

CCNA 3 Group Lab Deliverables

Name _____

Reference Labs	Required	Remark (Done/Not done)
Page 3.5.2.1 Note: <ul style="list-style-type: none"> ▪ PT activity on page 3.5.2.2 serves as a good practice for this activity. PT on page 3.5.1.2 is a guided PT lab. 	Checkpoint 1 (Task 4, Step 8): Verify that S1, S2, and S3 can communicate.	
	Checkpoint 2 (Task 4, Step 11): Upon changing the IP address on PC1 to 192.168.20.21, PC1 should successfully ping PC2.	
	Checkpoint 3: Allow instructor to view running config after completing task 5.	
Page 4.4.2.1 <ul style="list-style-type: none"> ▪ PT activity on page 4.4.1.2 serves as a good practice for this activity. PT on page 4.4.1.2 is a guided PT lab. 	Checkpoint 1 (Task 4, Step 6): Show that the VLANs created on S1 have been distributed to S2 and S3.	
	Checkpoint 2 (Task 4, Step 7): S1, S2 and S3 should be able to ping each other.	
	Checkpoint 3: (Task 4, Step 9) Pings from hosts on the same VLAN should be successful.	
Page 5.5.2.1 PT activity on page 5.5.1.2 serves as a good practice for this activity. PT on page 5.5.2.2 is a guided PT lab.	Checkpoint 1 (Task 5, Step 2): Provide the answers on the questions on step 2 of task 5.	
	Checkpoint 2 (Task 6): Capture the output on the debug spanning-tree event on a notepad. Identify the states undergone by STP.	
	Checkpoint 3 (Task 9): Capture the output on the debug spanning-tree event on a notepad to verify RSTP processes	
Page 6.4.2.1 <ul style="list-style-type: none"> ▪ PT activity on page 6.4.2.2 serves as a good practice for this activity. PT on page 6.4.1.2 is a guided PT lab. 	Checkpoint (Task 5, Step 6): From PC1, verify that you can ping the remote server and the other two hosts. It may take a couple of pings before the end-to-end path is established.	

Page 7.5.2.1 ▪ PT activity on page 7.5.2.2 serves as a good practice for this activity. Activity 7.5.1.1 is a guided lab.	Checkpoint 1 (Task 12, Step 6): Verify that R1 has routes to PC3 and PC6 and that it can successfully ping them. Verify that PC3 and PC6 can ping the loopback of R1. Verify that PC3 and PC6 can ping each other. Verify that PC3 and PC6 can ping PC1 and PC2.	
	Checkpoint 2 (Task 3): Traceroute output of 172.17.30.26 on the Linksys router should be complete.	
	Checkpoint 3 (Task 14): Verify output on the show port-security address on step 4 of task 14.	

CCNA 3 Grading Criteria

- On line module exams: 10%
- Student Notes: 10%
- On-line finals: 15%
- Packet Tracer Exams: 20%
- Lab Deliverables: 25%
- Student Packet Tracer Project: 20%
- Instructor's Incentive: 10%
- Passing: 70%**

Course Schedule: (subject to change)

Date	Activities
September 30	Chapter 1 Discussion
October 2	Chapter 2 Discussion; Switch and Router Password Recovery
October 7	Chapter 3 Discussion; VLAN PT Lab
October 9	Chapter 4 Discussion; VTP PT Lab
October 14	Chapter 6 Discussion; Inter-VLAN PT Lab
October 16	Chapter 7 Discussion; Wireless PT Lab
October 21	Chapter 5 Discussion; STP PT Lab
October 23	Inter-VLAN Group Lab (Timed)
October 28	Submission of Student Notes (Chapters 1 to 4); Group Lab
October 30	PT Exam on Inter-VLAN Routing; Online Chapter Exams 1 to 4
November 4	Submission of Student Notes (Chapters 5 to 7); Group Lab
November 6	Online Chapter Exams 5 to 7
November 11	PT Exam; Wire and Wireless Lab
November 13	Online Final Exam
November 18	Group Lab

November 20	Group Lab
November 25	Submission and Defense of Student Packet Tracer Lab Work
November 27	Reserved
December 2	Reserved
December 4	Reserved

Notes:

Student Packet Tracer Project (individual):

- Students are required to submit an Activity Packet Tracer file where topics in CCNA Exploration 3 are discussed. (File name: <surname.pka>)
- Students are encouraged to put additional features on their project beyond the CCNA Exploration 3 curricula (e.g: Etherchannel, SSH, Inter-VLAN Routing on MLS, etc.). This would merit higher grades for the project.
- Students will be required to defend their submitted file. The instructor may require the student to change some assessment parameters to verify authenticity of student work.

Guide Questions for CCNA Exploration 3

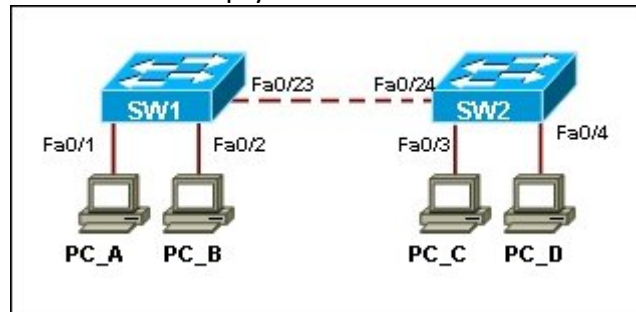
Chapter 1

1. What layer of the hierarchical network design model is referred to as the high-speed backbone of the internetwork, where high availability and redundancy are critical?
2. What layer of the hierarchical design model provides a means of connecting devices to the network and controlling which devices are allowed to communicate on the network?
3. What hierarchical design model layer controls the flow of network traffic using policies and delineates broadcast domains by performing routing functions between virtual LANs (VLANs)?
4. What is the likely impact of moving a conventional company architecture to a completely converged network?
5. Link aggregation should be implemented at what layer of the hierarchical network?
6. Describe a modular switch.
7. What feature supports higher throughput in switched networks by combining multiple switch ports?
8. Configuring communication between devices on different VLANs requires the use of what layer of the OSI model?
9. Describe two characteristics associated with enterprise level switches.
10. What two features are supported at all three levels of the Cisco three-layer hierarchical model?
11. A network administrator is selecting a switch that will operate at the network core. What three features should the switch support for optimum network performance and reliability?
12. What hierarchical design characteristic would be recommended at both the core and distribution layers to protect the network in the case of a route failure?
13. At which hierarchical layer are switches normally not required to process all ports at wire speed?
14. For organizations that are implementing a voice over IP solution, what functionality should be enabled at all three layers of the hierarchical network?

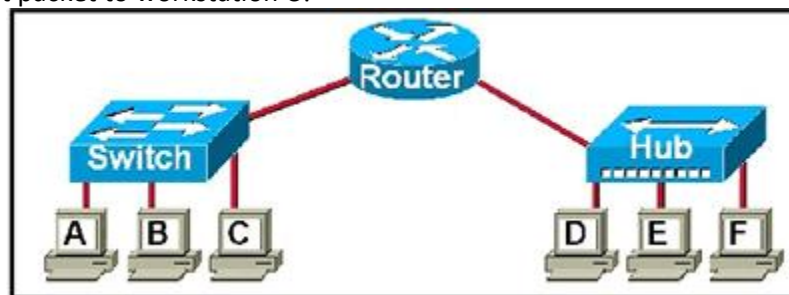
15. A network technician is asked to examine an existing switched network. Following this examination, the technician makes recommendations for adding new switches where needed and replacing existing equipment that hampers performance. The technician is given a budget and asked to proceed. What two pieces of information would be helpful in determining necessary port density for new switches?
16. Explain the Cisco StackWise technology.
17. What three features are commonly supported at the distribution layer of the Cisco hierarchical network model?
18. What layer of the OSI model does an access layer LAN switch use to make a forwarding decision?

Chapter 2

1. When a collision occurs in a network using CSMA/CD, how do hosts with data to transmit respond after the backoff period has expired?
2. The switch and workstation are administratively configured for full-duplex operation. Will collision occur on this link?
3. Refer to the exhibit. What action does SW1 take on a frame sent from PC_A to PC_C if the MAC address table of SW1 is empty?

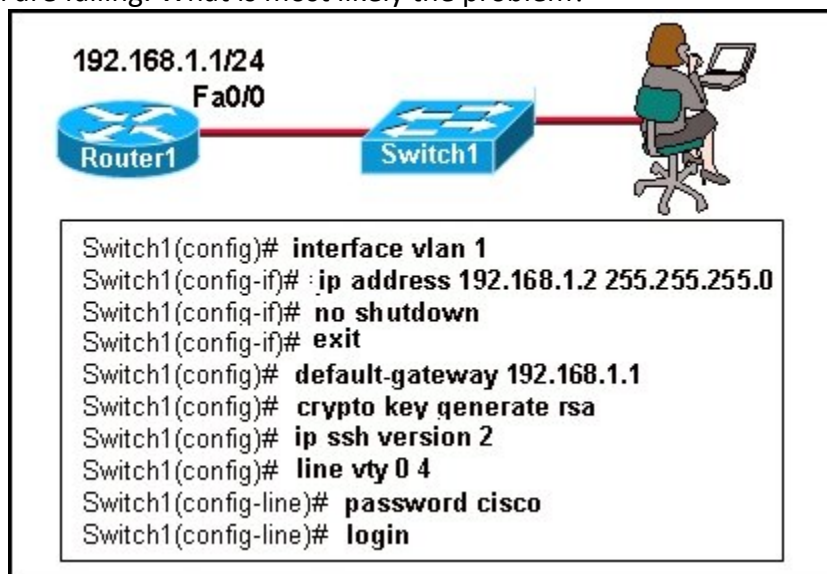


4. When a switch receives a frame and the source MAC address is not found in the switching table, what action will be taken by the switch to process the incoming frame?
5. Refer to the exhibit. The switch and the hub have default configurations, and the switch has built its CAM table. Which of the hosts will capture a copy of the frame when workstation A sends a unicast packet to workstation C?



6. Refer to the exhibit. How many collision domains are depicted in the network?
7. True or False: Which two statements about Layer 2 Ethernet switches are true? (Choose two.)
 - a. Layer 2 switches prevent broadcasts.
 - b. Layer 2 switches have multiple collision domains.


- c. Layer 2 switches route traffic between different networks.
 - d. Layer 2 switches decrease the number of broadcast domains.
 - e. Layer 2 switches can send traffic based on the destination MAC address.
8. A network administrator uses the CLI to enter a command that requires several parameters. The switch responds with "% Incomplete command". The administrator cannot remember the missing parameters. What can the administrator do to get the parameter information?
9. If a network administrator enters these commands in global configuration mode on a switch, what will be the result?
- ```
Switch1(config-line)# line console 0
Switch1(config-line)# password cisco
Switch1(config-line)# login
```
10. Refer to the exhibit. The network administrator's attempts to connect to Switch1 via Secure Shell are failing. What is most likely the problem?



11. Which two statements are true about EXEC mode passwords? True or False.
- a. The enable secret password command stores the configured password in plain text.
  - b. The enable secret password command provides better security than the enable password.
  - c. The enable password and enable secret password protect access to privileged EXEC mode.
  - d. The service password-encryption command is required to encrypt the enable secret password.
  - e. Best practices require both the enable password and enable secret password to be configured and used simultaneously.
12. Refer to the exhibit. The exhibit shows partial output of the show running-config command. The enable password on this switch is "cisco." What can be determined from the output shown?

```
enable password 7 05080F1 C2243
```

13. What will happen when the command **banner login "Authorized personnel Only"** issued on a switch?
14. What are two ways to make a switch less vulnerable to attacks like MAC address flooding, CDP attacks, and Telnet attacks?
  - a. Which two statements are true regarding switch port security? True or False.
  - b. The three configurable violation modes all log violations via SNMP.
  - c. Dynamically learned secure MAC addresses are lost when the switch reboots.
  - d. The three configurable violation modes all require user intervention to re-enable ports.
  - e. After entering the sticky parameter, only MAC addresses subsequently learned are converted to secure MAC addresses.
  - f. If fewer than the maximum number of MAC addresses for a port are configured statically, dynamically learned addresses are added to CAM until the maximum number is reached.
15. Refer to the exhibit. What happens when Host 1 attempts to send data?



Switch1

Fa0/6

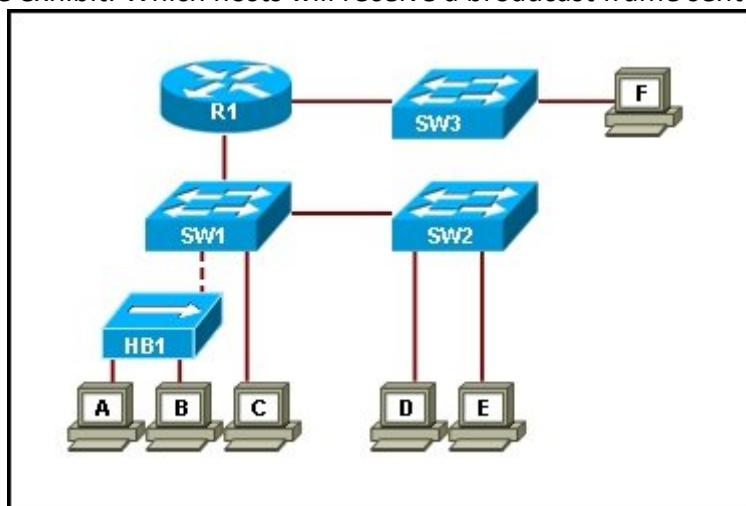
Host 1  
MAC address: 00b0d056b8d3

```

Switch1(config)# interface fastethernet 0/6
Switch1(config-if)# switchport mode access
Switch1(config-if)# switchport port-security
Switch1(config-if)# switchport port-security mac-address 00b0d0236e2a
Switch1(config-if)# switchport port-security maximum 1

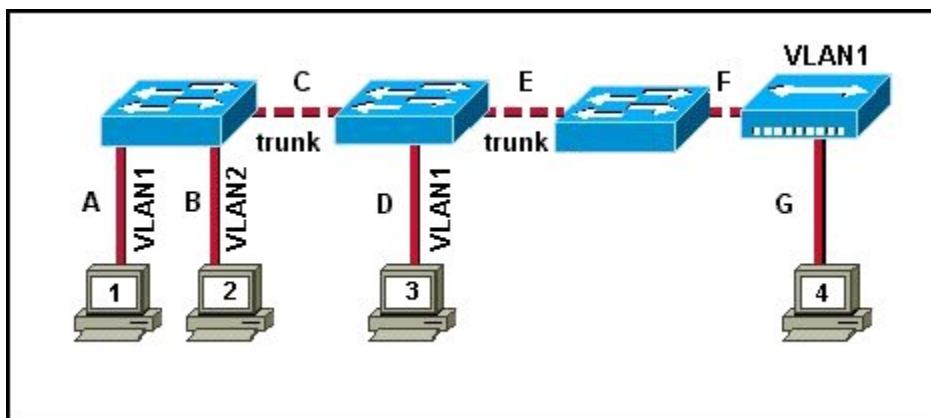
```

16. What happens when the **transport input ssh** command is entered on the switch vty lines?
17. Refer to the exhibit. Which hosts will receive a broadcast frame sent from Host A?



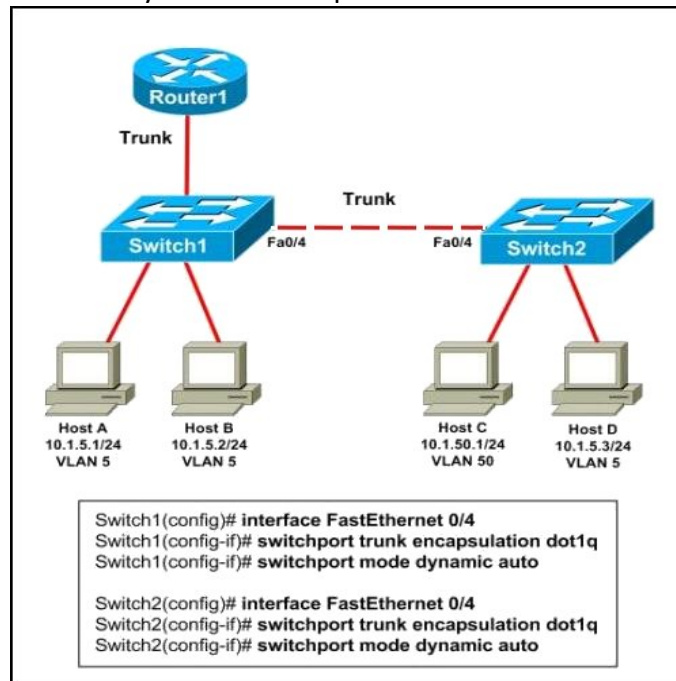
### Chapter 3

1. Which are true about the benefits of VLANs? True or False.
  - a. VLANs improve network performance by regulating flow control and window size.
  - b. VLANs enable switches to route packets to remote networks via VLAN ID filtering.
  - c. VLANs reduce network cost by reducing the number of physical ports required on switches.
  - d. VLANs improve network security by isolating users that have access to sensitive data and applications.
  - e. VLANs divide a network into smaller logical networks, resulting in lower susceptibility to broadcast storms.
2. What are two characteristics of VLAN1 in a default switch configuration? True or False
  - a. VLAN1 should be renamed.
  - b. VLAN 1 is the management VLAN.
  - c. All switch ports are members of VLAN1.
  - d. Only switch port 0/1 is assigned to VLAN1.
  - e. Links between switches must be members of VLAN1.
3. Refer to the exhibit. Computer 1 sends a frame to computer 4. On which links along the path between computer 1 and computer 4 will a VLAN ID tag be included with the frame?

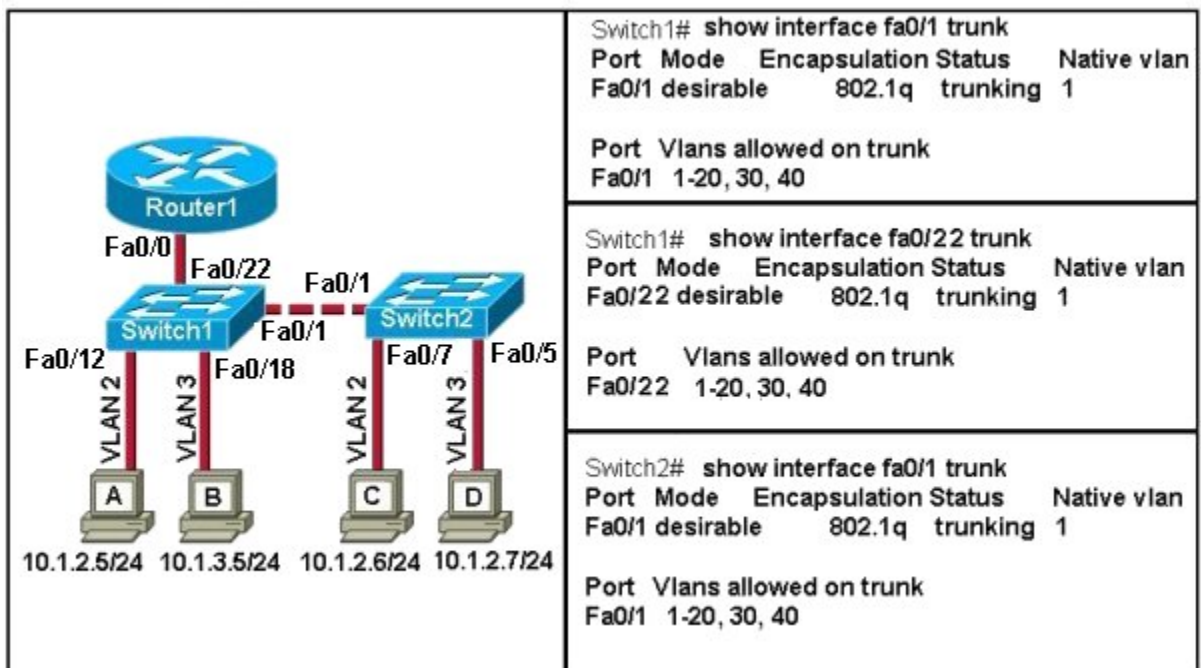


4. The network administrator wants to separate hosts in Building A into two VLANs numbered 20 and 30. Which two statements are true concerning VLAN configuration? True or False.
  - a. The VLANs may be named.
  - b. VLAN information is saved in the startup configuration.
  - c. Non-default VLANs created manually must use the extended range VLAN numbers.
  - d. The network administrator may create the VLANs in either global configuration mode or VLAN database mode.
  - e. Both VLANs may be named BUILDING\_A to distinguish them from other VLANs in different geographical locations.

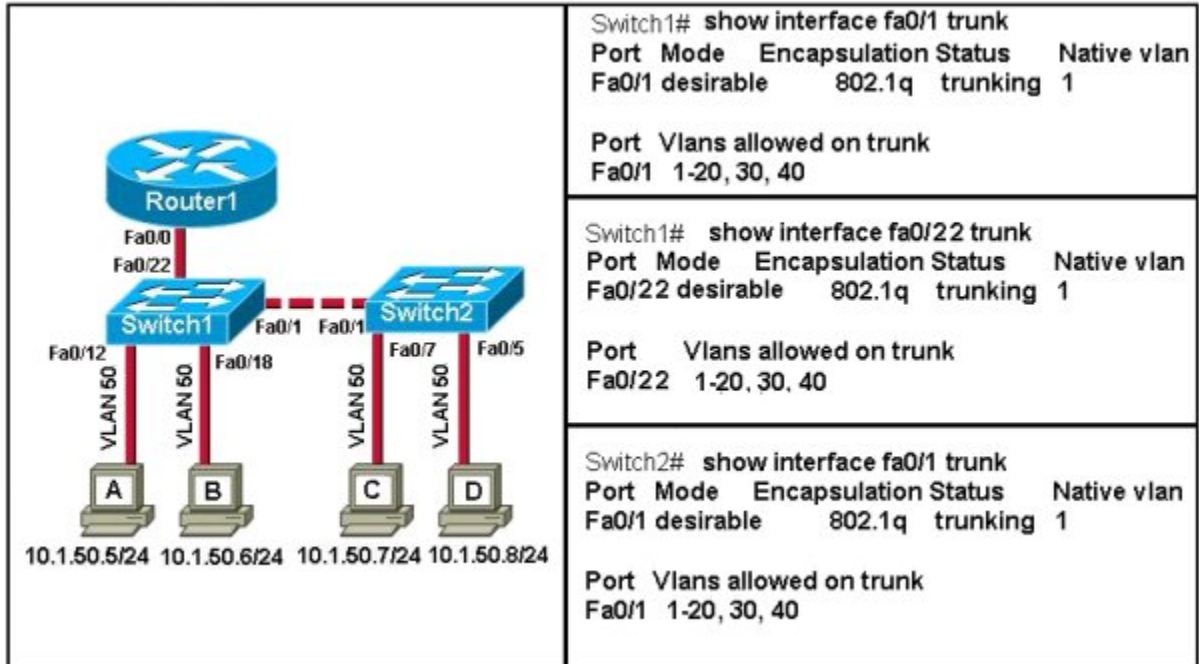
5. What is the effect of the switchport mode dynamic desirable command?
6. Refer to the exhibit. The exhibited configurations do not allow the switches to form a trunk. What is the most likely cause of this problem?



7. Switch port fa0/1 was manually configured as a trunk, but now it will be used to connect a host to the network. How should the network administrator reconfigure switch port Fa0/1?
8. Refer to the exhibit. Computer B is unable to communicate with computer D. What is the most likely cause of this problem?



9. Refer to the exhibit. The network administrator has just added VLAN 50 to Switch1 and Switch2 and assigned hosts on the IP addresses of the VLAN in the 10.1.50.0/24 subnet range. Computer A can communicate with computer B, but not with computer C or computer D. What is the most likely cause of this problem?

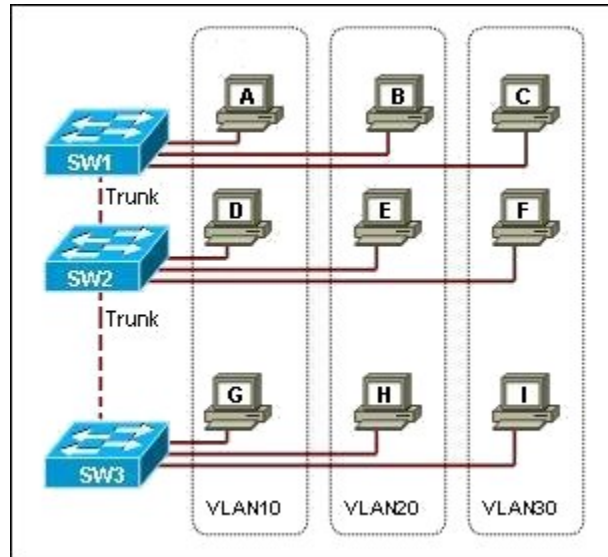


10. Refer to the exhibit. Which statement is true concerning interface Fa0/5? Can trunking occur on non-Cisco switches?

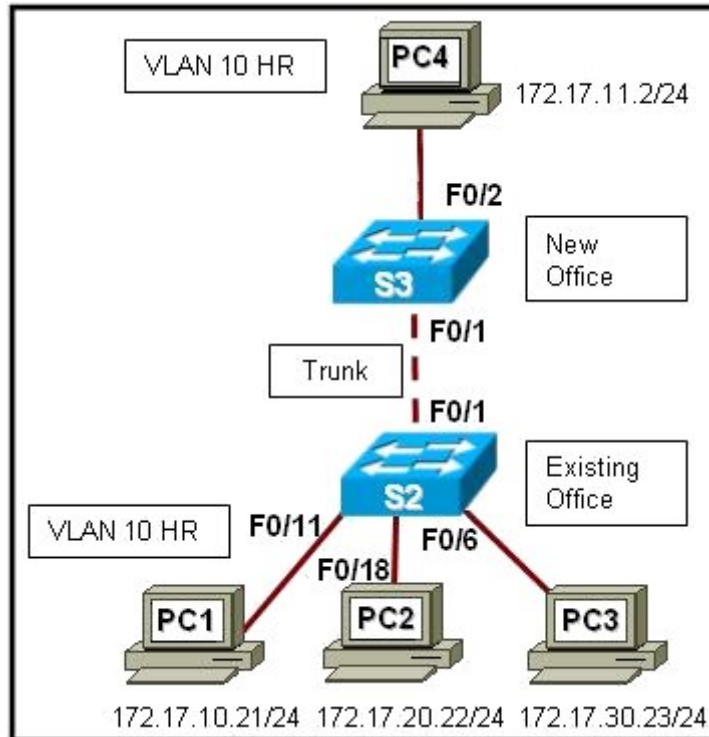
```
Switch1# show interfaces fa0/5 switchport
Name: Fa0/5
Switchport: Enabled
Administrative Mode: trunk
Operational Mode: trunk
Administrative Trunking Encapsulation: dot1q
Operational Trunking Encapsulation: dot1q
Negotiation of Trunking: On
Access Mode VLAN: 1 (default)
Trunking Native Mode VLAN: 10
Administrative Native VLAN tagging: enabled

<output omitted>
```

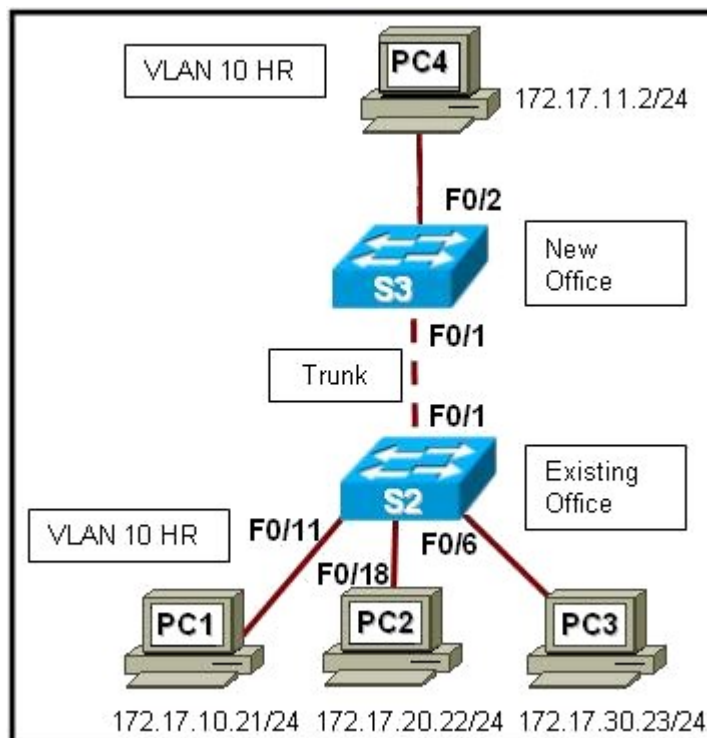
11. Refer to the exhibit. How far is a broadcast frame that is sent by computer A propagated in the LAN domain?



12. What is a valid consideration for planning VLAN traffic across multiple switches?
13. What statement about the 802.1q trunking protocol is true? True or False
  - a. 802.1q is Cisco proprietary.
  - b. 802.1q frames are mapped to VLANs by MAC address.
  - c. 802.1q does NOT require the FCS of the original frame to be recalculated.
  - d. 802.1q will not perform operations on frames that are forwarded out access ports.
14. What switch port modes will allow a switch to successfully form a trunking link if the neighboring switch port is in "dynamic desirable" mode?
15. Refer to the exhibit. Company HR is adding PC4, a specialized application workstation, to a new company office. The company will add a switch, S3, connected via a trunk link to S2, another switch. For security reasons the new PC will reside in the HR VLAN, VLAN 10. The new office will use the 172.17.11.0/24 subnet. After installation, the existing PCs are unable to access shares on PC4. What is the likely cause?

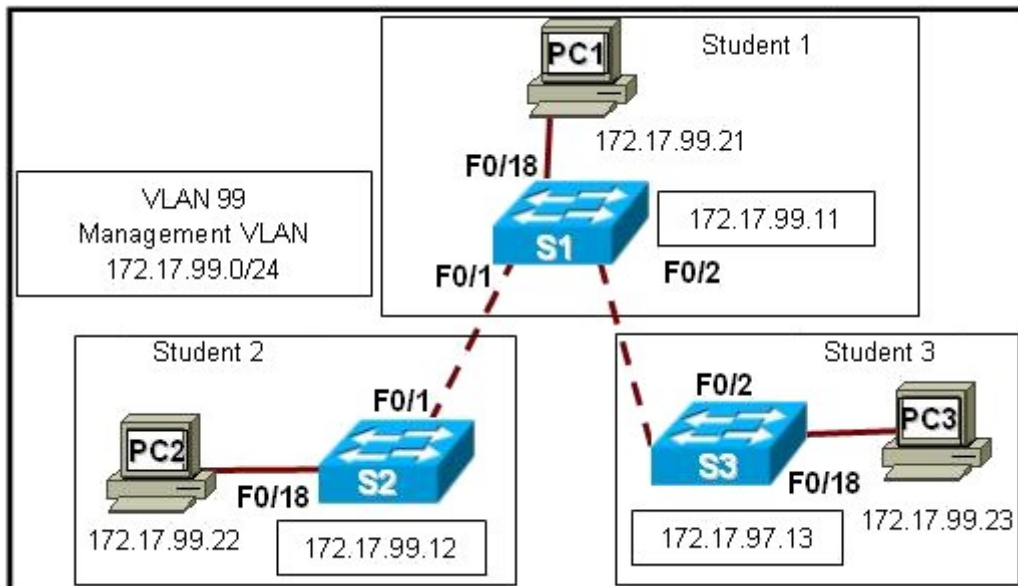


16. What must the network administrator do to remove Fast Ethernet port fa0/1 from VLAN 2 and assign it to VLAN 3?

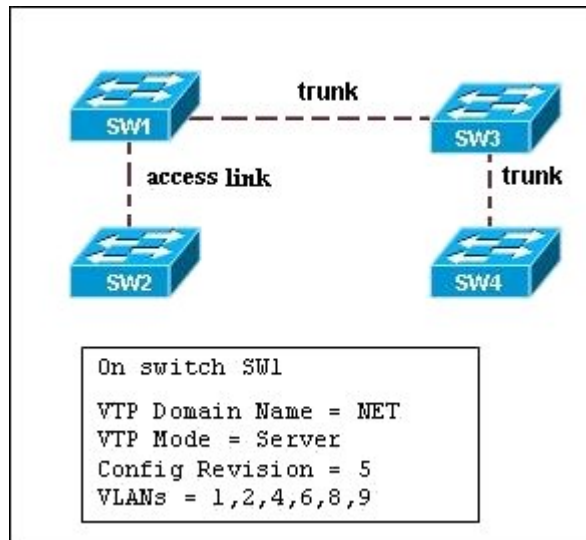


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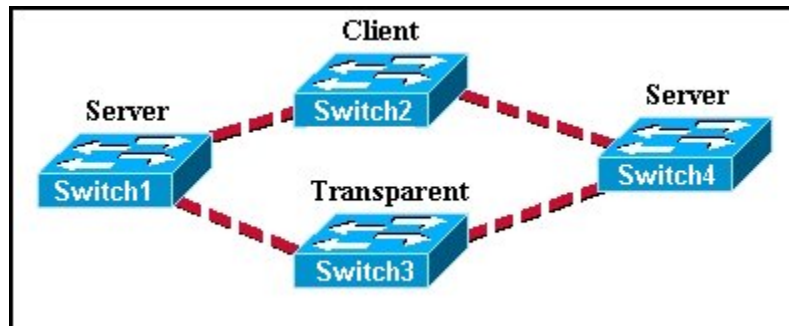
1. Which statement(s) is/are true when VTP is configured on a switched network that incorporates VLANs?
  - a. VTP is only compatible with the 802.1Q standard.
  - b. VTP adds to the complexity of managing a switched network.
  - c. VTP allows a switch to be configured to belong to more than one VTP domain.
  - d. VTP dynamically communicates VLAN changes to all switches in the same VTP domain.
2. True or False about the features of VTP client mode operation
  - a. unable to add VLANs
  - b. can add VLANs of local significance
  - c. forward broadcasts out all ports with no respect to VLAN information
  - d. can only pass VLAN management information without adopting changes
  - e. can forward VLAN information to other switches in the same VTP domain
3. Refer to the exhibit. Switch S1 is in VTP server mode. Switches S2 and S3 are in client mode. An administrator accidentally disconnects the cable from F0/1 on S2. What will the effect be on S2?



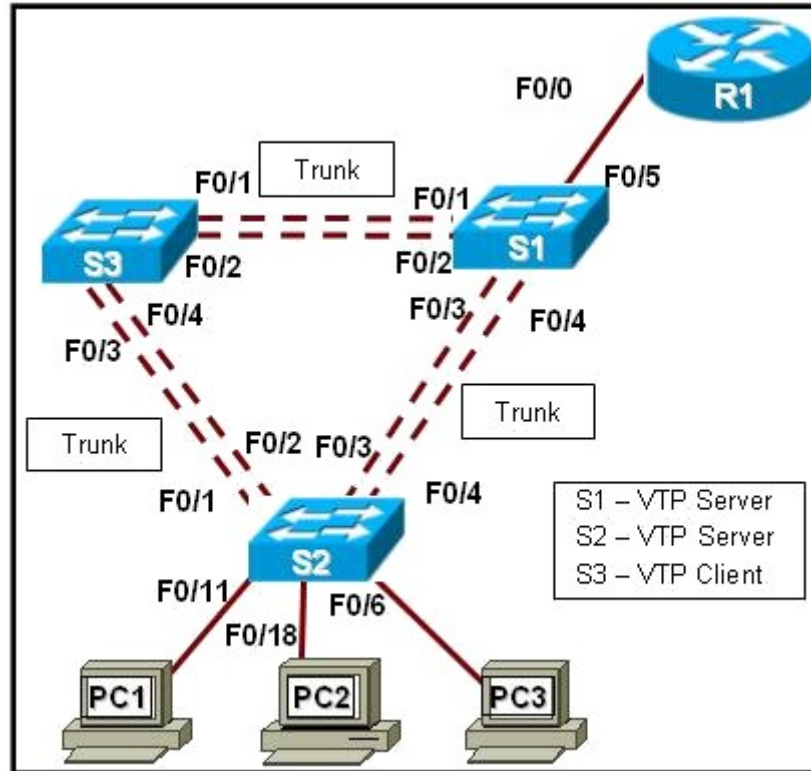
4. Refer to the exhibit. All switches in the VTP domain are new. Switch SW1 is configured as a VTP server, switches SW2 and SW4 are configured as VTP clients, and switch SW3 is configured in VTP transparent mode. Which switch or switches receive VTP updates and synchronize their VLAN configuration based on those updates?



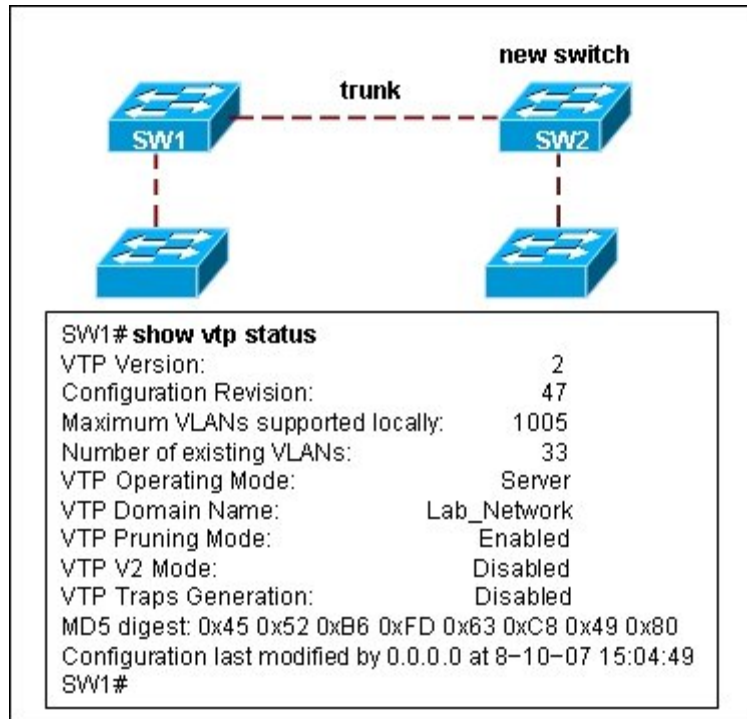
5. Refer to the exhibit. The switches in the exhibit are connected with trunks within the same VTP management domain. Each switch is labeled with its VTP mode. A new VLAN is added to Switch3. This VLAN does not show up on the other switches. What is the reason for this?



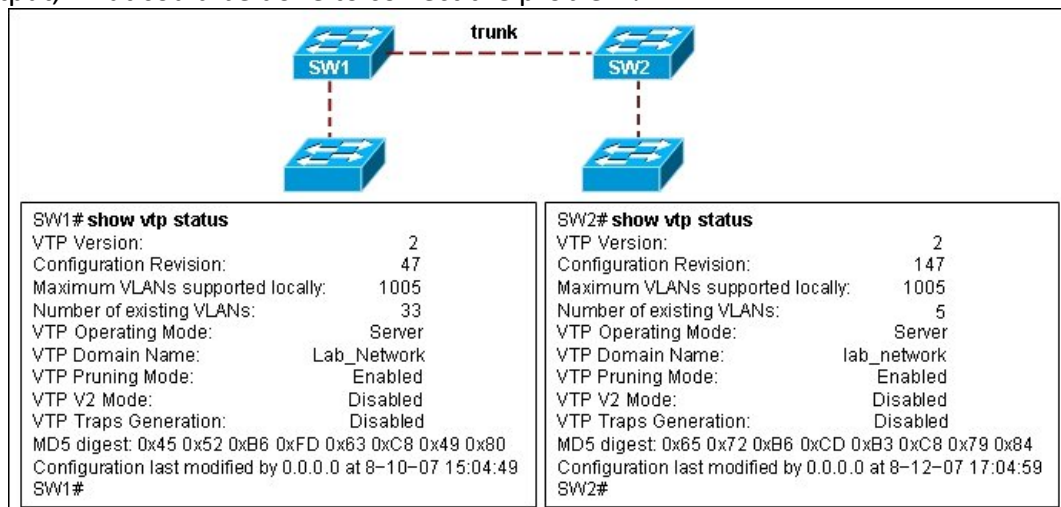
6. Refer to the exhibit. S2 was previously used in a lab environment and has been added to the production network in server mode. The lab and production networks use the same VTP domain name, so the network administrator made no configuration changes to S2 before adding it to the production network. The lab domain has a higher revision number. After S2 was added to the production network, many computers lost network connectivity. What will solve the problem?



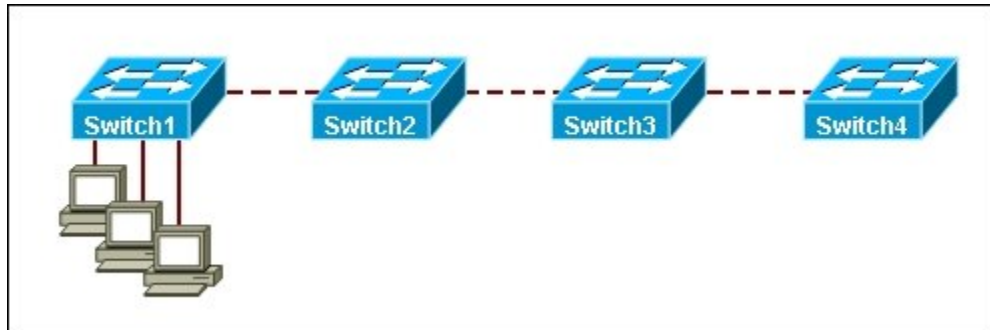
7. What does a client mode switch in a VTP management domain do when it receives a summary advertisement with a revision number higher than its current revision number?
8. What causes a VTP configured switch to issue a summary advertisement?
9. True or False about VTP pruning
  - a. Pruning is enabled by default.
  - b. Pruning can only be configured on VTP servers.
  - c. Pruning must be configured on all VTP servers in the domain.
  - d. VLANs on VTP client-mode switches will not be pruned.
  - e. Pruning will prevent unnecessary flooding of broadcasts across trunks.
10. What three VTP parameters must be identical on all switches to participate in the same VTP domain?
11. Refer to the exhibit. All switches in the network participate in the same VTP domain. What happens when the new switch SW2 with a default configuration and revision number of 0 is inserted in the existing VTP domain Lab\_Network?



12. Refer to the exhibit. Switches SW1 and SW2 are interconnected via a trunk link but failed to exchange VLAN information. The network administrator issued the show vtp status command to troubleshoot the problem. On the basis of the provided command output, what could be done to correct the problem?



13. Refer to the exhibit. Switch1 is not participating in the VTP management process with the other switches that are shown in the exhibit. What are two possible explanations for this?



14. Refer to the exhibit. Are VTP advertisements being exchanged?

```
Switch# show vtp counters
VTP statistics:
Summary advertisements received : 12
Subset advertisements received : 5
Request advertisements received : 0
Summary advertisements transmitted : 93
Subset advertisements transmitted : 8
Request advertisements transmitted : 2
Number of config revision errors : 0
Number of config digest errors : 0
Number of V1 summary errors : 0
<--output omitted-->
```

15. True or False: VTP transparent mode operation.

- a. Transparent mode switches can create VLAN management information.
- b. Transparent mode switches can add VLANs of local significance only.
- c. Transparent mode switches pass any VLAN management information that they receive to other switches.
- d. Transparent mode switches can adopt VLAN management changes that are received from other switches.
- e. Transparent mode switches originate updates about the status of their VLANs and inform other switches about that status.

16. True or False: Implementation of VTP

- a. Switches must be connected via trunks.
- b. The VTP domain name is case sensitive.
- c. Transparent mode switches cannot be configured with new VLANs.
- d. The VTP password is mandatory and case sensitive.
- e. Switches that use VTP must have the same switch name.

17. A network administrator is replacing a failed switch with a switch that was previously on the network. What precautionary step should the administrator take on the replacement switch to avoid incorrect VLAN information from propagating through the network?

18. What statement describes the default propagation of VLANs on a trunked link?