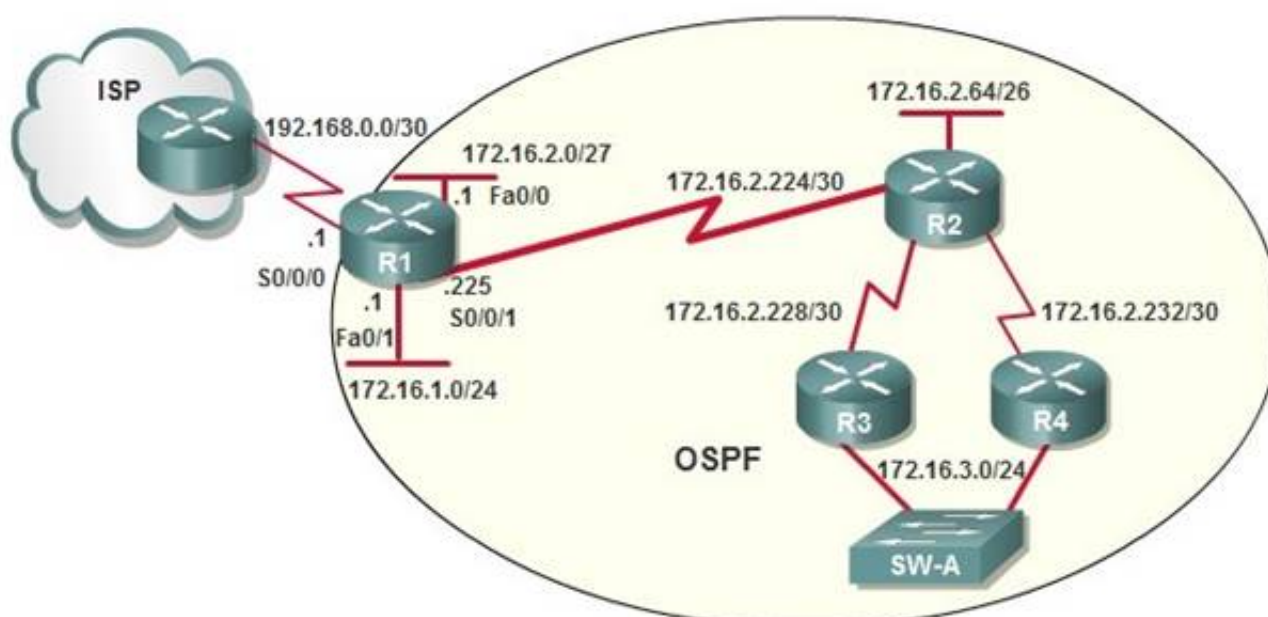
To gain access to the topology, click on the topology button at the bottom of the screen. When you have finished viewing the topology, you can return to your questions by clicking on the Questions button to the left.

Each of the windows can be minimized by clicking on the [-]. You can also reposition a window by dragging it by the title bar.

**Scenario**

Refer to the topology. Using the information shown, answer the four questions shown on the Questions tab.

## Topology



OSPF is configured using default classful addressing. With all routers and interfaces operational, how many networks will be in the routing table of R1 that are indicated to be learned by OSPF?

- A. 2
- B. 3
- C. 4
- D. 5
- E. 6
- F. 7

**Answer:** C

**Explanation:** It already knows about its directly connected ones, only those not directly connected are “Learned by OSPF”.

OSPF as a link state routing protocol (deals with LSAs rather than routes) does not auto summarize (doesn't support "auto-summary"). So learned route by OSPF are followed 172.16.2.64/26

172.16.2.228/30

172.16.2.232/30

172.16.3.0/24

Topic 5, WAN Technologies

#### NEW QUESTION 104

What can be done to Frame Relay to resolve split-horizon issues?(Choose two.)

- A. Disable Inverse ARP.
- B. Create a full-mesh topology.
- C. Develop multipoint subinterfaces.
- D. Configure point-to-point subinterfaces.
- E. Remove the broadcast keyword from the frame-relay map command.

**Answer:** BD

**Explanation:** IP split horizon checking is disabled by default for Frame Relay encapsulation to allow routing updates to go in and out of the same interface. An exception is the Enhanced Interior Gateway Routing Protocol (EIGRP) for which split horizon must be explicitly disabled.

Certain protocols such as AppleTalk, transparent bridging, and Internetwork Packet Exchange (IPX) cannot be supported on partially meshed networks because they require split horizon to be enabled (a packet received on an interface cannot be transmitted over the same interface, even if the packet is received and transmitted on different virtual circuits).

Configuring Frame Relay subinterfaces ensures that a single physical interface is treated as multiple virtual interfaces. This capability allows you to overcome split horizon rules so packets received on one virtual interface can be forwarded to another virtual interface, even if they are configured on the same physical interface.

#### NEW QUESTION 107

Which protocol is an open standard protocol framework that is commonly used in VPNs, to provide secure end-to-end communications?

- A. RSA
- B. L2TP
- C. IPsec
- D. PPTP

**Answer:** C

**Explanation:** Internet Protocol Security (IPsec) is a technology protocol suite for securing Internet Protocol (IP) communications by authenticating and/or encrypting each IP packet of a communication session. IPsec also includes protocols for establishing mutual authentication between agents at the beginning of the session and negotiation of cryptographic keys to be used during the session.

#### NEW QUESTION 109

A network administrator needs to configure a serial link between the main office and a remote location. The router at the remote office is a non-Cisco router. How should the network administrator configure the serial interface of the main office router to make the connection?

- A. Main(config)# interface serial 0/0Main(config-if)# ip address 172.16.1.1 255.255.255.252 Main(config-if)# no shut
- B. Main(config)# interface serial 0/0Main(config-if)# ip address 172.16.1.1 255.255.255.252Main(config-if)# encapsulation ppp Main(config-if)# no shut
- C. Main(config)# interface serial 0/0Main(config-if)# ip address 172.16.1.1 255.255.255.252 Main(config-if)# encapsulation frame-relayMain(config-if)# authentication chap Main(config-if)# no shut
- D. Main(config)# interface serial 0/0Main(config-if)#ip address 172.16.1.1 255.255.255.252 Main(config-if)#encapsulation ietfMain(config-if)# no shut

**Answer:** B

**Explanation:** Cisco High-Level Data Link Controller (HDLC) is the Cisco proprietary protocol for sending data over synchronous serial links using HDLC. So HDLC runs only in Cisco router. PPP is not proprietary protocol it's a open source every cisco router and non-cisco router understand the PPP protocol. So we need to configure the PPP protocol if connection is between cisco and non-cisco router.

#### NEW QUESTION 113

What occurs on a Frame Relay network when the CIR is exceeded?

- A. All TCP traffic is marked discard eligible.
- B. All UDP traffic is marked discard eligible and a BECN is sent.
- C. All TCP traffic is marked discard eligible and a BECN is sent.
- D. All traffic exceeding the CIR is marked discard eligible.

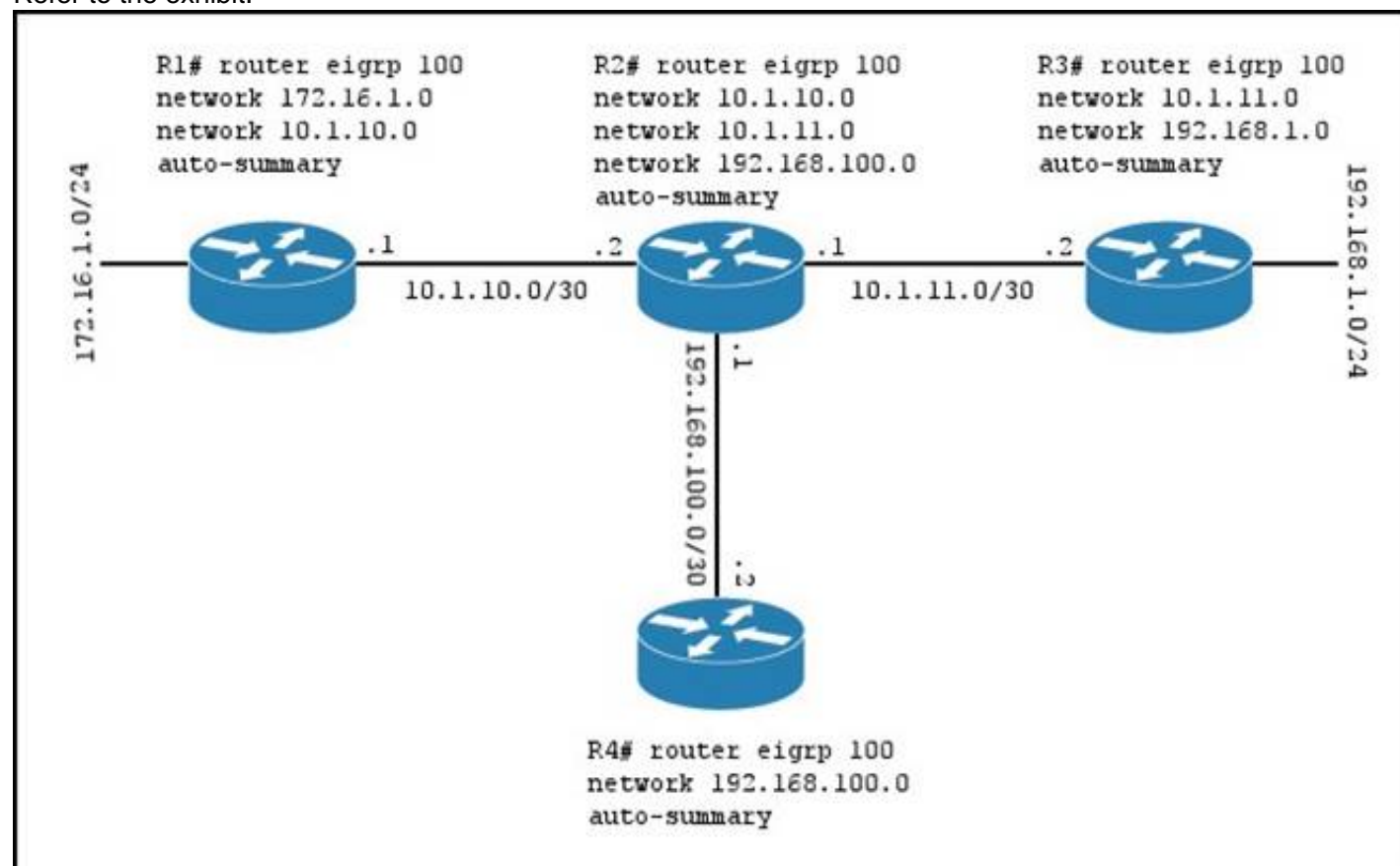
**Answer:** D

**Explanation:** Committed information rate (CIR): The minimum guaranteed data transfer rate agreed to by the Frame Relay switch. Frames that are sent in excess of the CIR are marked as discard eligible (DE) which means they can be dropped if the congestion occurs within the Frame Relay network.

Note: In the Frame Relay frame format, there is a bit called Discard eligible (DE) bit that is used to identify frames that are first to be dropped when the CIR is exceeded.

#### NEW QUESTION 116

Refer to the exhibit.



Which three EIGRP routes will be present in the router R4's routing table? (Choose three.)

- A. 172.16.1.0/24
- B. 10.1.10.0/30
- C. 10.0.0.0/8
- D. 10.1.11.0/30
- E. 172.16.0.0/16
- F. 192.168.1.0/24

**Answer:** CEF

#### NEW QUESTION 117

What is the result of issuing the frame-relay map ip 192.168.1.2 202 broadcast command?

- A. defines the destination IP address that is used in all broadcast packets on DLCI 202
- B. defines the source IP address that is used in all broadcast packets on DLCI 202
- C. defines the DLCI on which packets from the 192.168.1.2 IP address are received
- D. defines the DLCI that is used for all packets that are sent to the 192.168.1.2 IP address

**Answer:** D

**Explanation:** Frame-relay map ip 192.168.1.2 202 command statically defines a mapping between a network layer address and a DLCI. The broadcast option allows multicast and broadcast packets to flow across the link.

The command frame-relay map ip 192.168.1.2 202 broadcast means to mapping the distal IP 192.168.1.2 202 to the local DLCI . When the “broadcast” keyword is included, it turns Frame Relay network as a broadcast network, which can forward broadcasts.

[http://www.cisco.com/en/US/docs/ios/wan/command/reference/wan\\_f2.html#wp1012264](http://www.cisco.com/en/US/docs/ios/wan/command/reference/wan_f2.html#wp1012264)

Field	Description
Serial 1 (administratively down)	Identifies a Frame Relay interface and its status (up or down).
ip 131.108.177.177	Destination IP address.
dcli 177 (0xB1,0x2C10)	DLCI that identifies the logical connection being used to reach this interface. This value is displayed in three ways: its decimal value (177), its hexadecimal value (0xB1), and its value as it would appear on the wire (0x2C10).
static	Indicates whether this is a static or dynamic entry.
CISCO	Indicates the encapsulation type for this map; either CISCO or IETF.
TCP/IP Header Compression (inherited), passive (inherited)	Indicates whether the TCP/IP header compression characteristics were inherited from the interface or were explicitly configured for the IP map.



#### NEW QUESTION 119

What are three factors a network administrator must consider before implementing Netflow in the network? (Choose three.)

- A. CPU utilization
- B. where Netflow data will be sent
- C. number of devices exporting Netflow data
- D. port availability
- E. SNMP version
- F. WAN encapsulation

**Answer:** ABC

#### NEW QUESTION 122

Which statement describes the process ID that is used to run OSPF on a router?

- A. It is globally significant and is used to represent the AS number.
- B. It is locally significant and is used to identify an instance of the OSPF database.
- C. It is globally significant and is used to identify OSPF stub areas.
- D. It is locally significant and must be the same throughout an area.

**Answer:** B

#### NEW QUESTION 126

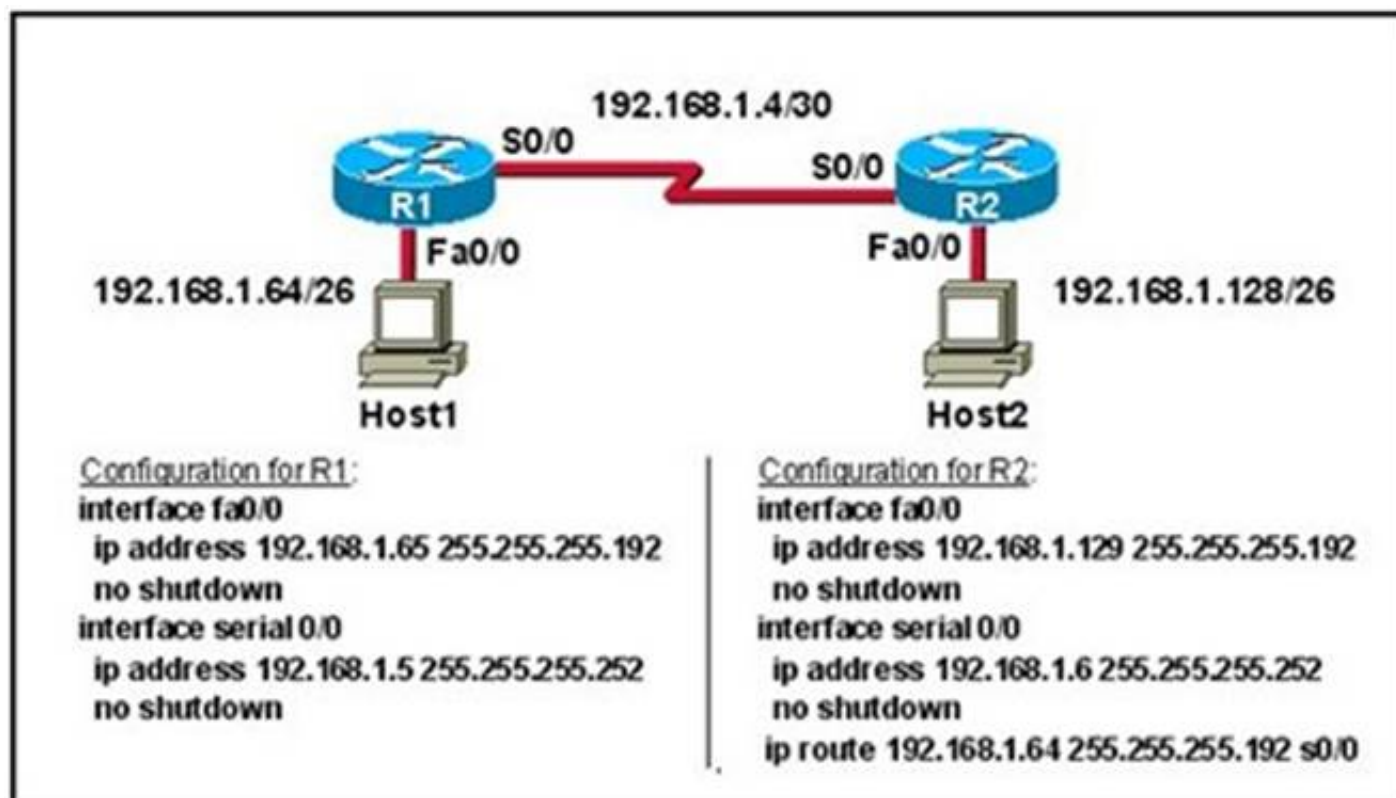
In GLBP, which router will respond to client ARP requests?

- A. The active virtual gateway will reply with one of four possible virtual MAC addresses.
- B. All GLBP member routers will reply in round-robin fashion.
- C. The active virtual gateway will reply with its own hardware MAC address.
- D. The GLBP member routers will reply with one of four possible burned in hardware addresses.

**Answer:** A

#### NEW QUESTION 130

Refer to the exhibit.



A technician pastes the configurations in the exhibit into the two new routers shown. Otherwise, the routers are configured with their default configurations. A ping from Host1 to Host2 fails, but the technician is able to ping the S0/0 interface of R2 from Host1. The configurations of the hosts have been verified as correct. What is the cause of the problem?

- A. The serial cable on R1 needs to be replaced.
- B. The interfaces on R2 are not configured properly.
- C. R1 has no route to the 192.168.1.128 network.
- D. The IP addressing scheme has overlapping subnetworks.
- E. The ip subnet-zero command must be configured on both routers.

**Answer:** C

**Explanation:** Whenever a node needs to send data to another node on a network, it must first know where to send it. If the node cannot directly connect to the destination node, it has to send it via other nodes along a proper route to the destination node. A remote network is a network that can only be reached by sending the packet to another router. Remote networks are added to the routing table using either a dynamic routing protocol or by configuring static routes. Static routes are routes to networks that a network administrator manually configured. So R should have static route for the 192.168.1.128.

#### NEW QUESTION 134

Which two statements about the OSPF Router ID are true? (Choose two.)

- A. It identifies the source of a Type 1 LSA.
- B. It should be the same on all routers in an OSPF routing instance.
- C. By default, the lowest IP address on the router becomes the OSPF Router ID.
- D. The router automatically chooses the IP address of a loopback as the OSPF Router ID.
- E. It is created using the MAC Address of the loopback interface.

**Answer:** AD

#### NEW QUESTION 137

Refer to the exhibit.

City#show ip interface brief					
Interface	IP-Address	OK?	Method	Status	Protocol
FastEthernet0/0	192.168.12.48	YES	manual	up	up
FastEthernet0/1	192.168.12.65	YES	manual	up	up
Serial0/0	192.168.12.121	YES	manual	up	up
Serial0/1	unassigned	YES	unset	up	up
Serial0/1.102	192.168.12.125	YES	manual	up	up
Serial0/1.103	192.168.12.129	YES	manual	up	up
Serial0/1.104	192.168.12.133	YES	manual	up	up
City#					

A network associate has configured OSPF with the command: City(config-router)# network 192.168.12.64 0.0.0.63 area 0  
After completing the configuration, the associate discovers that not all the interfaces are participating in OSPF. Which three of the interfaces shown in the exhibit will participate in OSPF according to this configuration statement? (Choose three.)

- A. FastEthernet0 /0
- B. FastEthernet0 /1
- C. Serial0/0
- D. Serial0/1.102
- E. Serial0/1.103
- F. Serial0/1.104

**Answer:** BCD

**Explanation:** The “network 192.168.12.64 0.0.0.63 equals to network 192.168.12.64/26. This network has:Increment: 64 (/26= 1111 1111.1111 1111.1111 1111.1100 0000)Network address: 192.168.12.64  
Broadcast address: 192.168.12.127Therefore all interface in the range of this network will join OSPF - B C D are correct.

#### NEW QUESTION 141

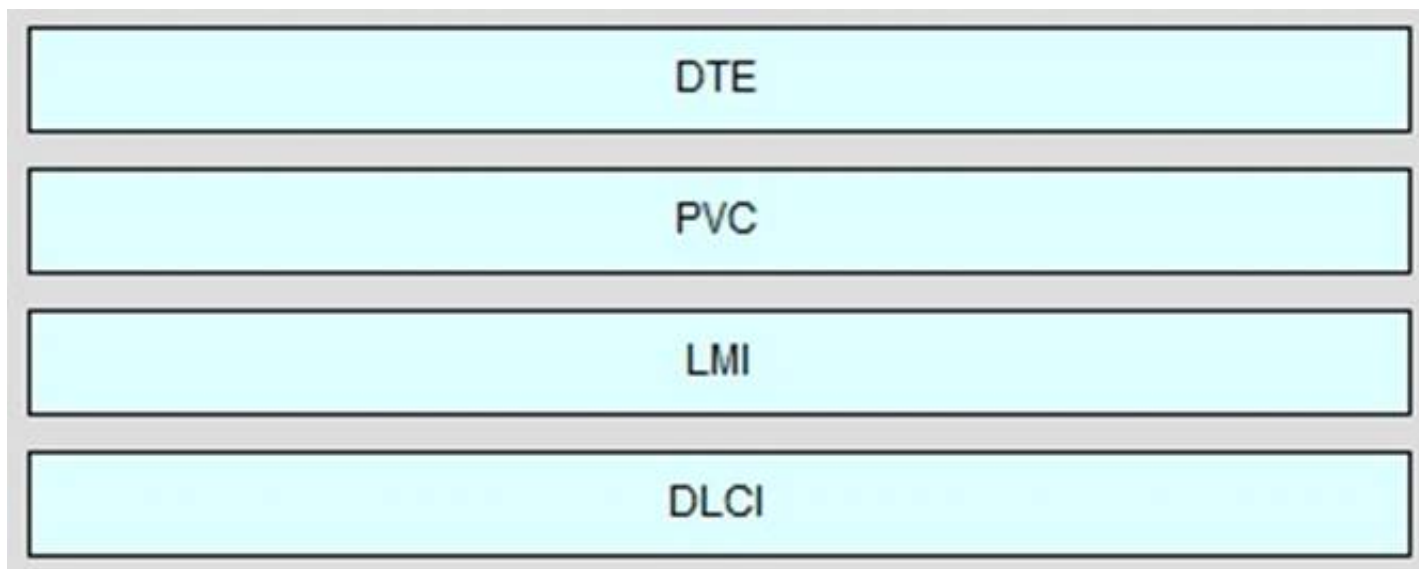
DRAG DROP

Drag the Frame Relay acronym on the left to match its definition on the right. (Not all acronyms are used.)

CIR		a router is this type of device
DCE		the most common type of virtual circuit
DTE		provides status messages between DTE and DCE devices
LMI		identifies the virtual connection between the DTE and the switch
PVC		
SVC		
DLCI		

**Answer:**

**Explanation:** 1) a router is this type of device: DTE2) the most common type of virtual circuit: PVC3) provides status messages between DTE and DCE devices: LMI4) identifies the virtual connection between the DTE and the switch: DLCI



CCNA Certification Test Prep Case Study <http://www.thebryantadvantage.com/CCNACertificationExamTutorialDirectlyConnectedSerialInterfaces.htm>  
Configuring the LMI Type on a Frame Relay Interface <http://www.ciscopress.com/articles/article.asp?p=170741&seqNum=3>  
Frame Relay DLCIs And Mappings  
[http://www.mcmcse.com/cisco/guides/frame\\_relay\\_dlcι.shtml](http://www.mcmcse.com/cisco/guides/frame_relay_dlcι.shtml)

#### NEW QUESTION 142

What can cause two OSPF neighbors to be stuck in the EXSTART state?

- A. There is a low bandwidth connection between neighbors.
- B. The neighbors have different MTU settings.
- C. The OSPF interfaces are in a passive state.
- D. There is only layer one connectivity between neighbors.

**Answer:** B

#### NEW QUESTION 145

Refer to the exhibit.

R1# show ip interface brief					
Interface	IP-Address	OK?	Method	Status Protocol	
FastEthernet0/0	192.168.1.2	YES	manual	up	up
FastEthernet1/0	172.16.4.1	YES	manual	up	up
Serial2/0	192.168.10.2	YES	manual	up	up
Serial3/0	unassigned	YES	unset	administratively down	down
Loopback0	1.1.1.1	YES	manual	up	up

If the router R1 returns the given output and has not had its router ID set manually, what address will EIGRP use as its router ID?

- A. 192.168.1.2
- B. 172.16.4.1
- C. 192.168.10.2
- D. 1.1.1.1

**Answer:** D

#### NEW QUESTION 146

Which command is used to enable CHAP authentication, with PAP as the fallback method, on a serial interface?

- A. Router(config-if)# ppp authentication chap fallback ppp
- B. Router(config-if)# ppp authentication chap pap
- C. Router(config-if)# authentication ppp chap fallback ppp
- D. Router(config-if)# authentication ppp chap pap

**Answer:** B

**Explanation:** [http://www.cisco.com/en/US/docs/ios/12\\_2/security/configuration/guide/scfathen.html](http://www.cisco.com/en/US/docs/ios/12_2/security/configuration/guide/scfathen.html)

#### NEW QUESTION 150

What are three reasons that an organization with multiple branch offices and roaming users might implement a Cisco VPN solution instead of point-to-point WAN links? (Choose three.)

- A. reduced cost
- B. better throughput
- C. broadband incompatibility



- D. increased security
- E. scalability
- F. reduced latency

**Answer:** ADE

**Explanation:** Enhance Productivity and Cut Costs

Cisco VPN solutions provide exceptional security through encryption and authentication technologies that protect data in transit from unauthorized access and attacks. A Cisco VPN helps you:

Use highly secure communications, with access rights tailored to individual users

Quickly add new sites or users, without significantly expanding your existing infrastructure Improve productivity by extending corporate networks, applications, and collaboration tools Reduce communications costs while increasing flexibility

#### NEW QUESTION 155

Refer to the exhibit.

Cisco#show ip interface brief				
Interface	IP-Address	OK?	Method	Status Protocol
FastEthernet0/0	192.168.1.1	YES	manual	up up
FastEthernet0/1	172.16.1.1	YES	manual	up up
Loopback0	1.1.1.1	YES	manual	up up
Loopback1	2.2.2.2	YES	manual	up up
Vlan1	unassigned	YES	unset	administratively down down

If the router Cisco returns the given output and has not had its router ID set manually, what value will OSPF use as its router ID?

- A. 192.168.1.1
- B. 172.16.1.1
- C. 1.1.1.1
- D. 2.2.2.2

**Answer:** D

#### NEW QUESTION 159

What are three values that must be the same within a sequence of packets for Netflow to consider them a network flow? (Choose three.)

- A. source IP address
- B. source MAC address
- C. egress interface
- D. ingress interface
- E. destination IP address
- F. IP next-hop

**Answer:** ADE

#### NEW QUESTION 163

What command is used to verify the DLCI destination address in a Frame Relay static configuration?

- A. show frame-relay pvc
- B. show frame-relay lmi
- C. show frame-relay map
- D. show frame relay end-to-end

**Answer:** C

**Explanation:** Cisco Frame Relay Configurations

<http://www.ciscopress.com/articles/article.asp?p=170741&seqNum=9> show frame-relay map

The show frame-relay map privileged EXEC mode command shows the contents of the next hop protocol address to DLCI mapping table on the router. The table contains both dynamic mapped and static mapped entries. The below example shows a sample output of the show frame-relay map command.

Router#show frame-relay map

Serial1/2 (up): ip 172.16.1.4 dlci 401(0x191,0x6410), dynamic, broadcast,, status defined, active

Serial1/2 (up): ip 172.16.1.5 dlci 501(0x1F5,0x7C50), dynamic, broadcast,, status defined, active

Serial1/2 (up): ip 172.16.1.2 dlci 301(0x12D,0x48D0), dynamic, broadcast,, status defined, active

#### NEW QUESTION 165

Which two statements about using the CHAP authentication mechanism in a PPP link are true? (Choose two.)

- A. CHAP uses a two-way handshake.
- B. CHAP uses a three-way handshake.
- C. CHAP authentication periodically occurs after link establishment.
- D. CHAP authentication passwords are sent in plaintext.

- E. CHAP authentication is performed only upon link establishment.
- F. CHAP has no protection from playback attacks.

**Answer:** BC

**Explanation:** Understanding and Configuring PPP CHAP Authentication

[http://www.cisco.com/en/US/tech/tk713/tk507/technologies\\_tech\\_note09186a00800b4131.shtml](http://www.cisco.com/en/US/tech/tk713/tk507/technologies_tech_note09186a00800b4131.shtml)

One-Way and Two-Way Authentication

CHAP is defined as a one-way authentication method. However, you use CHAP in both directions to create a two-way authentication. Hence, with two-way CHAP, a separate three-way handshake is initiated by each side. In the Cisco CHAP implementation, by default, the called party must authenticate the calling party (unless authentication is completely turned off). Therefore, a one-way authentication initiated by the called party is the minimum possible authentication. However, the calling party can also verify the identity of the called party, and this results in a two-way authentication.

One-way authentication is often required when you connect to non-Cisco devices.

#### NEW QUESTION 169

Which statement describes an EIGRP feasible successor route?

- A. Aprimary route, added to the routing table
- B. Abackup route, added to the routing table
- C. Aprimary route, added to the topology table
- D. Abackup route, added to the topology table

**Answer:** D

#### NEW QUESTION 172

Which three statements about HSRP operation are true? (Choose three.)

- A. The virtual IP address and virtual MA+K44C address are active on the HSRP Master router.
- B. The HSRP default timers are a 3 second hello interval and a 10 second dead interval.
- C. HSRP supports only clear-text authentication.
- D. The HSRP virtual IP address must be on a different subnet than the routers' interfaces on the same LAN.
- E. The HSRP virtual IP address must be the same as one of the router's interface addresses on the LAN.
- F. HSRP supports up to 255 groups per interface, enabling an administrative form of load balancing.

**Answer:** ABF

#### NEW QUESTION 177

The output of the show frame-relay pvc command shows "PVC STATUS = INACTIVE". What does this mean?

- A. The PVC is configured correctly and is operating normally, but no data packets have been detected for more than five minutes.
- B. The PVC is configured correctly, is operating normally, and is no longer actively seeking the address of the remote router.
- C. The PVC is configured correctly, is operating normally, and is waiting for interesting traffic to trigger a call to the remote router.
- D. The PVC is configured correctly on the local switch, but there is a problem on the remote end of the PVC.
- E. The PVC is not configured on the local switch.

**Answer:** D

**Explanation:** The PVC STATUS displays the status of the PVC. The DCE device creates and sends the report to the DTE devices. There are 4 statuses:

ACTIVE: the PVC is operational and can transmit data  
INACTIVE: the connection from the local router to the switch is working, but the connection to the remote router is not available  
DELETED: the PVC is not present and no LMI information is being received from the Frame Relay switch  
STATIC: the Local Management Interface (LMI) mechanism on the interface is disabled (by using the “no keepalive” command). This status is rarely seen.

#### NEW QUESTION 179

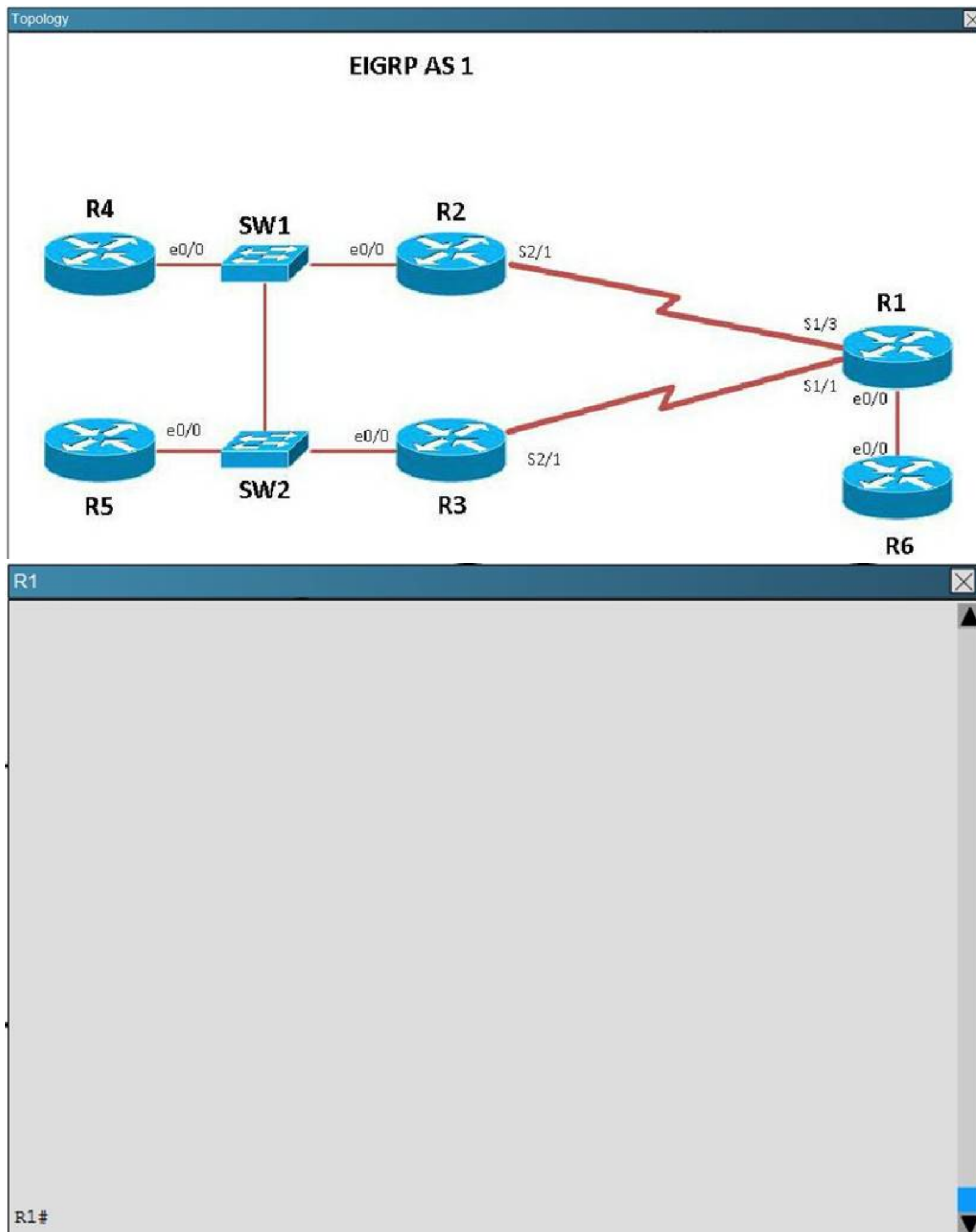
Scenario

Refer to the topology. Your company has connected the routers R1. R2. and R3 with serial links. R2 and R3 are connected to the switches SW1 and SW2, respectively. SW1 and SW2 are also connected to the routers R4 and R5.

The EIGRP routing protocol is configured.

You are required to troubleshoot and resolve the EIGRP issues between the various routers.

Use the appropriate show commands to troubleshoot the issues.





R2

R2#

R3

R3#

R4

R4#

R5

R5#

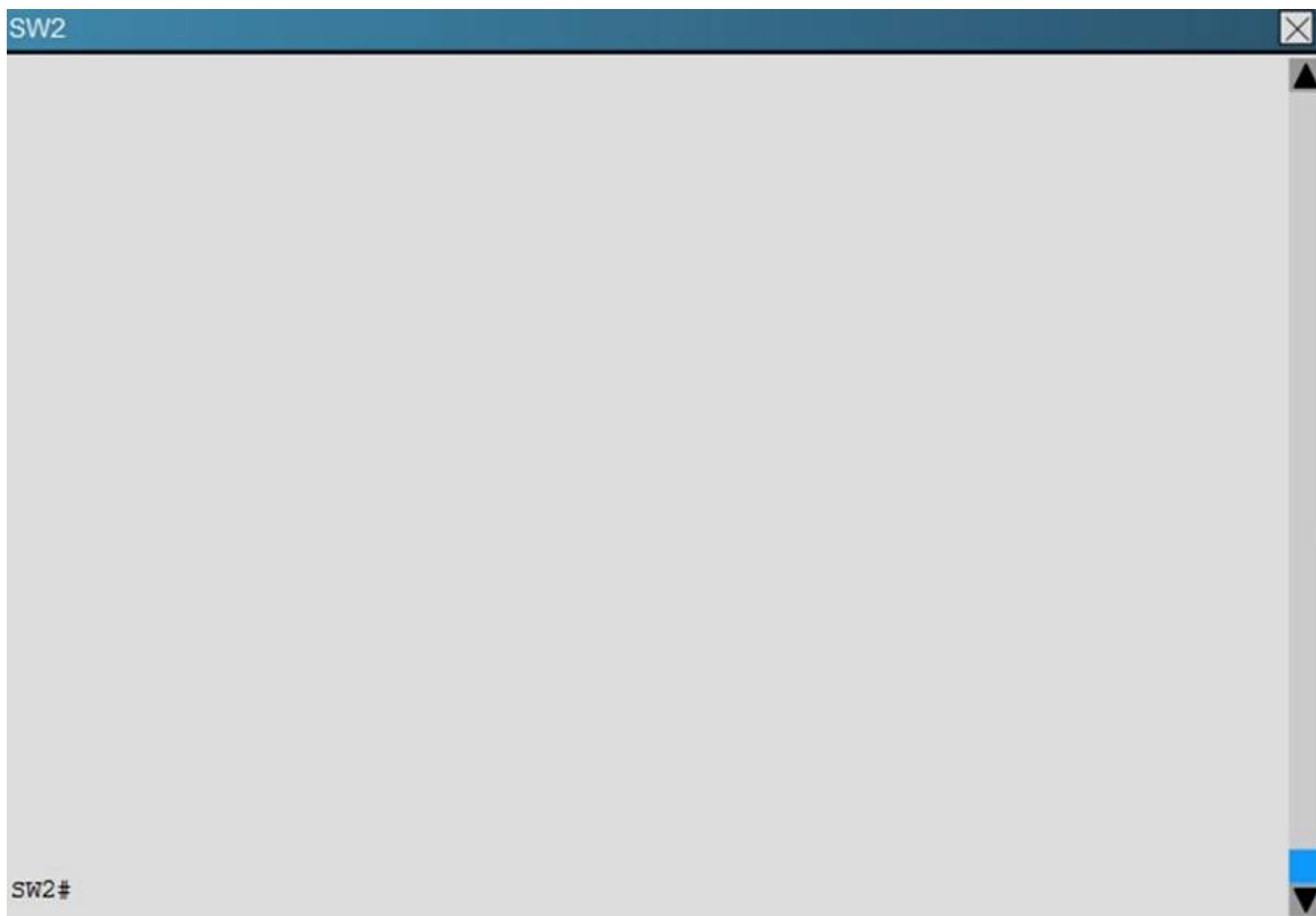
R6

R6#

SW1

SW1#



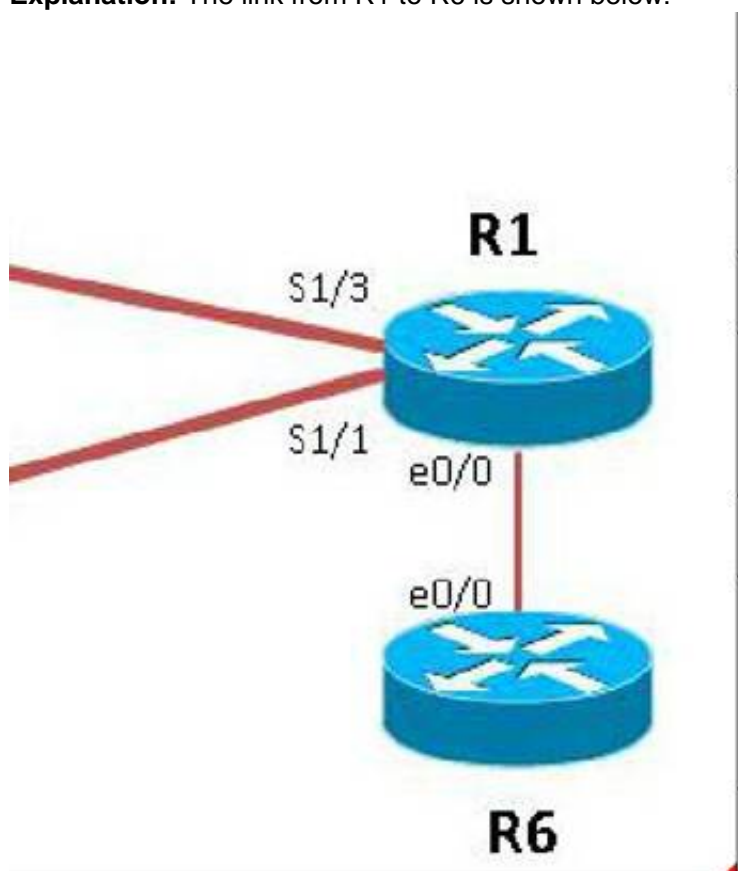


Router R6 does not form an EIGRP neighbor relationship correctly with router R1. What is the cause for this misconfiguration?

- A. The K values mismatch.
- B. The AS does not match.
- C. The network command is missing.
- D. The passive-interface command is enabled.

**Answer: C**

**Explanation:** The link from R1 to R6 is shown below:



As you can see, they are both using e0/0. The IP addresses are in the 192.168.16.0 network:

R1				R6			
Interface	IP-Address	OK?	Method Sta	R6#			
Ethernet0/0	192.168.16.1	YES	NVRAM up	R6#			
Ethernet0/1	unassigned	YES	NVRAM adm	R6#			
Ethernet0/2	unassigned	YES	NVRAM adm	R6#show ip int brief			
Ethernet0/3	unassigned	YES	NVRAM adm	Interface	IP-Address	OK?	Method Status
Serial1/0	unassigned	YES	NVRAM adm	Ethernet0/0	192.168.16.6	YES	NVRAM up
Serial1/1	192.168.13.1	YES	NVRAM up	Ethernet0/1	unassigned	YES	NVRAM administratively down down
Serial1/2	unassigned	YES	NVRAM up	Ethernet0/2	unassigned	YES	NVRAM administratively down down
Serial1/3	192.168.12.1	YES	NVRAM up	Ethernet0/3	unassigned	YES	NVRAM administratively down down
Serial2/0	unassigned	YES	NVRAM adm	Serial1/0	unassigned	YES	NVRAM administratively down down
Serial2/1	unassigned	YES	NVRAM up	Serial1/1	unassigned	YES	NVRAM up
Serial2/2	unassigned	YES	NVRAM adm	Serial1/2	unassigned	YES	NVRAM administratively down down
				Serial1/3	unassigned	YES	NVRAM administratively down down
				Loopback0	10.6.6.6	YES	NVRAM up
R1#				R6#			

But when we look at the EIGRP configuration, the “network 192.168.16.0” command is missing on R6.

R1		R6	
<pre> shutdown serial restart-delay 0 ! interface Serial2/1 no ip address serial restart-delay 0 ! interface Serial2/2 no ip address shutdown serial restart-delay 0 ! interface Serial2/3 no ip address shutdown serial restart-delay 0 ! ! router eigrp 1 network 192.168.12.0 network 192.168.13.0 network 192.168.16.0 ! ip forward-protocol nd </pre>		<pre> serial restart-delay 0 ! interface Serial1/1 no ip address serial restart-delay 0 ! interface Serial1/2 no ip address shutdown serial restart-delay 0 ! interface Serial1/3 no ip address shutdown serial restart-delay 0 ! ! router eigrp 1 network 10.6.6.6 0.0.0.0 ! ip forward-protocol nd ! no ip http server </pre>	
R1#		R6#	

Study the following output taken on R1: R1# Ping 10.5.5.55 source 10.1.1.1 Type escape sequence to abort.  
Sending 5, 100-byte ICMP Echos to 10.5.5.55, timeout is 2 seconds: Packet sent with a source address of 10.1.1.1  
Success rate is 0 percent (0/5)

Topic 6, Mix Questions

NEW QUESTION 180

What are three reasons to collect Netflow data on a company network? (Choose three.)

- A. To identify applications causing congestion
- B. To authorize user network access
- C. To report and alert link up / down instances
- D. To diagnose slow network performance, bandwidth hogs, and bandwidth utilization
- E. To detect suboptimal routing in the network
- F. To confirm the appropriate amount of bandwidth that has been allocated to each Class of Service

Answer: ADF

NEW QUESTION 182

The command frame-relay map ip 10.121.16.8 102 broadcast was entered on the router. Which of the following statements is true concerning this command?

- A. This command should be executed from the global configuration mode.
- B. The IP address 10.121.16.8 is the local router port used to forward data.
- C. 102 is the remote DLCI that will receive the information.
- D. This command is required for all Frame Relay configurations.
- E. The broadcast option allows packets, such as RIP updates, to be forwarded across the PVC.

Answer: E

**Explanation:** The command frame-relay map ip 10.121.16.8 102 broadcast means to map the remote IP 10.121.16.8 to the local DLCI 102. When the “broadcast” keyword is included, it turns Frame Relay network as a broadcast network, which can forward broadcasts.

NEW QUESTION 184

A network administrator needs to configure port security on a switch. Which two statements are true? (Choose two.)

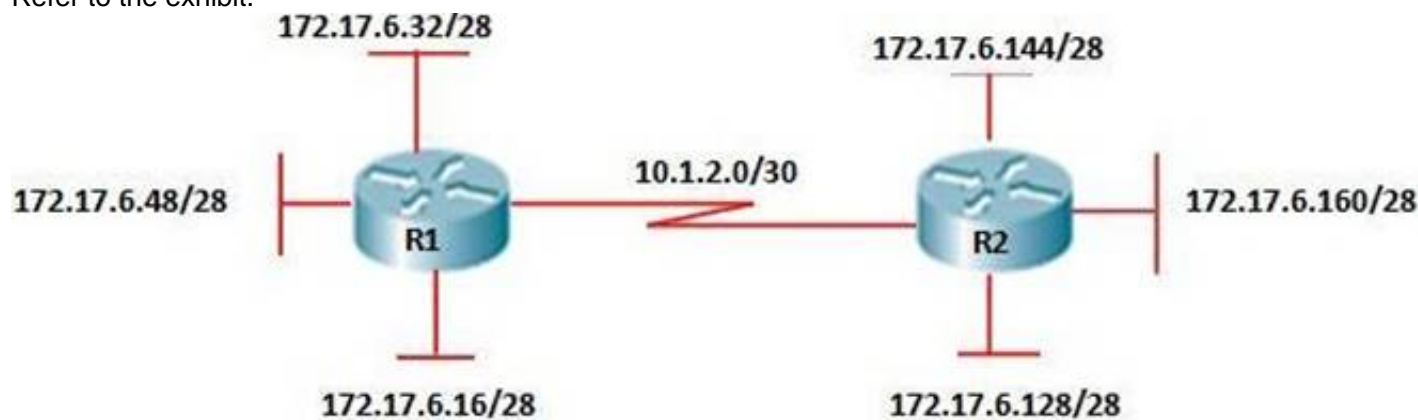
- A. The network administrator can apply port security to dynamic access ports.

- B. When dynamic MAC address learning is enabled on an interface, the switch can learn new addresses, up to the maximum defined.
- C. The sticky learning feature allows the addition of dynamically learned addresses to the running configuration.
- D. The network administrator can configure static secure or sticky secure MAC addresses in the voice VLAN.
- E. The network administrator can apply port security to EtherChannels.

**Answer:** BC

#### NEW QUESTION 186

Refer to the exhibit.



```
R1#show ip protocols
Routing Protocols is "eigrp 501"
```

<output omitted>

Routing for Networks:

10.0.0.0

172.17.0.0

Routing Information Services:

Gateway	Distances	Last Update
(this router)	90	00:10:30

10.1.2.2	90	00:10:30
----------	----	----------

Distance: internal 90 external 170

R1#

```
R2#show ip protocols
```

Routing Protocols is "eigrp 501"

<output omitted>

Routing for Networks:

10.0.0.0

172.17.0.0

Routing Information Services:

Gateway	Distances	Last Update
(this router)	90	00:7:10

10.1.2.1	90	00:7:10
----------	----	---------

Distance: internal 90 external 170

R2#

```
R2#show ip route
```

<output omitted>

Gateway of last resort not set

```

      172.17.0.0/16 is subnetted, 4 subnets, 2 masks
C       172.17.6.160/28 is directly connected, FastEthernet0/0
C       172.17.6.144/28 is directly connected, FastEthernet0/1
C       172.17.6.128/28 is directly connected, FastEthernet1/0
D       172.17.0.0/16 is a summary, 00:00:06, Null0
      10.0.0.0/8 is a variable subnetted, 2 subnets, 2 masks
D       10.0.0.0/8 is a summary, 00:00:07, Null0
C       10.1.2.0/30 is directly connected, Serial0/0
R2#
  
```

From R1, a network administrator is able to ping the serial interface of R2 but, unable to ping any of the subnets attached to RouterB. Based on the partial outputs in the exhibit, what could be the problem?

- A. EIGRP does not support VLSM.
- B. The EIGRP network statements are incorrectly configured.
- C. The IP addressing on the serial interface of RouterA is incorrect.
- D. The routing protocol has summarized on the classful boundary.
- E. EIGRP has been configured with an invalid autonomous system number.

**Answer:** D

**Explanation:** If you look carefully at the R2 ip route, you will discover that the R2 does not learn any network from R1; this is because the routing protocol used here (EIGRP) performs auto summary when advertising routes to peers across a network. So in this case the address 172.17.0.0/26 is a summarized address. If the router was configured with no auto summary command, R2 LAN addresses would have been advertised and reached.

#### NEW QUESTION 191

Users have been complaining that their Frame Relay connection to the corporate site is very slow. The network administrator suspects that the link is overloaded. Based on the partial output of the Router # show frame relay pvc command shown in the graphic, which output value indicates to the local router that traffic sent to the corporate site is experiencing congestion?



**PVC Statistics for interface Serial0 (Frame Relay DTE)**

	Active	Inactive	Deleted	Static
Local	1	0	0	0
Switched	0	0	0	0
Unused	0	0	0	0

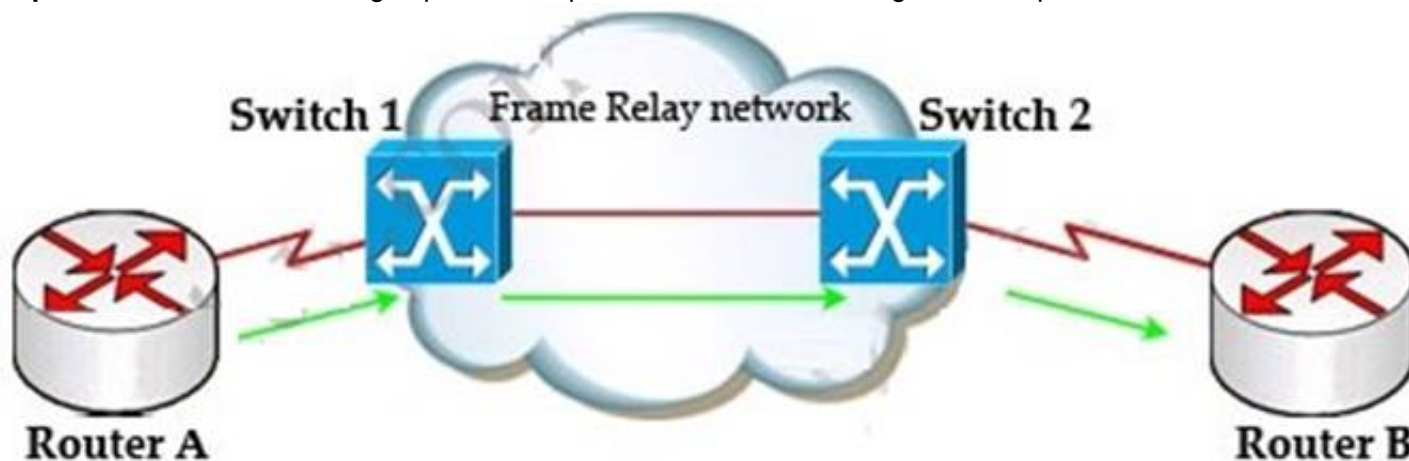
DLCI = 100, DLCI USAGE = LOCAL, PVC STATUS = ACTIVE, INTERFACE = Serial0

input pkts 1300      output pkts 1270      in bytes 22121000  
out bytes 21802000      dropped pkts 4      in FECN pkts 147  
in BECN pkts 192      out FECN pkts 259      out BECN pkts 214  
in DE pkts 0      out DE pkts 0  
out bcst pkts 107      out bcst bytes 19722  
pvc create time 00:25:50, last time pvc status changed 00:25:40

- A. DLCI=100
- B. last time PVC status changed 00:25:40
- C. in BECN packets 192
- D. in FECN packets 147
- E. in DF packets 0

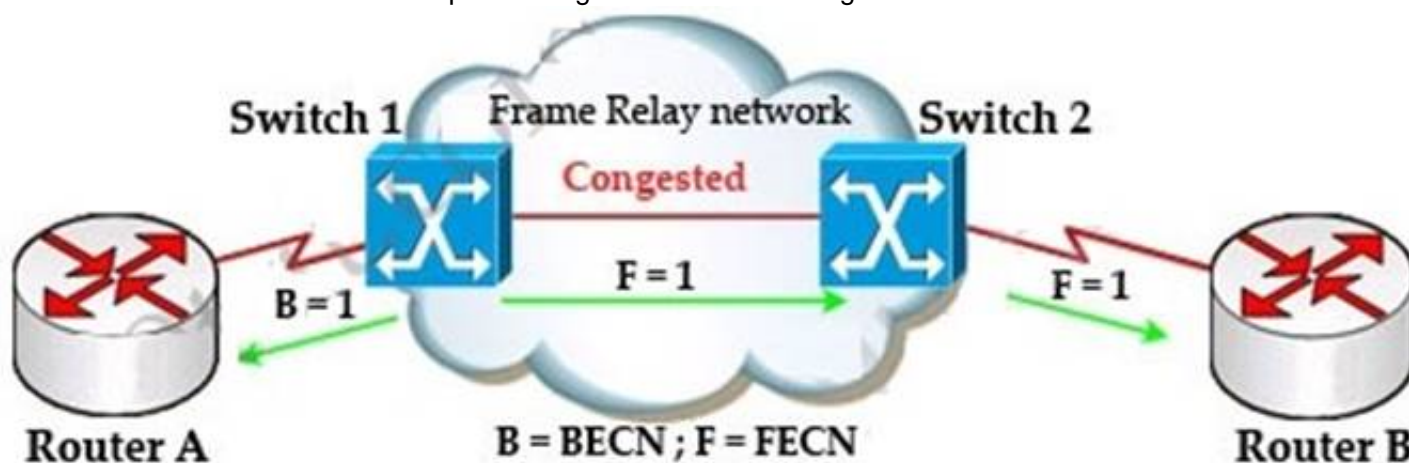
**Answer: C**

**Explanation:** First we should grasp the concept of BECN & FECN through an example:



Suppose Router A wants to send data to Router B through a Frame Relay network. If the network is congested, Switch 1 (a DCE device) will set the FECN bit value of that frame to 1, indicating that frame experienced congestion in the path from source to destination. This frame is forwarded to Switch 2 and to Router B (with the FECN bit = 1).

Switch 1 knows that the network is congesting so it also sends frames back to Router A with BECN bit set to 1 to inform that path through the network is congested.



In general, BECN is used on frames traveling away from the congested area to warn source devices that congestion has occurred on that path while FECN is used to alert receiving devices if the frame experiences congestion.

BECN also informs the transmitting devices to slow down the traffic a bit until the network returns to normal state.

The question asks "which output value indicates to the local router that traffic sent to the corporate site is experiencing congestion" which means it asks about the returned parameter which indicates congestion ->BECN.

**NEW QUESTION 196**

The network administrator has been asked to give reasons for moving from IPv4 to IPv6. What are two valid reasons for adopting IPv6 over IPv4? (Choose two.)

- A. no broadcast
- B. change of source address in the IPv6 header

- C. change of destination address in the IPv6 header
- D. Telnet access does not require a password
- E. autoconfig
- F. NAT

**Answer:** AE

**Explanation:** Six Benefits Of IPv6

<http://www.networkcomputing.com/ipv6/six-benefits-of-ipv6/230500009>

With IPv6, everything from appliances to automobiles can be interconnected. But an increased number of IT addresses isn't the only advantage of IPv6 over IPv4. In honor of World IPv6 Day, here are six more good reasons to make sure your hardware, software, and services support IPv6.

**More Efficient Routing** IPv6 reduces the size of routing tables and makes routing more efficient and hierarchical. IPv6 allows ISPs to aggregate the prefixes of their customers' networks into a single prefix and announce this one prefix to the IPv6 Internet. In addition, in IPv6 networks, fragmentation is handled by the source device, rather than the router, using a protocol for discovery of the path's maximum transmission unit (MTU).

**More Efficient Packet Processing**

IPv6's simplified packet header makes packet processing more efficient. Compared with IPv4, IPv6 contains no IP-level checksum, so the checksum does not need to be recalculated at every router hop. Getting rid of the IP-level checksum was possible because most link-layer technologies already contain checksum and error-control capabilities. In addition, most transport layers, which handle end-to-end connectivity, have a checksum that enables error detection.

**Directed Data Flows** IPv6 supports multicast rather than broadcast. Multicast allows bandwidth-intensive packet flows (like multimedia streams) to be sent to multiple destinations simultaneously, saving network bandwidth.

**Disinterested hosts** no longer must process broadcast packets. In addition, the IPv6 header has a new field, named Flow Label, that can identify packets belonging to the same flow. **Simplified Network Configuration** Address auto-configuration (address assignment) is built in to IPv6. A router will send the prefix of the local link in its router advertisements. A host can generate its own IP address by appending its link-layer (MAC) address, converted into Extended Universal Identifier (EUI) 64-bit format, to the 64 bits of the local link prefix.

**Support For New Services**

By eliminating Network Address Translation (NAT), true end-to-end connectivity at the IP layer is restored, enabling new and valuable services. Peer-to-peer networks are easier to create and maintain, and services such as VoIP and Quality of Service (QoS) become more robust.

**Security** IPsec, which provides confidentiality, authentication and data integrity, is baked into in IPv6. Because of their potential to carry malware, IPv4 ICMP packets are often blocked by corporate firewalls, but ICMPv6, the implementation of the Internet Control Message Protocol for IPv6, may be permitted because IPsec can be applied to the ICMPv6 packets.

#### NEW QUESTION 199

It has become necessary to configure an existing serial interface to accept a second Frame Relay virtual circuit. Which of the following are required to solve this? (Choose three)

- A. configure static frame relay map entries for each subinterface network.
- B. remove the ip address from the physical interface
- C. create the virtual interfaces with the interface command
- D. configure each subinterface with its own IP address
- E. disable split horizon to prevent routing loops between the subinterface networks
- F. encapsulate the physical interface with multipoint PPP

**Answer:** BCD

**Explanation:** How To Configure Frame Relay Subinterfaces

<http://www.orbit-computer-solutions.com/How-To-Configure-Frame-Relay-Subinterfaces.php>

Step to configure Frame Relay subinterfaces on a physical interface:

1. Remove any network layer address (IP) assigned to the physical interface. If the physical interface has an address, frames are not received by the local subinterfaces.
2. Configure Frame Relay encapsulation on the physical interface using the encapsulation frame-relay command.
3. For each of the defined PVCs, create a logical subinterface. Specify the port number, followed by a period (.) and the subinterface number. To make troubleshooting easier, it is suggested that the subinterface number matches the DLCI number.
4. Configure an IP address for the interface and set the bandwidth.
5. Configure the local DLCI on the subinterface using the frame-relay interface-dlci command.

Configuration Example: R1>enable R1#configure terminal

R1(config)#interface serial 0/0/0 R1(config-if)#no ip address

R1(config-if)#encapsulation frame-relay R1(config-if)#no shutdown

R1(config-if)#exit

R1(config-subif)#interface serial 0/0/0.102 point-to-point

R1(config-subif)#ip address 192.168.1.245 255.255.255.252

R1(config-subif)#frame-relay interface-dlci 102 R1(config-subif)#end

R1#copy running-config startup-config

#### NEW QUESTION 202

In the Frame Relay network, which IP addresses would be assigned to the interfaces with point-to-point PVCs?

- A. DLCI 16 192.168.10.1/24 DLCI 17 192.168.10.1/24 DLCI 99 192.168.10.2/24 DLCI 28 192.168.10.3/24
- B. DLCI 16 192.168.10.1/24 DLCI 17 192.168.11.1/24 DLCI 99 192.168.12.1/24 DLCI 28 192.168.13.1/24
- C. DLCI 16 192.168.10.1/24 DLCI 17 192.168.11.1/24 DLCI 99 192.168.10.2/24 DLCI 28 192.168.11.2/24
- D. DLCI 16 192.168.10.1/24 DLCI 17 192.168.10.2/24 DLCI 99 192.168.10.3/24 DLCI 28 192.168.10.4/24

**Answer:** C

**Explanation:** DLCI 16 and DLCI 19 need to act like a point-to-point link and will therefore need to be on the same network as will DLCI 17 and DLCI 28. With this information we can see that option "B" is the only option that has the corresponding DLCI's on the same network based on the ip addresses and subnetmask. Option "D" is incorrect because, this would put the same network on both interfaces of the R2 router. Option "A" is similar.

**NEW QUESTION 204**

Refer to the exhibit.

```
R1# show frame-relay map
Serial0/0 (up): ip 172.16.3.1 dlci 100 (0x64, 0x1840), dynamic
                broadcast,, status defined, active
```

What is the meaning of the term dynamic as displayed in the output of the show frame- relay map command shown?

- A. The Serial0/0 interface is passing traffic.
- B. The DLCI 100 was dynamically allocated by the router
- C. The Serial0/0 interface acquired the IP address of 172.16.3.1 from a DHCP server
- D. The DLCI 100 will be dynamically changed as required to adapt to changes in the Frame Relay cloud
- E. The mapping between DLCI 100 and the end station IP address 172.16.3.1 was learned through Inverse ARP

**Answer:** E

**Explanation:** The term dynamic indicates that the DLCI number and the remote router IP address 172.16.3.1 are learned via the Inverse ARP process.

Inverse ARP is a technique by which dynamic mappings are constructed in a network, allowing a device such as a router to locate the logical network address and associate it with a permanent virtual circuit (PVC).

**NEW QUESTION 205**

A router receives information about network 192.168.10.0/24 from multiple sources. What will the router consider the most reliable information about the path to that network?

- A. an OSPF update for network 192.168.0.0/16
- B. a static route to network 192.168.10.0/24
- C. a static route to network 192.168.10.0/24 with a local serial interface configured as the next hop
- D. a RIP update for network 192.168.10.0/24
- E. a directly connected interface with an address of 192.168.10.254/24
- F. a default route with a next hop address of 192.168.10.1

**Answer:** E

**Explanation:** What Is Administrative Distance? [http://www.cisco.com/en/US/tech/tk365/technologies\\_tech\\_note09186a0080094195.shtml](http://www.cisco.com/en/US/tech/tk365/technologies_tech_note09186a0080094195.shtml)

Select the Best Path

Administrative distance is the first criterion that a router uses to determine which routing protocol to use if two protocols provide route information for the same destination. Administrative distance is a measure of the trustworthiness of the source of the routing information. Administrative distance has only local significance, and is not advertised in routing updates.

Note: The smaller the administrative distance value, the more reliable the protocol. For example, if a router receives a route to a certain network from both Open Shortest Path First (OSPF) (default administrative distance - 110) and Interior Gateway Routing Protocol (IGRP) (default administrative distance - 100), the router chooses IGRP because IGRP is more reliable. This means the router adds the IGRP version of the route to the routing table.



Route Source	Default Distance Values
Connected interface	0
Static route	1
Enhanced Interior Gateway Routing Protocol (EIGRP) summary route	5
External Border Gateway Protocol (BGP)	20
Internal EIGRP	90
IGRP	100
OSPF	110
Intermediate System-to-Intermediate System (IS-IS)	115
Routing Information Protocol (RIP)	120
Exterior Gateway Protocol (EGP)	140
On Demand Routing (ODR)	160
External EIGRP	170
Internal BGP	200
Unknown*	255

#### NEW QUESTION 206

Refer to the exhibit.

```
AcmeB# show ip route
      |
      |
```

Gateway of last resort is not set

192.168.3.0/28 is variably subnetted, 6 subnets

- D 192.168.3.64 [90/20625671] via 192.168.0.6, 03:17:05, Serial0/0/1
- D 192.168.3.80 [90/20625671] via 192.168.0.6, 03:17:05, Serial0/1
- D 192.168.3.32 [90/20625671] via 192.168.9.2, 03:17:05, Serial0/0
- D 192.168.3.48 [90/20625671] via 192.168.9.2, 03:17:05, Serial0/0
- D 192.168.3.0 [90/30830] via 192.168.2.10, 03:17:05, FastEthernet0/0
- D 192.168.3.16 [90/175250] via 192.168.2.10, 03:17:06, FastEthernet0/0

192.168.9.0/30 is subnetted, 1 subnets

- C 192.168.9.0 is directly connected, Serial0/0

192.168.0.0/30 is subnetted, 1 subnets

- C 192.168.0.4 is directly connected, Serial0/1

192.168.2.0/30 is subnetted, 1 subnets

- C 192.168.2.8 is directly connected, FastEthernet0/0

AcmeB#

A packet with a source IP address of 192.168.2.4 and a destination IP address of 10.1.1.4 arrives at the AcmeB router. What action does the router take?

- A. forwards the received packet out the Serial0/0 interface
- B. forwards a packet containing an EIGRP advertisement out the Serial0/1 interface
- C. forwards a packet containing an ICMP message out the FastEthernet0/0 interface
- D. forwards a packet containing an ARP request out the FastEthernet0/1 interface

**Answer: C**

**Explanation:** CCNA - EIGRP Common Question

<http://www.orbitco-ccna-pastquestions.com/CCNA---EIGRP-Common-Question.php>

Looking at the output above, there is no IP route for 10.1.1.4 address on AcmeB routing table. If the router can no find a specific path in its routing table to a particular route,( In this case no path is found so AcmeB) the router will inform the source host with an ICMP message that the destination is unreachable and this will be through the same interface it has received the packet (interface Fa0/0 network 192.168.3.0/28 from the exhibit).

#### NEW QUESTION 211

What Netflow component can be applied to an interface to track IPv4 traffic?

- A. flow monitor
- B. flow record
- C. flow sampler
- D. flow exporter

**Answer:** A

#### NEW QUESTION 216

What is the purpose of LCP?

- A. to perform authentication
- B. to negotiate control options
- C. to encapsulate multiple protocols
- D. to specify asynchronous versus synchronous

**Answer:** B

**Explanation:** Link Control Protocol

<http://www.ietf.org/rfc/rfc1661.txt>

In order to be sufficiently versatile to be portable to a wide variety of environments, PPP provides a Link Control Protocol (LCP). The LCP is used to automatically agree upon the encapsulation format options, handle varying limits on sizes of packets, detect a looped-back link and other common misconfiguration errors, and terminate the link. Other optional facilities provided are authentication of the identity of its peer on the link, and determination when a link is functioning properly and when it is failing.

#### NEW QUESTION 221

What is a valid HSRP virtual MAC address?

- A. 0000.5E00.01A3
- B. 0007.B400.AE01
- C. 0000.0C07.AC15
- D. 0007.5E00.B301

**Answer:** C

**Explanation:** Hot Standby Router Protocol Features and Functionality [http://www.cisco.com/en/US/tech/tk648/tk362/technologies\\_tech\\_note09186a0080094a91.shtml](http://www.cisco.com/en/US/tech/tk648/tk362/technologies_tech_note09186a0080094a91.shtml)

HSRP Addressing

In most cases when you configure routers to be part of an HSRP group, they listen for the HSRP MAC address for that group as well as their own burned-in MAC address. The exception is routers whose Ethernet controllers only recognize a single MAC address (for example, the Lance controller on the Cisco 2500 and Cisco 4500 routers). These routers use the HSRP MAC address when they are the Active router, and their burned-in address when they are not.

HSRP uses the following MAC address on all media except Token Ring: 0000.0c07.ac\*\* (where \*\* is the HSRP group number)

#### NEW QUESTION 223

What are the benefit of using Netflow? (Choose three.)

- A. Network, Application & User Monitoring
- B. Network Planning
- C. Security Analysis
- D. Accounting/Billing

**Answer:** ACD

**Explanation:** NetFlow traditionally enables several key customer applications including:

Network Monitoring—NetFlow data enables extensive near real time network monitoring capabilities. Flowbased analysis techniques may be utilized to visualize traffic patterns associated with individual routers and switches as well as on a network-wide basis (providing aggregate traffic or application based views) to provide proactive problem detection, efficient troubleshooting, and rapid problem resolution.

Application Monitoring and Profiling—NetFlow data enables network managers to gain a detailed, timebased, view of application usage over the network. This information is used to plan, understand new services, and allocate network and application resources (e.g. Web server sizing and VoIP deployment) to responsively meet customer demands.

User Monitoring and Profiling—NetFlow data enables network engineers to gain detailed understanding of customer/user utilization of network and application resources. This information may then be utilized to efficiently plan and allocate access, backbone and application resources as well as to detect and resolve potential security and policy violations.

Network Planning—NetFlow can be used to capture data over a long period of time producing the opportunity to track and anticipate network growth and plan upgrades to increase the number of routing devices, ports, or higher- bandwidth interfaces. NetFlow services data optimizes network planning including peering, backbone upgrade planning, and routing policy planning. NetFlow helps to minimize the total cost of network operations while maximizing network performance, capacity, and reliability. NetFlow detects unwanted WAN traffic, validates bandwidth and Quality of Service (QOS) and allows the analysis of new network applications.

NetFlow will give you valuable information to reduce the cost of operating your network. Security Analysis—NetFlow identifies and classifies DDOS attacks, viruses and worms in

real-time. Changes in network behavior indicate anomalies that are clearly demonstrated in NetFlow data. The data is also a valuable forensic tool to understand and replay the history of security incidents.

Accounting/Billing—NetFlow data provides fine-grained metering (e.g. flow data includes details such as IP addresses, packet and byte counts, timestamps, type-of-service and application ports, etc.) for highly flexible and detailed resource utilization accounting. Service providers may utilize the information for billing based on time-of-day, bandwidth usage, application usage, quality of service, etc. Enterprise customers may utilize the information for departmental charge-back or cost allocation for resource utilization.

NetFlow Data Warehousing and Data Mining—NetFlow data (or derived information) can be warehoused for later retrieval and analysis in support of proactive marketing and customerservice programs (e.g. figure out which applications and services are being utilized by internal and external users and target them for improved service, advertising, etc.). In addition, NetFlow data gives Market Researchers access to the "who", "what", "where", and "how long" information relevant

to enterprises and service providers.

**NEW QUESTION 227**

Which of these represents an IPv6 link-local address?

- A. FE80::380e:611a:e14f:3d69
- B. FE81::280f:512b:e14f:3d69
- C. FEFE:0345:5f1b::e14d:3d69
- D. FE08::280e:611a:f14f:3d69

**Answer:** A

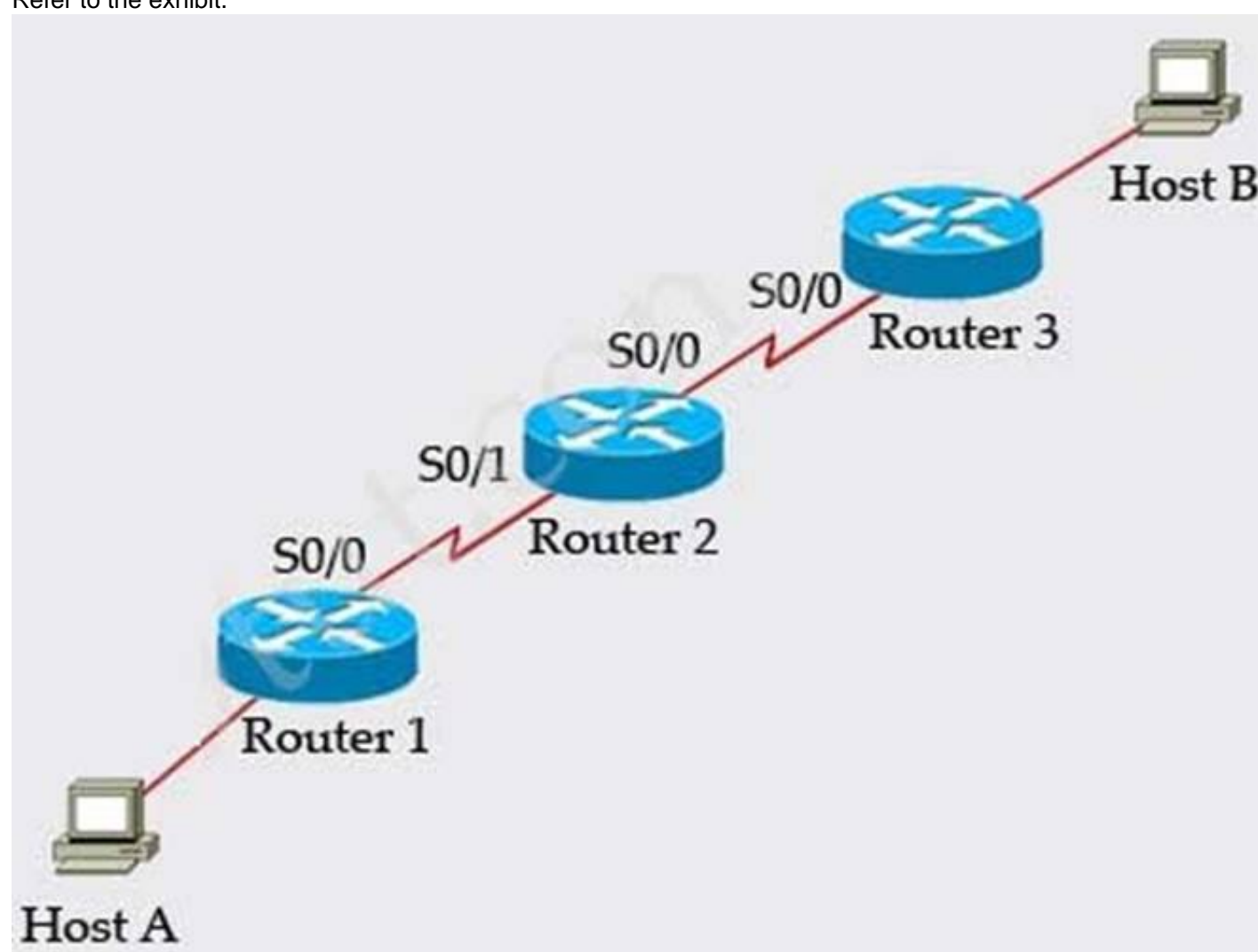
**Explanation:** Understanding IPv6 Link Local Address Reference:

[http://www.cisco.com/en/US/tech/tk872/technologies\\_configuration\\_example09186a0080b\\_a1d07.shtml](http://www.cisco.com/en/US/tech/tk872/technologies_configuration_example09186a0080b_a1d07.shtml)

The purpose of this document is to provide an understanding of IPv6 Link-local address in a network. A linklocal address is an IPv6 unicast address that can be automatically configured on any interface using the linklocal prefix FE80::/10 (1111 1110 10) and the interface identifier in the modified EUI-64 format. Link-local addresses are not necessarily bound to the MAC address (configured in a EUI-64 format). Link-local addresses can also be manually configured in the FE80::/10 format using the ipv6 address link-local command.

**NEW QUESTION 228**

Refer to the exhibit.



Host A pings interface S0/0 on router 3, what is the TTL value for that ping?

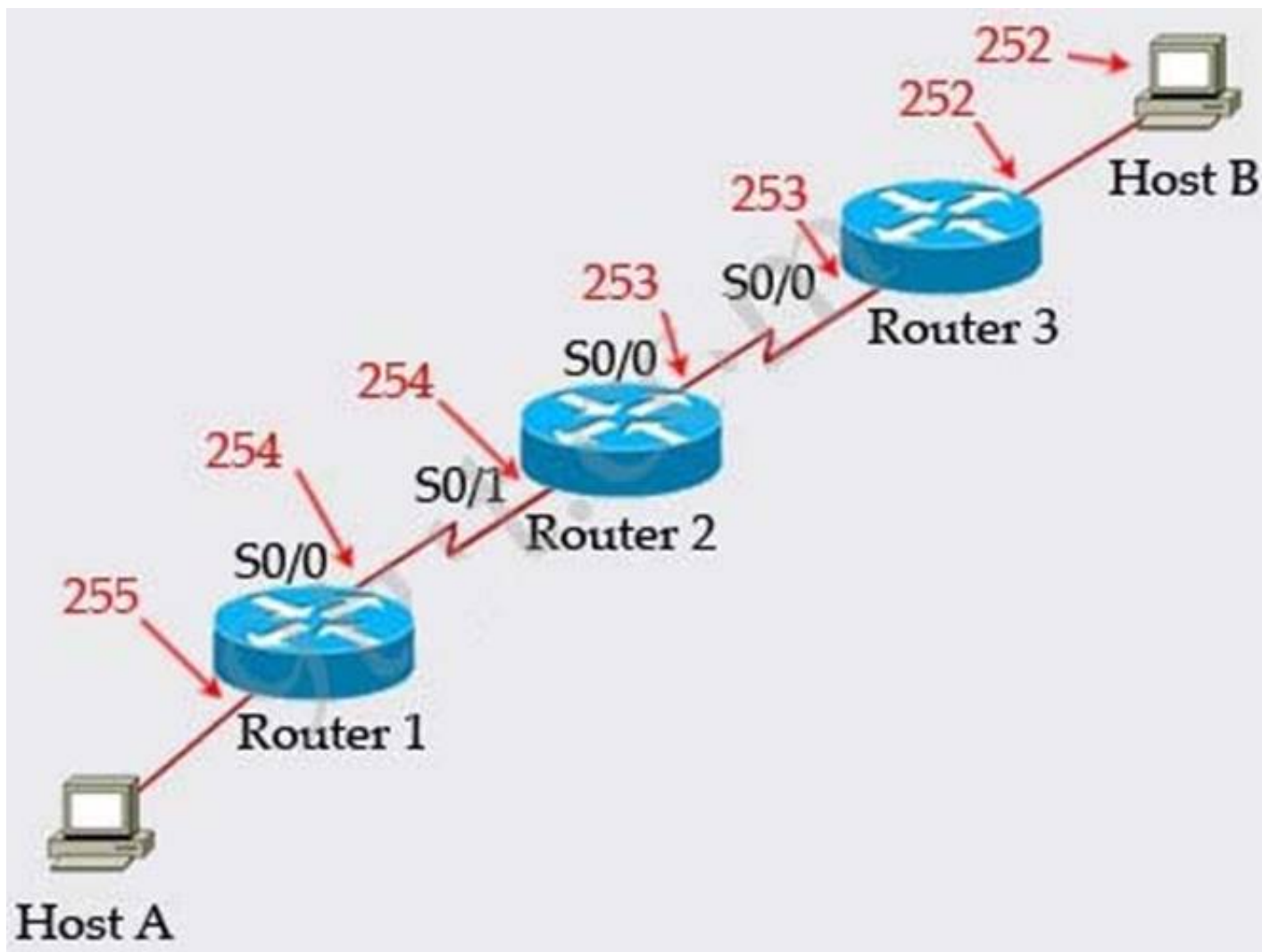
- A. 253
- B. 252
- C. 255
- D. 254

**Answer:** A

**Explanation:** From the CCNA ICND2 Exam book: "Routers decrement the TTL by 1 every time they forward a packet; if a router decrements the TTL to 0, it throws away the packet. This prevents packets from rotating forever." I want to make it clear that before the router forwards a packet, the TTL is still remain the same. For example in the topology above, pings to S0/1 and S0/0 of Router 2 have the same TTL.

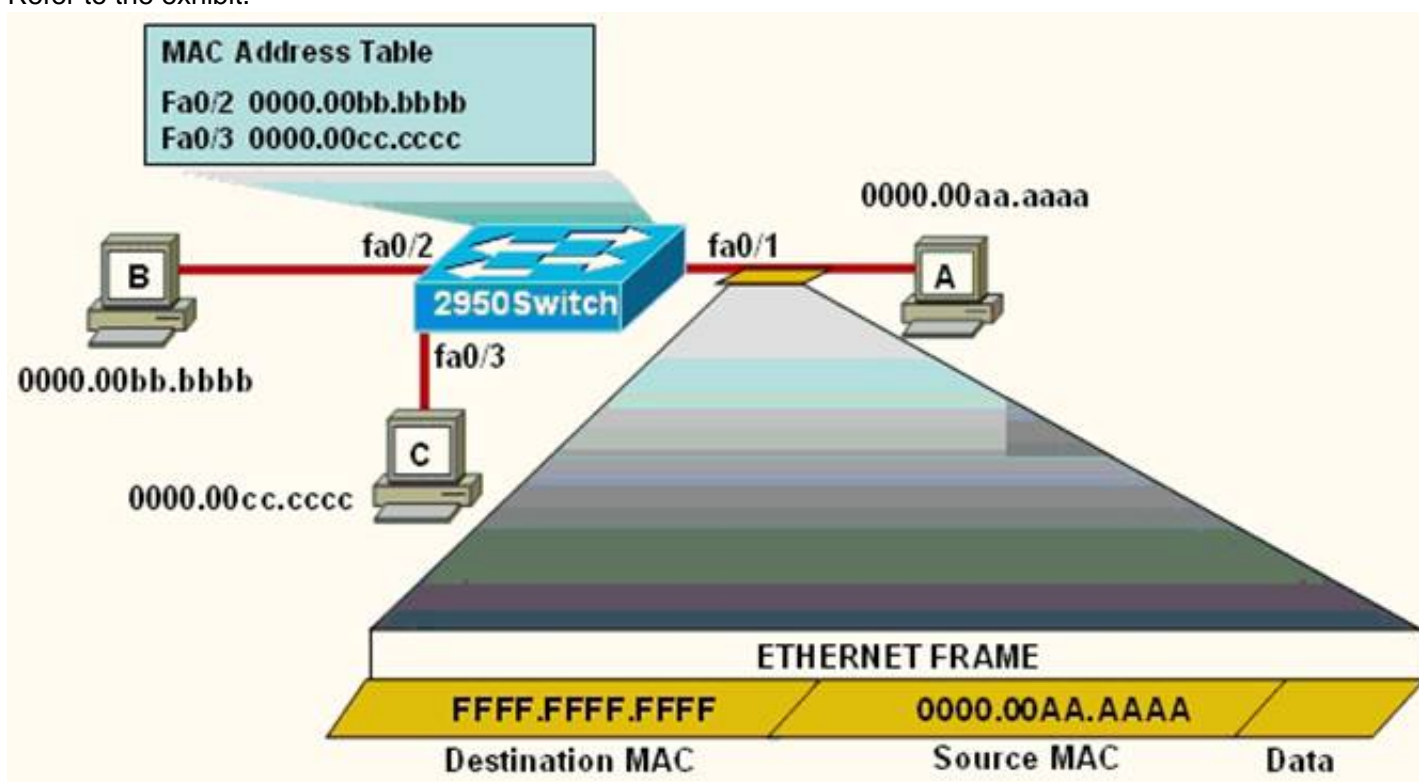
The picture below shows TTL values for each interface of each router and for Host B. Notice that Host A initializes ICMP packet with a TTL of 255:





#### NEW QUESTION 231

Refer to the exhibit.



The following commands are executed on interface fa0/1 of 2950Switch.

```
2950Switch(config-if)# switchport port-security
2950Switch(config-if)# switchport port-security mac-address sticky
2950Switch(config-if)# switchport port-security maximum 1
```

The Ethernet frame that is shown arrives on interface fa0/1. What two functions will occur when this frame is received by 2950Switch? (Choose two.)

- A. The MAC address table will now have an additional entry of fa0/1 FFFF.FFFF.FFFF.
- B. Only host A will be allowed to transmit frames on fa0/1.
- C. This frame will be discarded when it is received by 2950Switch.
- D. All frames arriving on 2950Switch with a destination of 0000.00aa.aaaa will be forwarded out fa0/1.
- E. Hosts B and C may forward frames out fa0/1 but frames arriving from other switches will not be forwarded out fa0/1.
- F. Only frames from source 0000.00bb.bbbb, the first learned MAC address of 2950Switch, will be forwarded out fa0/1.

**Answer: BD**

#### NEW QUESTION 233

A network administrator is troubleshooting an EIGRP problem on a router and needs to confirm the IP addresses of the devices with which the router has established adjacency.

The retransmit interval and the queue counts for the adjacent routers also need to be checked. What command will display the required information?

- A. Router# show ip eigrp adjacency
- B. Router# show ip eigrp topology
- C. Router#show ip eigrp interfaces
- D. Router#show ip eigrp neighbors

Answer: D

**Explanation:** Implementing EIGRP

<http://www.ciscopress.com/articles/article.asp?p=1171169&seqNum=3>

Below is an example of the show ip eigrp neighbors command. The retransmit interval (Smooth Round Trip Timer – SRTT) and the queue counts (Q count, which shows the number of queued EIGRP packets) for the adjacent routers are listed:

R1#show ip eigrp neighbors

IP-EIGRP neighbors for process 1

H Address Interface Hold Uptime SRTT RTO Q Seq (sec) (ms) Cnt Num 0 10.10.10.2 Fa0/0 12 00:00:39 1282 5000 0 3

#### NEW QUESTION 236

CORRECT TEXT

**Instructions**

To configure the router (**Gotha**) click on the console host icon that is connected to a router by a serial console cable (shown in the diagram as a dashed black line).

You can click on the buttons below to view the different windows.

Each of the windows can be minimized by clicking on the [ ]. You can also reposition a window by dragging it by the title bar.

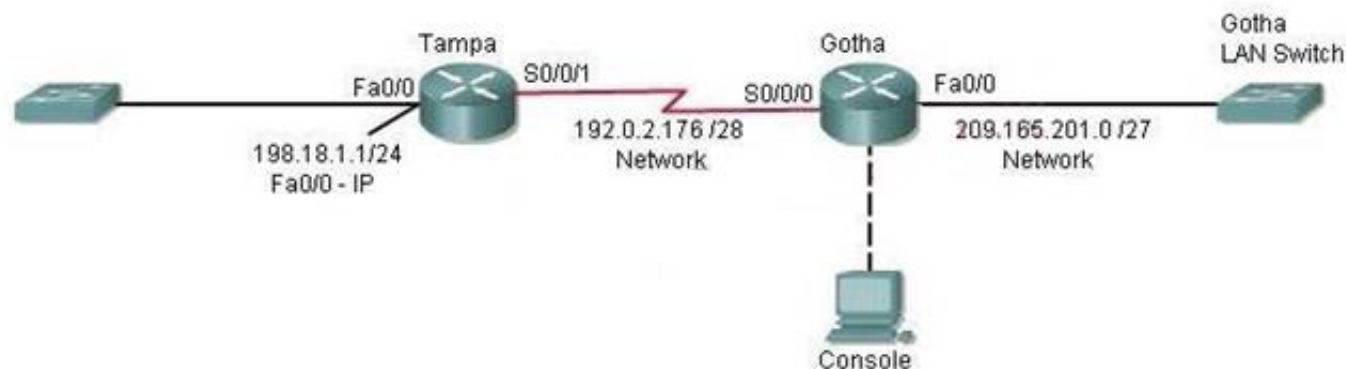
The "Tab" key and most commands that use the "Control" or "Escape" keys are not supported and are not necessary to complete this simulation. The **help** command does not display all commands of the help system.

**Scenario**

Central Florida Widgets recently installed a new router in their Gotha office. Complete the network installation by performing the initial router configurations and configuring RIPv2 routing using the router command line interface (CLI) on the Gotha router.

Configure the router per the following requirements:

Name of the router is **Gotha**  
 Enable-secret password is **mi222ke**  
 The password to access user EXEC mode using the console is **G8tors1**  
 The password to allow telnet access to the router is **dun63lap**  
 IPv4 addresses must be configured as follows:  
     Ethernet network **209.165.201.0 /27** - router has **fourth** assignable host address in subnet.  
     Serial network is **192.0.2.176 /28** - router has **last** assignable host address in the subnet.  
 Interfaces should be enabled.  
 Routing protocol is **RIPv2**.



Attention:

In practical examinations, please note the following, the actual information will prevail.

1. Name of the router is xxx
2. Enable secret password is xxx
3. Password In access user EXEC mode using the console is xxx
4. The password to allow telnet access to the router is xxx
5. IP information

**Answer:**

**Explanation:** Router#config terminal  
Router(config)#hostname Gotha  
Gotha(config)#enable secret mi222ke  
Gotha(config)#line console 0  
Gotha(config-line)#password G8tors1  
Gotha(config-line)#exit  
Gotha(config)#line vty 0 4  
Gotha(config-line)#password dun63lap  
Gotha(config-line)#login  
Gotha(config-line)#exit  
Gotha(config)#interface fa0/0  
Gotha(config-if)#no shutdown  
Gotha(config-if)#ip address 209.165.201.4 255.255.255.224  
Gotha(config)#interface s0/0/0  
Gotha(config-if)#ip address 192.0.2.190 255.255.255.240  
Gotha(config-if)#no shutdown  
Gotha(config-if)#exit  
Gotha(config)#router rip  
Gotha(config-router)#version 2  
Gotha(config-router)#network 209.165.201.0  
Gotha(config-router)#network 192.0.2.176  
Gotha(config-router)#end  
Gotha#copy running-config startup-config

**NEW QUESTION 241**

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