CCST Networking – Module 11 Quiz

Questions

1. You're working on a computer running macOS, and you want to determine each router hop that's used to get from that computer to cisco.com. Which of the following would be the most appropriate command line utility to use?

    a. ifconfig
    b. tracert
    c. nc
    d. traceroute

2. What field in an IPv4 header does the traceroute utility modify as it learns the path a packet takes through a network?

    a. ToS
    b. TTL
    c. FCS
    d. TLS

3. You're working on a Linux host and wish to determine the IP address assigned to its network interface card. Which of the following would be the most appropriate command line utility to use?

    a. ifconfig
    b. cat address.inf
    c. ipconfig
    d. ping 127.0.0.1

4. You issue the "ipconfig /release" command from a command line prompt in MS Windows. When you then issue the "ipconfig" command, what best describes the IPv4 address displayed?

    a. It will be an IPv4 address of 0.0.0.0.
    b. The IPv4 address field will be empty.
    c. It will be an APIPA address.
    d. It will be the same address the MS Windows computer had before issuing the "ipconfig /release" command.

Questions and Answers

1. You're working on a computer running macOS, and you want to determine each router hop that's used to get from that computer to cisco.com. Which of the following would be the most appropriate command line utility to use?

   a. ifconfig
   b. tracert
   c. nc
   d. traceroute

   Answer: d

   Explanation: While Microsoft Windows supports the "tracert" command to determine the hop-by-hop path to a network destination, similar functionality is available in macOS (and many Linux distributions) using the "traceroute" command.

   Video Reference: macOS Verification

2. What field in an IPv4 header does the traceroute utility modify as it learns the path a packet takes through a network?

   a. ToS
   b. TTL
   c. FCS
   d. TLS

   Answer: b

   Explanation: The Time-to-Live (TTL) field is used by the traceroute utility to determine a hop-by-hop path used to reach a network destination. The client issuing the "traceroute" or "tracert" command begins by setting a packet's TTL value to 1. When the first-hop router receives that packet, it decrements the TTL value to a 0 and sends a response to the sender notifying them the TTL expired. A client typically sends three such packets with the same TTL value before increasing that value.

   Next, the client sends a packet with a TTL value of 2, which expires when the second-hop router is reached. The second-hop router again discards the packet and sends a response to the sender notifying them the TTL expired.

   This process continues until a packet sent from the client has a TTL value large enough to reach the client, or until a the maximum TTL value for the traceroute utility is reached. Often, this maximum TTL value is 30.

Once complete, the client has a hop-by-hop view of the path used to reach a network destination, along with round-trip delay times for each router hop along that path.

Video Reference: Checking Network Connectivity

3. You're working on a Linux host and wish to determine the IP address assigned to its network interface card. Which of the following would be the most appropriate command line utility to use?

   a. ifconfig
   b. cat address.inf
   c. ipconfig
   d. ping 127.0.0.1

Answer: a

Explanation: While Microsoft Windows supports the "ipconfig" command to display information about a network interface card, such as its IP address and subnet mask, most Linux distributions (and also macOS) offer similar functionality with the "ifconfig" command.

Video Reference: Linux Verification

4. You issue the "ipconfig /release" command from a command line prompt in MS Windows. When you then issue the "ipconfig" command, what best describes the IPv4 address displayed?

   a. It will be an IPv4 address of 0.0.0.0.
   b. The IPv4 address field will be empty.
   c. It will be an APIPA address.
   d. It will be the same address the MS Windows computer had before issuing the "ipconfig /release" command.

Answer: c

Explanation: If a Microsoft Windows client has obtained IP address information via DHCP, it will self-assign an APIPA IP address to its network interface card if the DHCP lease is released. An APIPA (Automatic Private IP Addressing) IP address is easily recognizable, because it begins with 169.254 in the first two octets. Also, unlike an RFC 1918 Private IP Address, which can be routed within a private network, an APIPA address cannot be routed, even within a private network.

Video Reference: MS Windows Verification