CWNA-109 Q&As

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QUESTION 1

You are tasked with performing a throughput test on the WLAN. The manager asks that you use open source tools to reduce costs. What open source tool is designed to perform a throughput test?

A. iPerf

B. PuTTy

C. IxChariot

D. Python

Correct Answer: A

iPerf is an open source tool that is designed to perform a throughput test on the WLAN. iPerf is a cross-platform command-line tool that can measure the bandwidth and quality of network links by generating TCP or UDP traffic between two endpoints.iPerf can run as either a server or a client mode, depending on whether it receives or sends traffic. iPerf can also report various metrics of network performance, such as throughput, jitter, packet loss, delay, and TCP window size. To perform a throughput test on the WLAN using iPerf, one device needs to run iPerf in server mode and another device needs to run iPerf in client mode. The devices need to be connected to the same WLAN network and have their IP addresses configured properly. The device running iPerf in client mode needs to specify the IP address of the device running iPerf in server mode as well as other parameters such as protocol, port number, duration, interval, bandwidth limit, packet size, etc. The device running iPerf in server mode will listen for incoming connections from the client device and send back acknowledgments or responses depending on the protocol used. The device running iPerf in client mode will send traffic to the server device according to the specified parameters and measure the network performance. The device running iPerf in client mode will display the results of the throughput test at the end of the test or at regular intervals during the test. The results can show the average, minimum, maximum, and instantaneous throughput of the network link, as well as other metrics such as jitter, packet loss, delay, and TCP window size. References: 1, Chapter 7, page 287; 2, Section 4.3

QUESTION 2

The requirements for a WLAN you are installing state that it must support unidirectional delays of less than 150 ms and the signal strength at all receivers can be no lower than -67 dBm. What application is likely used that demands these requirements?

A. VoIP

B. E-Mail

C. FTP

D. RTLS

Correct Answer: A

VoIP (Voice over Internet Protocol) is an application that is likely used that demands the requirements of unidirectional delays of less than 150 ms and the signal strength at all receivers can be no lower than -67 dBm. VoIP is an application that allows users to make and receive voice calls over a network, such as the Internet or a WLAN. VoIP is a real-time and interactive application that requires high quality of service (QoS) to ensure good user experience and satisfaction. One of the QoS metrics for VoIP is delay, which is the time it takes for a voice packet to travel from the sender to the receiver. Delay can affect the quality and intelligibility of the voice conversation, as well as the synchronization and

naturalness of the dialogue. The ITU-T G.114 recommendation suggests that the maximum acceptable one-way delay for VoIP should be less than 150 ms, as anything higher than that can cause noticeable degradation and annoyance to the users. Another QoS metric for VoIP is signal strength, which is the measure of how strong the RF signal is at the receiver. Signal strength can affect the reliability and performance of the wireless connection, as well as the data rate and throughput of the VoIP traffic. The CWNA Official Study Guide recommends that the minimum signal strength for VoIP should be -67 dBm, as anything lower than that can cause packet loss, retries, jitter, and other issues that can impair the voice quality. References: 1, Chapter 10, page 398; 2, Section 6.1

QUESTION 3

Which one of the following channels can be used for VHT transmissions according to the 802.11 specification?

A. 6

B. 144

C. 1

D. 11

Correct Answer: B

The channel that can be used for VHT transmissions according to the 802.11 specification is channel 144. VHT stands for Very High Throughput and is the PHY layer specification for 802.11ac devices. VHT transmissions can use channel bandwidths of 20 MHz, 40 MHz, 80 MHz, or 160 MHz in the 5 GHz band. Channel 144 is one of the channels in the 5 GHz band that can support VHT transmissions with any of these bandwidths. Channel 6, channel 1, and channel 11 are channels in the 2.4 GHz band that cannot support VHT transmissions, as they are only compatible with legacy (802.11b/g/n), HT (802.11n), or ERP (802.11g) transmissions with up to 20 MHz bandwidth. References: [CWNP Certified Wireless Network Administrator Official Study Guide: ExamCWNA-109], page 214; [CWNA: Certified Wireless Network Administrator Official Study Guide: ExamCWNA-109], page 204.

QUESTION 4

An 802.11 WLAN transmitter that emits a 50 mW signal is connected to a cable with 3 dB of loss. The cable is connected to an antenna with 16 dBi of gain. What is the power level at the Intentional Radiator?

A. 25 mW

B. 250 mW

C. 500 mW

D. 1000 mW

Correct Answer: B

The power level at the Intentional Radiator (IR) is 250 mW. The IR is the point where the RF signal leaves the transmitter and enters the antenna system. To calculate the power level at the IR, we need to consider the output power level of

the transmitter, the loss of the cable, and the gain of the antenna. The formula is:

Power level at IR (dBm) = Output power level (dBm) - Cable loss (dB) + Antenna gain (dBi) We can convert the output

power level of 50 mW to dBm by using the formula:

Power level (dBm) = 10 * log10(Power level (mW))

Therefore, 50 mW = 10 * log10(50) = 16.99 dBm

We can plug in the values into the formula:

Power level at IR (dBm) = 16.99 - 3 + 16 = 29.99 dBm We can convert the power level at IR from dBm to mW by using the inverse formula:

Power level (mW) = 10^(Power level (dBm) / 10)

Therefore, 29.99 dBm = 10^(29.99 / 10) = 999.96 mW However, since we need to round off the answer to the nearest integer value, we get:

Power level at IR (mW) = 1000 mW

References: [CWNP Certified Wireless Network Administrator Official Study Guide:

ExamCWNA-109], page 67; [CWNA: Certified Wireless Network Administrator Official Study Guide: ExamCWNA-109], page 57.

QUESTION 5

You were previously onsite at XYZ\\'s facility to conduct a pre-deployment RF site survey. The WLAN has been deployed according to your recommendations and you are onsite again to perform a post-deployment validation survey.

When performing this type of post-deployment RF site survey voice over Wi-Fi, what is an action that must be performed?

A. Spectrum analysis to locate and identify RF interference sources.

B. Frequency-band hopping analysis to detect improper RF channel implementations.

C. Application analysis with an active phone call on an VoWiFi handset.

D. Protocol analysis to discover channel use on neighboring APs.

Correct Answer: C

When performing a post-deployment validation survey for voice over Wi-Fi (VoWiFi), an action that must be performed is Application analysis with an active phone call on a VoWiFi handset. Application analysis is a method of testing the performance of a specific application over the WLAN by measuring parameters such as throughput, latency, jitter, packet loss, MOS score, and R-value. Application analysis with an active phone call on a VoWiFi handset can help to evaluate the quality of service (QoS) and user experience of VoWiFi calls over the WLAN. It can also help to identify any issues or bottlenecks that may affect VoWiFi calls such as interference, roaming delays, or insufficient coverage. References: [CWNP Certified Wireless Network Administrator Official Study Guide: ExamCWNA-109], page 549; [CWNA: Certified Wireless Network Administrator Official Study Guide: ExamCWNA-109], page 519.