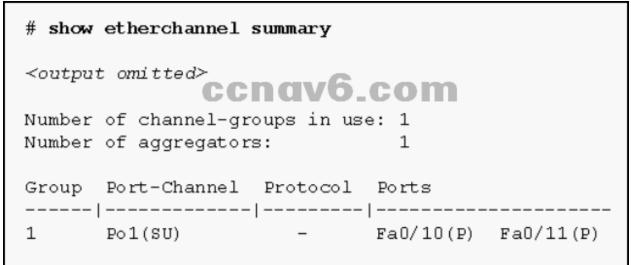






CCNA 3 (v5.0.3 + v6.0) Chapter 4 Answers Full

1. Refer to the exhibit. Based on the command output shown, what is the status of the EtherChannel?



- The EtherChannel is dynamic and is using ports Fa0/10 and Fa0/11 as passive ports.
- The EtherChannel is down as evidenced by the protocol field being empty.
- The EtherChannel is partially functional as indicated by the P flags for the FastEthernet ports.
- The EtherChannel is in use and functional as indicated by the SU and P flags in the command output.*

The command output shows the port channel as SU, which means Layer 2 and in use; and the FastEthernet 0/10 and 0/11 interfaces are bundled in port-channel as indicated by the P flag. Configuring the EtherChannel using the channel-group 1 mode on command will cause the Protocol field in the command output to be empty.

2. Refer to the exhibit. A network engineer is troubleshooting host connectivity on a LAN that uses a first hop redundancy protocol. Which IPv4 gateway address should be configured on

the host?

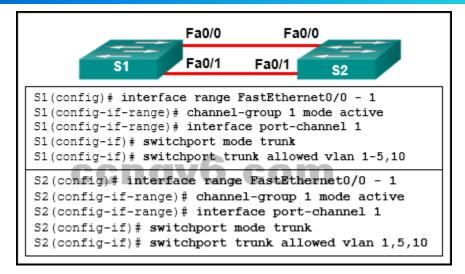
```
FastEthernet0/1 - Group 1
 State is Active
   1 state change, last state change 00:02:34
 Virtual IP address is 192.168.2.100
 Hello time 3 sec, hold time 10 sec
   Next hello sent in 0.288 secs
 Redirect time 600 sec, forwarder timeout 14400 sec
 Preemption disabled
 Active is local
 Standby is 192.168.2.2, priority 100 (expires in 8.640 sec)
 Priority 100 (default)
 Weighting 100 (default 100), thresholds: lower 1, upper 100
 Load balancing: round-robin
 Group members:
   001e.7aa3.5e71 (192.168.2.1) local
   001e.7aa3.5f31 (192.168.2.2)
 There are 2 forwarders (1 active)
 Forwarder 1
                      State is Active
     1 state change, last state change 00:02:23
   MAC address is 0007.b400.0101 (default)
   Owner ID is 001e.7aa3.5e71
   Redirection enabled
```

- 192.168.2.0
- 192.168.2.1
- 192.168.2.2
- 192.168.2.100*

The host default gateway address should be the FHRP (in this case GLBP) virtual IP address.

3. What is the purpose of HSRP?

- It provides a continuous network connection when a router fails.*
- It prevents a rogue switch from becoming the STP root.
- It prevents malicious hosts from connecting to trunk ports.
- It enables an access port to immediately transition to the forwarding state.
 HSRP is a first hop redundancy protocol and allows hosts to use multiple gateways through the use of a single virtual router.
- 4. Refer to the exhibit. An EtherChannel was configured between switches S1 and S2, but the interfaces do not form an EtherChannel. What is the problem?



- The switch ports have to be configured as access ports with each port having a VLAN assigned.
- The interface port-channel number has to be different on each switch.
- The switch ports were not configured with speed and duplex mode.
- The EtherChannel was not configured with the same allowed range of VLANs on each interface.*

The guidelines for configuring an EtherChannel link are:

Interfaces which form an EtherChannel can be physically discontiguous, and on different modules.

Interfaces in an EtherChannel have to operate at the same speed and in the same duplex mode.

Interfaces in the EtherChannel must be assigned to the same VLAN, or be configured as a trunk.

Interfaces in the EtherChannel have to support the same allowed range of VLANs.

5. What is an advantage of using LACP?

- increases redundancy to Layer 3 devices decreases the amount of configuration that is needed on a switch for EtherChannel
- allows automatic formation of EtherChannel links*
- provides a simulated environment for testing link aggregation
- decreases the chance of a spanning-tree loop
- 6. What is a requirement to configure a trunking EtherChannel between two switches?
 - The participating interfaces must be assigned the same VLAN number on both switches.
 - The participating interfaces must be on the same module on a switch.
 - The participating interfaces must be physically contiguous on a switch.
 - The allowed range of VLANs must be the same on both switches.*

To enable a trunking EtherChannel successfully, the range of VLANs allowed on all the interfaces must match; otherwise, the EtherChannel cannot be formed. The interfaces involved in an EtherChannel do not have to be physically contiguous, or on the same module. Because the EtherChannel is a trunking one, participating interfaces are configured as trunk mode, not access mode.

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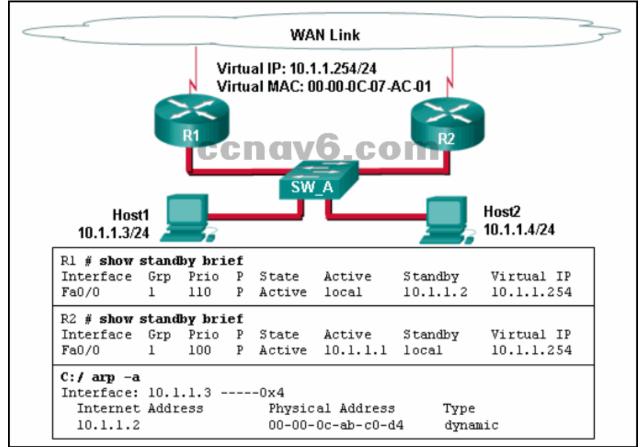
- 7. A network administrator would like to ensure that router R1 is always elected the active router for an HSRP group. Which set of commands would ensure the required results?
 - R1(config-if)# ip address 192.168.1.250 255.255.255.0
 R1(config-if)# standby 1 ip 192.168.1.1
 R1(config-if)# no shutdown
 - R1(config-if)# ip address 192.168.1.100 255.255.255.0 R1(config-if)# standby 1 ip 192.168.1.1 R1(config-if)# standby 1 priority 255 R1(config-if)# standby 1 preempt R1(config-if)# no shutdown*
 - R1(config-if)# ip address 192.168.1.100 255.255.255.0
 R1(config-if)# standby 1 ip 192.168.1.1
 R1(config-if)# standby 1 priority 1
 - R1(config-if)# no shutdown
 - R1(config-if)# ip address 192.168.1.100 255.255.255.0 R1(config-if)# standby 1 ip 192.168.1.1 R1(config-if)# standby 1 priority 150 R1(config-if)# no shutdown

In order to configure HSRP, the standby command is used. The IP address given with the standby command is the virtual IP address used by hosts as a default gateway. A priority number of 255 is the highest that can be assigned and should be configured on the router that is to be the active router.

8. Refer to the exhibit. A network administrator configured routers R1 and R2 as part of HSRP group 1. After the routers have been reloaded, a user on Host1 complained of lack of connectivity to the Internet The network administrator issued the show standby brief command on both routers to verify the HSRP operations. In addition, the administrator observed the ARP table on Host1. Which entry should be seen in the ARP table on Host1 in



order to gain connectivity to the Internet?



- the virtual IP address of the HSRP group 1 and the MAC address of R1
- the virtual IP address of the HSRP group 1 and the MAC address of R2
- the virtual IP address and the virtual MAC address for the HSRP group 1*
- the IP address and the MAC address of R1
 Hosts will send an ARP request to the default gateway which is the virtual IP address. ARP replies from the HSRP routers contain the virtual MAC address. The host ARP tables will contain a mapping of the virtual IP to the virtual MAC.
- Fill in the blank. In FHRP operation, two or more routers are represented as a single ______ router.

Correct Answer: virtual*

In a First Hop Redundancy Protocol like HSRP, multiple routers share a virtual MAC and virtual IP address which are presented to hosts as a single "virtual" router to use as a gateway.

10. What is a best practice to use before beginning an EtherChannel implementation?

- Enable each of the affected interfaces.
- Assign affected interfaces to the management VLAN.
- Shut down each of the affected interfaces.*
- Assign affected interfaces to VLAN 1.
- Assign affected interfaces to an unused VLAN.

Before configuring EtherChannel, the interfaces used should be shut down so that any incomplete configuration will not cause activity on the link.

11. Which statement describes an EtherChannel implementation?

• EtherChannel operates only at Layer 2.

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- A trunked port can be part of an EtherChannel bundle.*
- EtherChannel can support up to a maximum of ten separate links.
- PAgP cannot be used in conjunction with EtherChannel.

Up to 16 links can be grouped in an EtherChannel by using the the PAgP or LACP protocol. EtherChannel can be configured as a Layer 2 bundle or a Layer 3 bundle. Configuring a Layer 3 bundle is beyond the scope of this course. If a trunked port is a part of the EtherChannel bundle, all ports in the bundle need to be trunk ports and the native VLAN must be the same on all of these ports. A best practice is to apply the configuration to the port channel interface. The configuration is then automatically applied to the individual ports.

- 12. Open the PT Activity. Perform the tasks in the activity instructions and then answer the question. What are two reasons why the ping messages that are issued from Laptop0 towards Laptop1 are failing? (Choose two.)
 - The two interfaces on each of the switches belong to different VLANs.*
 - The interface VLAN 1 is shut down on both switches.
 - The channel group mode is not set correctly on the switches.
 - The wrong cable types are connecting the two switches.
 - The channel group should be configured as a trunk on each switch.* Port-channel 1 needs to be configured as a trunk in order to carry data about two different VLANs. The channel group is set as auto and desirable. The SVI has not been configured on the switches, but this does not affect the creation of an EtherChannel. The use of straightthrough cables between switches is not an issue when using a Cisco Catalyst 2960 switch.
- 13. Refer to the exhibit. A network administrator issued the show etherchannel summary command on the switch S1. What conclusion can be drawn?

S1# sho	ow etherchannel summary
Flags:	D - down P - in port-channel
	I - stand-alone s - suspended
	H - Hot-standby (LACP only)
	R - Layer3 S - Layer2
	U - in use f - failed to allocate aggregator
	u - unsuitable for bundling
	w - waiting to be aggregated
	d - default port 👝
	cendyb.com
Number	of channel-groups in use; 1
Number	of aggregators: 1
Group	Port-channel Protocol Ports
1	Po1(SD) PAgP Fa0/1(I) Fa0/2(I) Fa0/3(I)

- The EtherChannel is not functional.*
- The EtherChannel is suspended.
- FastEthernet ports Fa0/1, Fa0/2, and Fa0/3 do not join the EtherChannel.
- The port aggregation protocol PAgP is misconfigured.
- 14. Which PAgP mode combination will establish an EtherChannel?

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- switch 1 set to desirable; switch 2 set to desirable.*
- switch 1 set to auto; switch 2 set to auto.
- switch 1 set to on; switch 2 set to desirable.
- switch 1 set to auto; switch 2 set to on.
- 15. Refer to the exhibit. What statement is true about the output of the show standby command?

```
Router# show standby
Ethernet0/1 - Group 1
  State is Active
   2 state changes, last state change 00:30:59
 Virtual IP_address_is 10.1.0.20
   Secondary virtual IP address 10.1.0.21
 Active virtual MAC address is 0004.4d82.7981
   Local virtual MAC address is 0004.4d82.7981 (bia)
  Hello time 4 sec, hold time 12 sec
   Next hello sent in 1.412 secs
  Preemption enabled, min delay 50 sec, sync delay 40 sec
 Active router is local
  Standby router is 10.1.0.6, priority 75 (expires in 9.184 sec)
  Priority 95 (configured 120)
                               ccnav
                                             b.com
   Tracking 2 objects, 0 up
     Down Interface Ethernet0/2, pri 15
     Down Interface Ethernet0/3
  IP redundancy name is "HSRP1", advertisement interval is 34 sec
```

- The current priority of this router is 120.
- This router is tracking two properly operating interfaces.
- This router is in the HSRP down state because its tracked interfaces are down.
- The router is currently forwarding packets.*

The output shows that the active router is local and indicates that this router is the active router and is currently forwarding packets.

16. Which three options must match in order to establish an EtherChannel between two directly connected switches? (Choose three.)

- duplex settings of the interfaces that are used for EtherChannel*
- port security settings on the interfaces that used for EtherChannel
- VLAN memberships of the interfaces that are used for EtherChannel*
- speed of the interfaces that are used for EtherChannel*
- domain names on the switches
- port numbers that are used for the EtherChannel

Speed and duplex settings must match for all interfaces in an EtherChannel. All interfaces in the EtherChannel must be in the same VLAN if the ports are not configured as trunks. Any ports may be used to establish an EtherChannel. Domain names and port security settings are not relevant to EtherChannel.

- 17. Which two protocols are used to implement EtherChannel? (Choose two.)
 - Link Aggregation Control Protocol*
 - Spanning Tree Protocol

Port Aggregation Protocol*

Cisco Discovery Protocol

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Rapid Spanning Tree Protocol

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Port Aggregation Protocol and Link Aggregation Control Protocol are used to implement EtherChannel. Spanning Tree and Rapid Spanning Tree Protocol are used to prevent switching loops. Cisco Discovery Protocol is Cisco-proprietary and is used to discovery information about adjacent Cisco devices such as model number and IP address.

18. In FHRP terminology, what represents a set of routers that present the illusion of a single router to hosts?

virtual router*

- forwarding router
- standby router
- default gateway

In FHRP multiple routers are configured to work together to present to hosts a single gateway router. This single gateway router is a virtual router which has a virtual IP address that is used by hosts as a default gateway.

19. Which command must be used on SW2 to enable this EtherChannel?

- SW2(config-if-range)# channel-group 1 mode desirable*
- SW2(config-if-range)# channel-group 1 mode auto
- SW2(config-if-range)# channel-group 1 mode passive
- SW2(config-if-range)# channel-group 1 mode active
- 20. An EtherChannel link using LACP was formed between two switches, S1 and S2. While verifying the configuration, which mode combination could be utilized on both switches?
 - S1-on and S2-active
 - S1-passive and S2-passive
 - S1-on and S2-passive
 - S1-passive and S2-active*

An EtherChannel link will be formed using LACP when both switches are in on mode or in active mode, or when one of them is in passive mode and the other is in active mode.

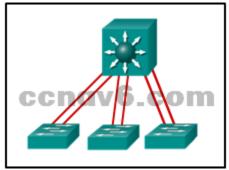
21. Which statement describes a characteristic of EtherChannel?

- It can bundle mixed types of 100 Mb/s and 1Gb/s Ethernet links.
- It consists of multiple parallel links between a switch and a router.
- It can combine up to a maximum of 4 physical links.
- It is made by combining multiple physical links that are seen as one link between two switches.*

An EtherChannel is formed by combining multiple (same type) Ethernet physical links so they are seen and configured as one logical link. It provides an aggregated link between two switches. Currently each EtherChannel can consist of up to eight compatibly configured Ethernet ports.

22. Refer to the exhibit. Which switching technology would allow each access layer switch link to be aggregated to provide more bandwidth between each Layer 2 switch and the Layer 3

switch?



- HSRP
- EtherChannel*
- trunking
- PortFast

PortFast is used to reduce the amount of time that a port spends going through the spanning-tree algorithm, so that devices can start sending data sooner. Trunking can be implemented in conjunction with EtherChannel, but trunking alone does not aggregate switch links. HSRP is used to load-balance traffic across two different connections to Layer 3 devices for default gateway redundancy. HSRP does not aggregate links at either Layer 2 or Layer 3 as EtherChannel does.

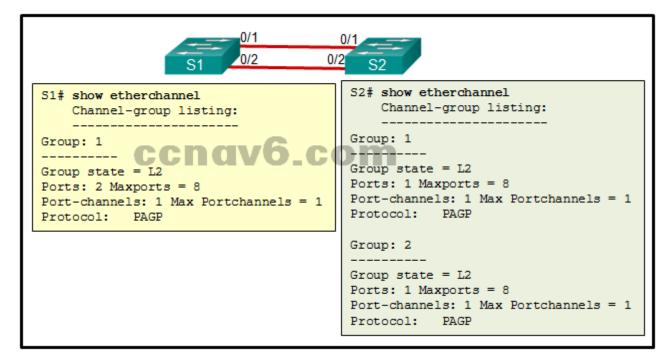
23. Which statement is true regarding the use of PAgP to create EtherChannels?

- It requires more physical links than LACP does.
- It mandates that an even number of ports (2, 4, 6, etc.) be used for aggregation.
- It is Cisco proprietary.*
- It increases the number of ports that are participating in spanning tree.
- It requires full duplex.

PAgP is used to automatically aggregate multiple ports into an EtherChannel bundle, but it only works between Cisco devices. LACP can be used for the same purpose between Cisco and non-Cisco devices. PAgP must have the same duplex mode at both ends and can use two ports or more. The number of ports depends on the switch platform or module. An EtherChannel aggregated link is seen as one port by the spanning-tree algorithm.

24. Refer to the exhibit. A network administrator has decided that an EtherChannel between ports 0/1 and 0/2 on switches S1 and S2 would help performance. After making the configuration, the administrator notices no performance gain. Based on the output that is shown, what two possible assumptions could a network administrator make? (Choose two.)





- Switch S2 did not use a compatible EtherChannel mode.
- The EtherChannel bundle is working.
- One of the ports on S2 was not configured correctly.*
- LACP and PAgP were both used to form the EtherChannel.
- The EtherChannel bundle is not working.*
- Switch S2 must be configured so that the maximum number of port channels is increased.

In order to form an EtherChannel, all ports should be within the same group.

- 25. Which nonproprietary protocol provides router redundancy for a group of routers which support IPv4 LANs?
 - GLBP
 - SLB
 - VRRPv2*
 - HSRP

The only nonproprietary FHRP used for router redundancy listed in the options is VRRPv2. HSRP and GLBP are both Cisco proprietary FHRPs. IOS SLB is a Cisco-based solution used to load balance traffic across multiple servers.

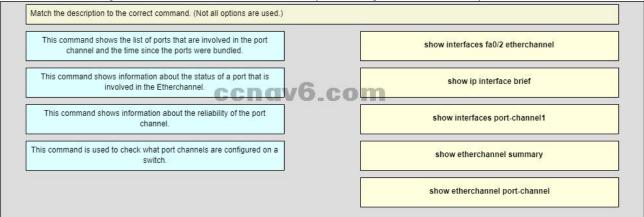
- 26. A network administrator is configuring an EtherChannel link between switches SW1 and SW2 by using the command SW1(config-if-range)# channel-group 1 mode passive. Which command must be used on SW2 to enable this EtherChannel?
 - SW2(config-if-range)# channel-group 1 mode desirable
 - SW2(config-if-range)# channel-group 1 mode auto
 - SW2(config-if-range)# channel-group 1 mode passive
 - SW2(config-if-range)# channel-group 1 mode active*

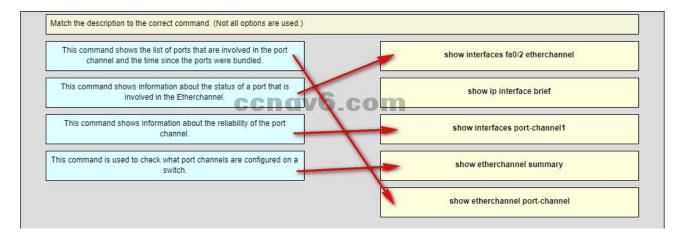
The possible combinations to establish an EtherChannel between SW1 and SW2 using LACP or PAgP are as follows:



PAgP
on on
auto desirable
desirable desirable
LACP
on on
active active
passive active
The EtherChannel mode chosen on each side of the EtherChannel must be compatible in
order to enable it.

27. Match the description to the correct command. (Not all options are used.)





Older Version

- 28. Which IEEE wireless standard is known as WiGig and operates using a tri-band solution in the 2.4, 5, and 60 GHz ranges?
 - 802.11g
 - 802.11n
 - 802.11ac
 - 802.11ad*
- 29. Which two roles are typically performed by a wireless router that is used in a home or small business? (Choose two.)
 - repeater

- access point*
- WLAN controller

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- Ethernet switch*
- RADIUS authentication server

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- 30. A supervisor needs wireless access in the construction office during the construction of a new building. The construction office is in the new building and directly across the road from headquarters. What could be used to satisfy this requirement of needing a narrow area of coverage?
 - multiple MIMO antennas
 - omnidirectional
 - rubber duck
 - Yagi*
- 31. A student uses a laptop to upload an assignment to a file server. Which wireless frame type did the laptop send to locate and associate with the campus access point?
 - beacon frame
 - control frame
 - data frame
 - management frame*
- 32. During which stage of establishing connectivity between a WLAN client and an AP does the client learn the MAC address of the AP?
 - discovery
 - probing
 - association*
 - encryption
 - authentication
- 33. For which discovery mode will an AP generate the most traffic on a WLAN?
 - passive mode*
 - open mode
 - mixed mode
 - active mode
- 34. What is the purpose of the Distributed Coordination Function in an IEEE 802.11 WLAN environment?
 - It allows a client to detect whether or not a channel is clear prior to transmission.*
 - It is used in a full-duplex environment to detect collisions.
 - It is used to send data over a half-duplex connection.
 - It allows the client to change transmission channels.

35. What is an advantage of SSID cloaking?

- It provides free Internet access in public locations where knowing the SSID is of no concern.
- Clients will have to manually identify the SSID to connect to the network.*
- SSIDs are very difficult to discover because APs do not broadcast them.
- It is the best way to secure a wireless network.

36. If three 802.11b access points need to be deployed in close proximity, which three

- frequency channels should be used? (Choose three.)
- 1*
- 3



- 5
- 6*
- 8
- 11*

37. Which three Wi-Fi standards operate in the 2.4GHz range of frequencies? (Choose three.)

- 802.11a
- 802.11b *
- 802.11g *
- 802.11n*
- 802.11ac
- 38. An employee connects wirelessly to the company network using a cell phone. The employee then configures the cell phone to act as a wireless access point that will allow new employees to connect to the company network. Which type of security threat best describes this situation?
 - cracking
 - denial of service
 - rogue access point*
 - spoofing

39. Which security mode is the least secure choice when a home wireless router is configured?

- WPA
- WPA2
- WEP*
- WPA2-Personal
- 40. Which parameter is commonly used to identify a wireless network name when a home wireless AP is being configured?
 - ad hoc
 - BESS
 - ESS
 - SSID*
- 41. A company has recently implemented an 802.11n wireless network. Some users are complaining that the wireless network is too slow. Which solution is the best method to enhance the performance of the wireless network?
 - Replace the wireless NICs on the computers that are experiencing slow connections.
 - Split the traffic between the 2.4 GHz and 5 GHz frequency bands.*
 - Disable DHCP on the access point and assign static addresses to the wireless clients.
 - Upgrade the firmware on the wireless access point.

42. Fill in the blank. Do not use abbreviations.

Ad hoc wireless topologies sometimes can use a feature called **tethering** to enable a smartphone to create a personal hotspot.

43. Fill in the blank.

A network administrator discovers a rogue AP in the network. The rogue AP is capturing traffic and then forwarding it on to the legitimate AP. This type of attack is known as a **man-in -the -middle**attack.

44. Fill in the blank. Use the acronym.

Which encryption protocol is used by the WPA2 shared key authentication technique? AES*

- 45. Which organization certifies vendors for adherence to the 802.11 standards to improve interoperability of 802.11 products?
 - FCC
 - IEEE
 - ITU-R
 - Wi-Fi Alliance*
- 46. What type of wireless antenna is best suited for providing coverage in large open spaces, such as hallways or large conference rooms?
 - omnidirectional*
 - directional
 - Yagi
 - dish
- 47. Which feature of 802.11n wireless access points allows them to transmit data at faster speeds than previous versions of 802.11 Wi-Fi standards did?
 - SPS
 - WPS
 - MIMO*
 - MITM
- 48. What is a difference between Cisco APs that operate in a home environment and Cisco APs that operate in a corporate environment?
 - Autonomous APs are used only in the home environment, and they incorporate the functions of a router, switch, and AP into one device.
 - Controller-based APs are used in the corporate environment, and they are serverdependent devices that require an initial configuration to operate.
 - Cisco corporate APs do not support PoE.
 - Some corporate AP models can operate in either autonomous mode or controller-based mode.*
- 49. Which type of wireless topology is created when two or more Basic Service Sets are interconnected by Ethernet?
 - IBISS
 - BSS
 - WiFi Direct
 - ESS*
 - ad hoc WLAN

50. Which type of management frame may regularly be broadcast by an AP?

- beacon*
- probe request
- authentication
- probe response

51. Which statement defines the control frame operation between two stations?

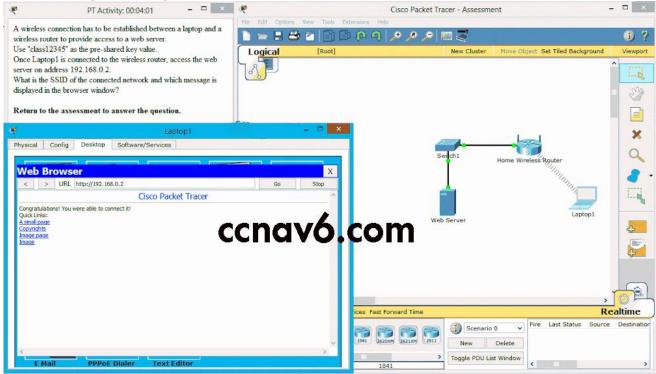
- A station sends an RTS frame as the first step in a three-way handshake that is required before sending data frames.
- A station responds to an RTS frame with an ACK frame, thus providing permission for the requesting station to send a data frame.
- If the sending station does not receive an ACK frame within a predetermined period of time, the sending station will drop the connection.

- After receiving a data frame, the receiving station will send an ACK frame to the sending station if no errors are found.*
- 52. A administrator wishes to extend the range of the existing IEEE 802.11n network without changing the AP. What can the administrator do to accomplish this?
 - Upgrade the firmware on the AP.

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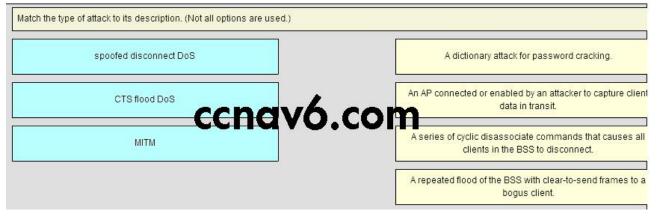
- Split the wireless traffic between the 802.11n 2.4 GHz band and the 5 GHz band.
- Deploy a Wi-Fi Range Extender.*
- Change to WPA2 authentication.
- 53. Launch PT Hide and Save PT. Open the PT Activity. Perform the tasks in the activity instructions and then answer the question. What is the SSID of the connected network and which message is displayed in the browser window?



- SSID: Home-Network Message: Well done!
- SSID: Home-Network Message: Good job!
- SSID: Home-Net Message:Congratulations! You did it!
- SSID: Home-Net Message:Congratulations! You were able to connect it!*



54. Match the type of attack to its description. (Not all options are used.)



Place the options in the following order:

- not scored -

MITM -> AN AP connected or enabled by an attacker to capture client data in transit. **spoofed disconnet DoS** -> A series of cyclic dissasociate commands that causes all clients in the BSS to disconnect.

CTS flood DoS -> A repeated flood of the BSS with clear-to-send frames to a bogus client.

55. Place the following actions in the order in which they occur in a shared key authentication process. (Not all options are used.)

Place the following actions in the order in which they occur in a shared key authentication	n process. (Not all options are used.)
Step 1	The client send a beacon frame to the AP.
Step 2	The AP sends a challenge text to the client.
Step 3	The AP authenticates the client.
Step 4 CCNOVÓ.CO	The client sends an authentication frame to the AP.
Step 5	The client encrypts the message.
	The client sends a challenge text to the AP.
	The AP decrypts the message.

Place the options in the following order:

- not scored -

- **Step 2** -> The AP send a challenge text to the client.
- **Step 5** -> The AP authenticates the client.
- Step 1 -> The client sends an authentication frame to the AP.
- **Step 3** -> The client encrypts the message.
- not scored -
- **Step 4** -> The AP decypts the message.
- 56. A WLAN user wants to allocate an optimal amount of bandwidth to a specific online game. What is a Linksys Smart Wi-Fi tool that will allow the user to do this?
 - Widgets



- Speed Test
- Media Prioritization*
- Bandwidth Prioritization