Routing and Switching Essentials (Version 6.00) - RSE 6.0 Chapter 4 Exam

Below is the feedback on items for which you did not receive full credit. Some interactive items may not display your response.

Subscore: Domain Knowledge - Standard Score

1 A network designer must provide a rationale to a customer for a design which will move an enterprise from a flat network topology to a hierarchical network topology. Which two features of the hierarchical design make it the better choice? (Choose two.)

Correct Response	Your Response	
✓	☐	simpler deployment for additional switch equipment
	☑	lower bandwidth requirements
✓	☑	easier to provide redundant links to ensure higher availability
	☐	less required equipment to provide the same performance levels
	☐	reduced cost for equipment and user training

A hierarchical design for switches helps network administrators when planning and deploying a network expansion, performing fault isolation when a problem occurs, and providing resiliency when traffic levels are high. A good hierarchical design has redundancy when it can be afforded so that one switch does not cause all networks to be down.

This item references content from the following areas:

Routing and Switching Essentials

4.1.1 Converged Networks

2 What is a collapsed core in a network design?

Correct Response	Your Response	
✓	○	a combination of the functionality of the distribution and core layers
	○	a combination of the functionality of the access and core layers
	◉	a combination of the functionality of the access and distribution layers
	○	a combination of the functionality of the access, distribution, and core layers

A collapsed core design is appropriate for a small, single building business. This type of design uses two layers (the collapsed core and distribution layers consolidated into one layer and the access layer). Larger businesses use the traditional three-tier switch design model.

This item references content from the following areas:

Routing and Switching Essentials

4.1.1 Converged Networks

3 What is a definition of a two-tier LAN network design?

Correct Response	Your Response	
	○	access, distribution, and core layers collapsed into one tier, with a separate backbone layer
	○	access and core layers collapsed into one tier, and the distribution layer on a separate tier
✓	○	distribution and core layers collapsed into one tier, and the access layer on a separate tier
	◉	access and distribution layers collapsed into one tier, and the core layer on a separate tier

Maintaining three separate network tiers is not always required or cost-efficient. All network designs require an access layer, but a two-tier design can collapse the distribution and core layers into one layer to serve the needs of a small location with few users.

This item references content from the following areas:

Routing and Switching Essentials

4.1.1 Converged Networks

4 What is a basic function of the Cisco Borderless Architecture distribution layer?

Correct Response **Your Response**

- ◯ acting as a backbone
- ◉ providing access to end user devices
- ✔ ◯ aggregating Layer 3 routing boundaries
- ◯ aggregating all the campus blocks

One of the basic functions of the distribution layer of the Cisco Borderless Architecture is to perform routing between different VLANs. Acting as a backbone and aggregating campus blocks are functions of the core layer. Providing access to end user devices is a function of the access layer.

This item references content from the following areas:

Routing and Switching Essentials

4.1.1 Converged Networks

8 What are two advantages of modular switches over fixed-configuration switches? (Choose two.)

Correct Response **Your Response**

- [x] lower cost per switch
- [x] increased scalability
- [ ] lower forwarding rates
- [ ] availability of multiple ports for bandwidth aggregation
- [ ] need for fewer power outlets

Fixed-configuration switches, although lower in price, have a designated number of ports and no ability to add ports. They also typically provide fewer high-speed ports. In order to scale switching on a network that consists of fixed-configuration switches, more switches need to be purchased. This increases the number of power outlets that need to be used. Modular switches can be scaled simply by purchasing additional line cards. Bandwidth aggregation is also easier, because the backplane of the chassis can provide the bandwidth that is needed for the switch port line cards.

This item references content from the following areas:

Routing and Switching Essentials

4.1.2 Switched Networks

9 Which type of address does a switch use to build the MAC address table?

Correct Response	Your Response	
✓	○	source MAC address
	○	destination IP address
	◉	destination MAC address
	○	source IP address

When a switch receives a frame with a source MAC address that is not in the MAC address table, the switch will add that MAC address to the table and map that address to a specific port. Switches do not use IP addressing in the MAC address table.

This item references content from the following areas:

Routing and Switching Essentials

4.2.1 Frame Forwarding

10 Which network device can be used to eliminate collisions on an Ethernet network?

Correct Response	Your Response	
✔	○	switch
	◉	router
	○	hub
	○	firewall

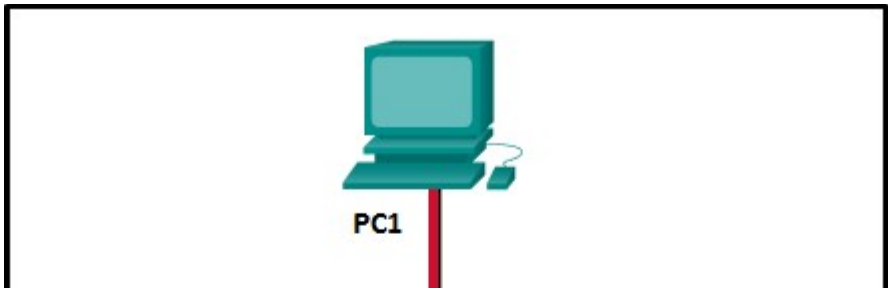
A switch provides microsegmentation so that no other device competes for the same Ethernet network bandwidth.

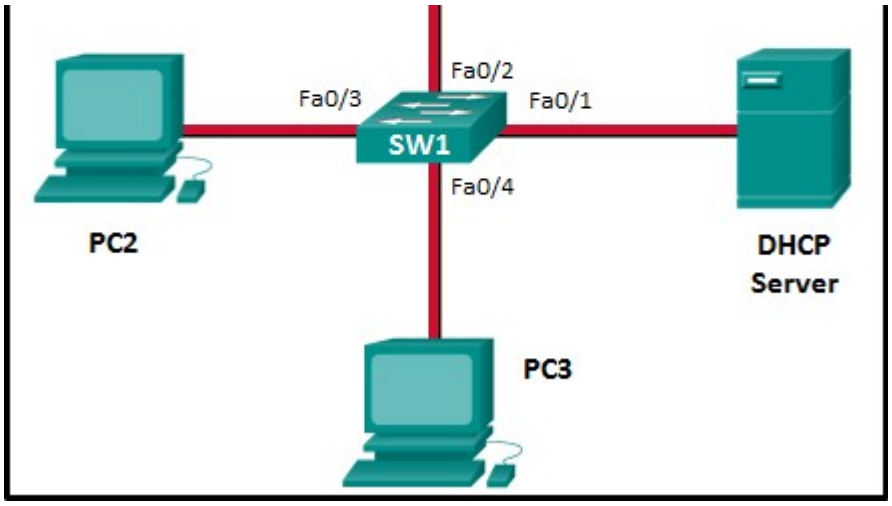
This item references content from the following areas:

Routing and Switching Essentials

4.2.1 Frame Forwarding

12





Correct Response	Your Response	
	○	to Fa0/1 only
	◉	to Fa0/1, Fa0/2, Fa0/3, and Fa0/4
	○	to Fa0/1 and Fa0/2 only
	○	to Fa0/1, Fa0/2, and Fa0/4 only
✓	○	to Fa0/1, Fa0/2, and Fa0/3 only

Because this is a broadcast frame, SW1 will send it to all ports except to the ingress one (the port in which the request was received).

This item references content from the following areas:

Routing and Switching Essentials

4.2.1 Frame Forwarding

13 What is one function of a Layer 2 switch?

Correct Response	Your Response	
	◯	duplicates the electrical signal of each frame to every port
✔	◯	determines which interface is used to forward a frame based on the destination MAC address
	◉	forwards data based on logical addressing
	◯	learns the port assigned to a host by examining the destination MAC address

A switch builds a MAC address table of MAC addresses and associated port numbers by examining the source MAC address found in inbound frames. To forward a frame onward, the switch examines the destination MAC address, looks in the MAC address for a port number associated with that destination MAC address, and sends it to the specific port. If the destination MAC address is not in the table, the switch forwards the frame out all ports except the inbound port that originated the frame.

This item references content from the following areas:

Routing and Switching Essentials

4.2.1 Frame Forwarding

17 Which solution would help a college alleviate network congestion due to collisions?

Correct Response	Your Response	
	◯	a firewall that connects to two Internet providers
	◉	a router with two Ethernet ports
✔	◯	a high port density switch
	◯	a router with three Ethernet ports

Switches provide microsegmentation so that one device does not compete for the same Ethernet network bandwidth with another network device, thus practically eliminating collisions. A high port density switch provides very fast connectivity for many devices.

This item references content from the following areas:

Routing and Switching Essentials

4.2.2 Switching Domains

19 What is the destination address in the header of a broadcast frame?

Correct Response **Your Response**

- (●) 11-11-11-11-11-11
- ( ) 0.0.0.0
- ✔ ( ) FF-FF-FF-FF-FF-FF
- ( ) 255.255.255.255

In a Layer 2 broadcast frame, the destination MAC address (contained in the frame header) is set to all binary ones, therefore, the format of FF-FF-FF-FF-FF-FF. The binary format of 11 in hexadecimal is 00010001. 255.255.255.255 and 0.0.0.0 are IP addresses.

This item references content from the following areas:

Routing and Switching Essentials

4.2.2 Switching Domains

What are two reasons a network administrator would segment a network with a Layer 2 switch? (Choose two.)

Correct Response	Your Response	
	☐	to create more broadcast domains
✔	☐	to enhance user bandwidth
	☑	to isolate ARP request messages from the rest of the network
	☐	to eliminate virtual circuits
✔	☑	to isolate traffic between segments
	☐	to create fewer collision domains

A switch has the ability of creating temporary point-to-point connections between the directly-attached transmitting and receiving network devices. The two devices have full-bandwidth full-duplex connectivity during the transmission.

This item references content from the following areas:

Routing and Switching Essentials

4.2.2 Switching Domains

24 Question as presented:

Match the functions to the corresponding layers. (Not all options are used.)

provides high-speed backbone connectivity

implements personal firewalls on the client computers

provides network access to the user

implements network access policy

represents the network edge

establishes Layer 3 routing boundaries

functions as an aggregator for all the campus blocks

distribution layer

Target

Target

core layer

Target

Target

This item references content from the following areas:

Routing and Switching Essentials

4.1.1 Converged Networks

Your response:

provides high-speed backbone connectivity

implements personal firewalls on the client computers

provides network access to the user

implements network access policy

represents the network edge

establishes Layer 3 routing boundaries

functions as an aggregator for all the campus blocks

access layer

- provides network access to the user
- represents the network edge

distribution layer

- functions as an aggregator for all the campus blocks
- implements network access policy

core layer

25 Question as presented:

Match the forwarding characteristic to its type. (Not all options are used.)

appropriate for high performance computing applications

error checking before forwarding

forwarding process can begin after receiving the destination address

forwarding process only begins after receiving the entire frame

may forward invalid frames

only forwards valid frames

cut-through

Target

Target

Target

store-and-forward

This item references content from the following areas:

Routing and Switching Essentials

4.2.1 Frame Forwarding

Your response:

Match the forwarding characteristic to its type. (Not all options are used.)

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cut-through

- forwarding process only begins after receiving the entire frame
- may forward invalid frames
- appropriate for high performance computing applications

only forwards valid frames