642-813

Cisco

Implementing Cisco Switched Networks

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QUESTION: 1
After an autonomous Cisco Aironet 1200 Access Point has been converted to LWAPP mode, which two statements are true? (Choose two.)

A. LWAPP-enabled access points can still communicate with Wireless Domain Services (WDS) devices.
B. An LWAPP-enabled access point console port provides read-only access to the unit.
C. LWAPP-enabled access points support Layer 2 LWAPP.
D. LWAPP-enabled access points must get an IP address and discover the controller using DHCP, DNS, or an IP subnet broadcast.
E. An LWAPP-enabled access point console port provides read-write access to the unit.

Answer: B, D

Explanation:
Some of the restrictions that are imposed on a Cisco IOS Software-based AP after conversion to lightweight mode include the following:

Reference:
www.cisco.com/en/US/products/hw/wireless/ps430/products_qanda_item09186a00806a4da3.sht ml

QUESTION: 2
Which statement is true about the data traffic between the access point and controller?

A. The data traffic between the access point and controller is not encrypted.
B. The data traffic is encapsulated with LWAPP.
C. The data traffic is switched at the access point before being sent to the WLAN controller where VLAN tagging and QoS are applied.
D. The data traffic is encrypted with AES.
E. All of the above

Answer: B

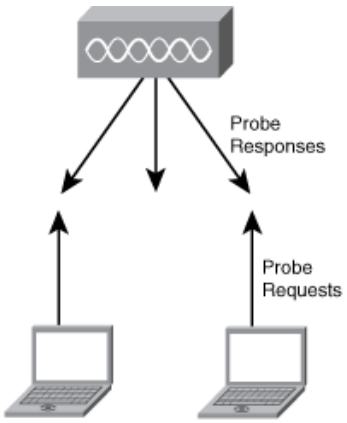
Explanation:
The LAP and WLC pair use the lightweight access point protocol (LWAPP) as the tunneling mechanism. LWAPP control messages—Exchanges that are used to configure the LAP and manage its operation. The control messages are authenticated and encrypted so that the LAP is securely controlled by only the WLC. LWAPP data—Packets to and from wireless clients associated with the LAP. The data is encapsulated within LWAPP, but is not encrypted or otherwise secured between the LAP and WLC. Data traffic between Access Point(AP) and Controller is encapsulated with LWAPP.

QUESTION: 3
Which set of statements describes the correct order and process of a wireless client associating with a wireless access point?

A. 1. Access point sends probe request .
2. Client sends probe response.
3. Client initiates association.
4. Access point accepts association.
5. Client adds access point MAC address to association table.
B. 1. Client sends probe request
2. Access point sends probe response.
3. Client initiates association.
4. Access point accepts association.
5. Access point adds client MAC address to association table.
C. 1. Client sends probe request.
2. Access point sends probe response.
3. Access point initiates association.
4. Client accepts association.
5. Access point adds client MAC address to association table.
D. 1. Access point sends probe request .
2. Client sends probe response.
3. Client initiates association.
4. Access point accepts association.
5. Access point adds client MAC address to association table.
E. 1. Client sends probe request.
2. Access point sends probe response.
3. Client initiates association.
4. Access point accepts association.
5. Client adds access point MAC address to association table.
F. None of the other alternatives apply.

Answer: B

Explanation:
Wireless Client Association:
In the client association process, access points send out beacons announcing one or more SSIDs, data rates, and other information. The client sends out a probe and scans all the channels and listens for beacons and responses to the probes from the access points. The client associates to the access point that has the strongest signal. If the signal becomes low, the client repeats the scan to associate with another access point (this process is called roaming). During association, the SSID, MAC address, and security settings are sent from the client to the access point and checked by the access point. The figure below illustrates the client association process.



A wireless client's association to a selected access point is actually the second step in a two-step process. First, authentication and then association must occur before an 802.11 client can pass traffic through the access point to another host on the network. Client authentication in this initial process is not the same as network authentication (entering username and password to get access to the network). Client authentication is simply the first step (followed by association) between the wireless client and access point, and it establishes communication. The 802.11 standard specifies only two different methods of authentication: open authentication and shared key authentication. Open authentication is simply the exchange of four "hello" type packets with no client or access point verification, to allow ease of connectivity. Shared key authentication uses a statically defined WEP key, known between the client and access point, for verification. This same key might or might not be used to encrypt the actual data passing between a wireless client and an access point based on user configuration.

Reference:
http://www.ciscopress.com/articles/article.asp?p=1156068&seqNum=3

QUESTION: 4
Which statement about the Lightweight Access Point Protocol (LWAPP) is true?

A. LWAPP encrypts both control traffic and user data.
B. LWAPP encrypts user traffic with an x.509 certificate using AES-CCMP.
C. When set to Layer 3, LWAPP uses a proprietary protocol to communicate with the Cisco Aironet APs.
D. LWAPP encrypts control traffic between the AP and the controller.
E. None of the other alternatives apply.

Answer: D

Explanation:
The LAP and WLC pair use the lightweight access point protocol (LWAPP) as the tunneling mechanism. LWAPP control messages—Exchanges that are used to configure the LAP and manage its operation. The control messages are authenticated and encrypted so that the LAP is

securely controlled by only the WLC. LWAPP data—Packets to and from wireless clients associated with the LAP. The data is encapsulated within LWAPP, but is not encrypted or otherwise secured between the LAP and WLC. Data traffic between Access Point(AP) and Controller is encapsulated with LWAPP.

QUESTION: 5
Which two statements correctly describe features of Lightweight Access Point Protocol (LWAPP)? (Choose two.)

A. Control traffic between an access point and a controller is encrypted within LWAPP.
B. Data traffic between an access point and a controller is encrypted within LWAPP.
C. Layer 3 mode packets are transmitted in TCP frames.
D. Data traffic between an access point and a controller is encapsulated within LWAPP.
E. VLAN tagging and QoS markings are applied at the access point.

Answer: A, D

Explanation:
The LAP and WLC pair use the lightweight access point protocol (LWAPP) as the tunneling mechanism. LWAPP control messages—Exchanges that are used to configure the LAP and manage its operation. The control messages are authenticated and encrypted so that the LAP is securely controlled by only the WLC. LWAPP data—Packets to and from wireless clients associated with the LAP. The data is encapsulated within LWAPP, but is not encrypted or otherwise secured between the LAP and WLC. Data traffic between Access Point(AP) and Controller is encapsulated with LWAPP.

QUESTION: 6
Which statement is true about IP telephony calls?

A. The voice carrier stream uses H.323 to set up, maintain, and tear down call endpoints.
B. A Voice over IP (VoIP) packet consists of the voice payload, IP header, TCP header, RTP header, and Layer 2 link header.
C. Call control signaling uses Real-Time Transport Protocol (RTP) packets that contain actual voice samples.
D. The sum of bandwidth necessary for each major application, including voice, video, and data, should not exceed 75 percent of the total available bandwidth for each link.
E. None of the other alternatives apply

Answer: D

Explanation:

Voice over Internet Protocol (VOIP) is probably the most feasible among today's technologies for data, voice and video integration. VOIP is the technology that uses Internet Protocol to transmit voice conversations over a data network such as an intranet or the Internet. The multisite IP WAN with distributed call processing has the following design characteristics:

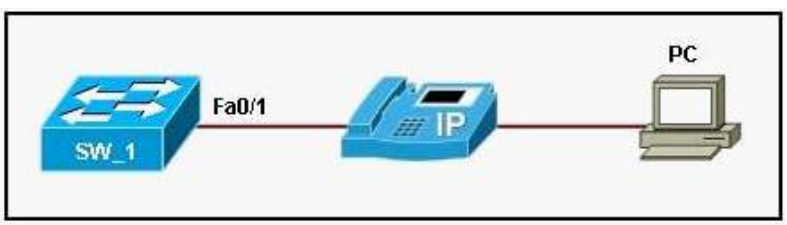
QUESTION: 7
You need to troubleshoot some problems in the Company VOIP network associated with jitter. What is the cause of jitter?

A. Packet drops
B. Transmitting too many small packets
C. Variable queue delays
D. Compression
E. None of the other alternatives apply

Answer: C

Explanation:
Delay variation or jitter is the difference in the delay times of consecutive packets. A jitter buffer is often used to smooth out arrival times, but there are instantaneous and total limits on buffering ability. Any type of buffering used to reduce jitter directly increases total network delay. In general, traffic requiring low latency also requires a minimum variation in latency.
As a design rule, voice networks cannot cope with more than 30 ms of jitter. Jitter in excess of 30 ms will result in degraded audio performance. Excessive jitter in a streaming video environment will result in jerky motion, loss of video quality or loss of video.

QUESTION: 8
Refer to the exhibit. Which statement is true about the voice traffic coming to the switch access port that is connected to the IP phone?



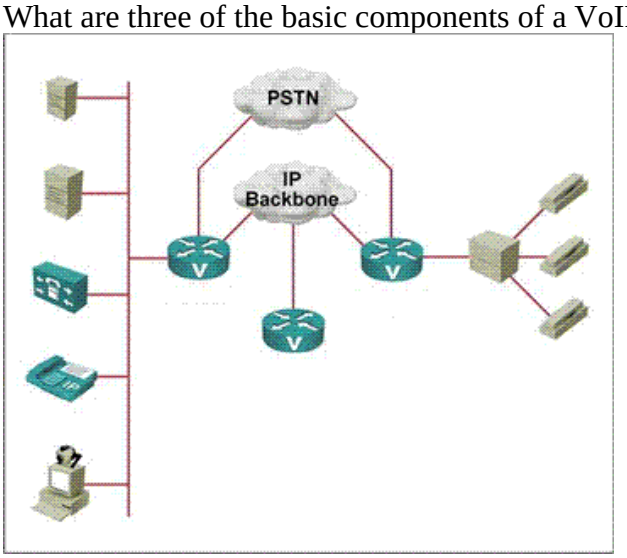
A. A PC connected to a switch port via an IP phone must support a trunking encapsulation.
B. The traffic on the voice VLAN must be tagged with 802.1p encapsulation in order to coexist on the same LAN segment with a PC.
C. A PC connected to a switch port via an IP phone is unaware of the presence of the phone.
D. To improve the quality of the voice traffic, no other devices should be attached to the IP phone.

E. The voice VLAN must be configured as a native VLAN on the switch.

Answer: C

Explanation:
The new voice VLAN is called an auxiliary VLAN in the Catalyst software command-line interface (CLI). In the traditional switched world, data devices reside in a data VLAN. The new auxiliary VLAN is used to represent other types of devices collectively. Today those devices are IP phones (hence the notion of a voice VLAN), but, in the future, other types of non-data devices will also be part of the auxiliary VLAN. Just as data devices come up and reside in the native VLAN (default VLAN), IP phones come up and reside in the auxiliary VLAN, if one has been configured on the switch. When the IP phone powers up, it communicates with the switch using CDP. The switch then provides the phone with its configured VLAN ID (voice subnet), also known as the voice VLAN ID or VVID. Meanwhile, data devices continue to reside in the native VLAN (or default VLAN) of the switch. A data device VLAN (data subnet) is referred to as a port VLAN ID or PVID.

QUESTION: 9
Refer to the exhibit.
What are three of the basic components of a VoIP network? (Choose three.)



A. software voice applications
B. multipoint control unit (MCU)
C. gatekeeper
D. call agent
E. interactive voice response (IVR) systems
F. softphones

Answer: B, C, D

Explanation:
For H.323 VOIP networks the ITU-T H.323 standard specifies four components: For MGCP/SCCP VOIP networks the components that make up a VoIP system include a Signaling Gateway, Call Manager, Call Agent, and Media Gateway Controller.

Reference:
http://www.cisco.com/warp/public/788/voip/understand-gatekeepers.html

QUESTION: 10
Which two statements about voice traffic are true? (Choose two.)

A. Voice packets are typically around 600 bytes to 1200 bytes.
B. For voice quality, packet loss should be less than 2 percent and delay should be no more than 250 ms.
C. Voice packets are typically around 60 KB to 120 KB.
D. For voice quality, packet loss should be less than 1 percent and delay should be no more than 150 ms.
E. A typical voice call requires 17 kbps to 106 kbps of guaranteed priority bandwidth plus an additional 15 kbps per call for voice-control traffic.
F. Voice packets are typically around 60 bytes to 120 bytes.
G. Voice packets are typically around 6 bytes to 12 bytes.

Answer: D, F

Explanation:
QoS Requirements for Voice:
Voice calls, either one-to-one or on a conference connection capability, require the following:
* <=150 ms of one-way latency from mouth to ear (per the ITU G.114 standard)
* <= 30 ms jitter
* <= 1 percent packet loss
* Voice packets are typically small (60 to 120 bytes)
* 17 to 106 kbps of guaranteed priority bandwidth per call (depending on the sampling rate, codec, and Layer 2 overhead)
* 150 bps (plus Layer 2 overhead) (not 15 kbps) per phone of guaranteed bandwidth for voice control traffic
The choice of codec has impacts in many areas. The most important is the capacity planning on the network, because the bandwidth consumed in different codecs varies.

QUESTION: 11
What are three examples of call control signaling? (Choose three.)

A. RTP

B. SIP
C. G.729
D. H.323
E. G.711
F. MGCP

Answer: B, D, F

Explanation:
Call Control Signaling:
Packets belonging to one of several protocols—those used to set up, maintain, tear down, or redirect a call, depending upon call endpoints. Examples are H.323, Media Gateway Control Protocol (MGCP), and SIP (Session Initiation Protocol)

QUESTION: 12
Which three characteristics are true about voice traffic in the campus network? (Choose three.)

A. TCP retransmits
B. UDP priority
C. Bursty
D. Delay sensitive
E. Greedy
F. Drop sensitive

Answer: B, D, F

Explanation:
Voice packets are typically small (60 to 120 bytes), they cannot tolerate delay or drops. The result of delays and drops is often unacceptable voice quality. Because drops cannot be tolerated, User Datagram Protocol (UDP) is used to package voice packets. TCP retransmit capabilities have no value, as by the time a TCP packet is retransmitted for VOIP, it will already be too late for the receiving device to use this packet.

QUESTION: 13
Which statement is true about utilizing a data network for voice traffic?

A. Voice traffic will require some form of QoS mechanisms in most networks.
B. Because voice traffic volume cannot be calculated, network bandwidth requirements must be determined from an existing installation.
C. Adding bandwidth to the data network is the primary solution to provide for the needs of voice traffic.
D. Network congestion must be totally eliminated to provide proper voice traffic performance.

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