

Exam Questions CCST-Networking

Cisco Certified Support Technician (CCST) Networking Exam

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NEW QUESTION 1

A host is given the IP address 172.16.100.25 and the subnet mask 255.255.252.0. What is the CIDR notation for this address?

- A. 172.16.100.25 /23
- B. 172.16.100.25 /20
- C. 172.16.100.25 /21
- D. 172.16.100.25 /22

Answer: D

Explanation:

The CIDR (Classless Inter-Domain Routing) notation for the subnet mask 255.255.252.0 is /22. This notation indicates that the first 22 bits of the IP address are used for network identification, and the remaining bits are used for host addresses within the network¹. References :=

- Subnet Cheat Sheet – 24 Subnet Mask, 30, 26, 27, 29, and other IP Address CIDR Network References

=====

- Subnet Mask to CIDR Notation: The given subnet mask is 255.255.252.0. To convert this to CIDR notation:

- Convert the subnet mask to binary: 11111111.11111111.1111100.00000000

- Count the number of consecutive 1s in the binary form: There are 22 ones.

- Therefore, the CIDR notation is /22. References:

- Understanding Subnetting and CIDR: Cisco CIDR Guide

NEW QUESTION 2

Which command will display all the current operational settings configured on a Cisco router?

- A. show protocols
- B. show startup-config
- C. show version
- D. show running-config

Answer: D

Explanation:

Router

The `show running-config` command is used on a Cisco router to display the current operational settings that are actively configured in the router's RAM. This command outputs all the configurations that are currently being executed by the router, which includes interface configurations, routing protocols, access lists, and other settings. Unlike `show startup-config`, which shows the saved configuration that the router will use on the next reboot, `show running-config` reflects the live, current configuration in use.

References:= The information is supported by multiple sources that detail the use of Cisco commands, particularly the `show running-config` command as the standard for viewing the active configuration on a Cisco device¹²³.

? `show running-config`: This command displays the current configuration running on the router. It includes all the operational settings and configurations applied to the router.

? `show protocols`: This command shows the status of configured protocols on the router but not the entire configuration.

? `show startup-config`: This command displays the configuration saved in NVRAM, which is used to initialize the router on startup, but not necessarily the current running configuration.

? `show version`: This command provides information about the router's software version, hardware components, and uptime but does not display the running configuration.

References:

? Cisco IOS Commands: Cisco IOS Commands

NEW QUESTION 3

What is the most compressed valid format of the IPv6 address 2001:0db8:0000:0016:0000:001b: 2000:0056?

- A. 2001:db8: : 16: : 1b:2:56
- B. 2001:db8: : 16: : 1b: 2000: 56
- C. 2001:db8: 16: :1b:2:56
- D. 2001:db8: 0:16: :1b: 2000:56

Answer: D

Explanation:

IPv6 addresses can be compressed by removing leading zeros and replacing consecutive groups of zeros with a double colon (::). Here??s how to compress the address 2001:0db8:0000:0016:0000:001b:2000:0056:

? Remove leading zeros from each segment:

? Replace the longest sequence of consecutive zeros with a double colon (::). In this case, the two consecutive zeros between the 16 and 1b:

Thus, the most compressed valid format of the IPv6 address is 2001:db8:0:16::1b:2000:56.

References:=-

? Cisco Learning Network

? IPv6 Addressing (Cisco)

NEW QUESTION 4

HOTSPOT

Computers in a small office are unable to access companypro.net. You run the ipconfig command on one of the computers. The results are shown in the exhibit. You need to determine if you can reach the router.

```
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
IPv4 Address. . . . . : 192.168.0.14(Preferred)
Subnet Mask . . . . . : 255.255.255.0
Lease Obtained. . . . . : Sunday, January 8, 2023 11:00:02 AM
Lease Expires . . . . . : Sunday, January 8, 2023 12:00:12 PM
Default Gateway . . . . . : 192.168.0.1
DHCP Server . . . . . : 192.168.0.1
DNS Servers . . . . . : 8.8.8.8
                        8.8.4.4
NetBIOS over Tcpi . . . . . : Enabled
```

Which command should you use? Complete the command by selecting the correct options from each drop-down lists.

netstat
ping
ftp
nslookup

companypro.net
192.168.0.1
localhost
8.8.8.8

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

? ping: The ping command sends ICMP Echo Request messages to the target IP address and waits for an Echo Reply. It is commonly used to test the reachability of a network device.

? 192.168.0.1: This is the IP address of the default gateway (the router) as shown in theipconfigoutput. Pinging this address will help determine if the computer can communicate with the router.

References:

? Using the ping Command: ping Command Guide

NEW QUESTION 5

During the data encapsulation process, which OSI layer adds a header that contains MAC addressing information and a trailer used for error checking?

- A. Network
- B. Transport
- C. Data Link
- D. Session

Answer: C

Explanation:
OSI model



During the data encapsulation process, theData Link layerof the OSI model is responsible for adding a header that contains MAC addressing information and a trailer used for error checking.The header typically includes the source and destination MAC addresses, while the trailer contains a Frame Check Sequence (FCS) which is used for error detection1.

The Data Link layer ensures that messages are delivered to the proper device on a LAN using hardware addresses and translates messages from the Network layer into bits for the Physical layer to transmit. It also controls how data is placed onto the medium and is received from the medium through the physical hardware.

References:=-

? The OSI Model – The 7 Layers of Networking Explained in Plain English

? OSI Model - Network Direction

? Which layer adds both header and trailer to the data?

? What is OSI Model | 7 Layers Explained - GeeksforGeeks

NEW QUESTION 6

DRAG DROP

Move each protocol from the list on the left to the correct TCP/IP model layer on the right. Note: You will receive partial credit for each correct match.

Protocols

TCP

IP

FTP

Ethernet

TCP Model Layer

Application

Transport

Internetwork

Network

Protocol

Protocol

Protocol

Protocol

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Here??s how each protocol aligns with the correct TCP/IP model layer:

? TCP (Transmission Control Protocol): This protocol belongs to theTransportlayer, which is responsible for providing communication between applications on different hosts1.

? IP (Internet Protocol): IP is part of theInternetworklayer, which is tasked with routing packets across network boundaries to their destination1.

? FTP (File Transfer Protocol): FTP operates at theApplicationlayer, which supports application and end-user processes.It is used for transferring files over the network1.

? Ethernet: While not a protocol within the TCP/IP stack, Ethernet is associated with theNetwork Interfacelayer, which corresponds to the link layer of the TCP/IP model and is responsible for the physical transmission of data1.

The TCP/IP model layers are designed to work collaboratively to transmit data from one layer to another, with each layer having specific protocols that perform functions necessary for the data transmission process1.

? TCP:

? IP:

? FTP:

? Ethernet:

? Transport Layer: This layer is responsible for providing communication services directly to the application processes running on different hosts. TCP is a core protocol in this layer.

? Internetwork Layer: This layer is responsible for logical addressing, routing, and packet forwarding. IP is the primary protocol for this layer.

? Application Layer: This layer interfaces directly with application processes and provides common network services. FTP is an example of a protocol operating in this layer.

? Network Layer: In the TCP/IP model, this layer includes both the data link and physical layers of the OSI model. Ethernet is a protocol used in this layer to define network standards and communication protocols at the data link and physical levels.

References:

? TCP/IP Model Overview: Cisco TCP/IP Model

? Understanding the TCP/IP Model: TCP/IP Layers

NEW QUESTION 7

A local company requires two networks in two new buildings. The addresses used in these networks must be in the private network range. Which two address ranges should the company use? (Choose 2.) Note: You will receive partial credit for each correct selection.

- A. 172.16.0.0 to 172.31.255.255
- B. 192.16.0.0 to 192.16.255.255
- C. 11.0.0.0 to 11.255.255.255
- D. 192.168.0.0 to 192.168.255.255

Answer: AD

Explanation:

The private IP address ranges that are set aside specifically for use within private networks and not routable on the internet are as follows:

? Class A: 10.0.0.0 to 10.255.255.255

? Class B: 172.16.0.0 to 172.31.255.255

? Class C: 192.168.0.0 to 192.168.255.255

These ranges are defined by the Internet Assigned Numbers Authority (IANA) and are used for local communications within a private network.

Given the options: A. 172.16.0.0 to 172.31.255.255 falls within the Class B private range. B. 192.16.0.0 to 192.16.255.255 is not a recognized private IP range.

C. 11.0.0.0 to 11.255.255.255 is not a recognized private IP range. D. 192.168.0.0 to 192.168.255.255 falls within the Class C private range.

Therefore, the correct selections that the company should use for their private networks are

A and D. References: =

? Reserved IP addresses on Wikipedia

? Private IP Addresses in Networking - GeeksforGeeks

? Understanding Private IP Ranges, Uses, Benefits, and Warnings

NEW QUESTION 8

HOTSPOT

You plan to use a network firewall to protect computers at a small office. For each statement about firewalls, select True or False.

Note: You will receive partial credit for each correct selection.

	True	False
A firewall can direct all web traffic to a specific IP address.	<input type="radio"/>	<input type="radio"/>
A firewall can block traffic to specific ports on internal computers.	<input type="radio"/>	<input type="radio"/>
A firewall can prevent specific apps from running on a computer.	<input type="radio"/>	<input type="radio"/>

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

? A firewall can direct all web traffic to a specific IP address.

? A firewall can block traffic to specific ports on internal computers.

? A firewall can prevent specific apps from running on a computer.

? Directing Web Traffic: Firewalls can manage traffic redirection using NAT and port forwarding rules to route web traffic to designated servers or devices within the network.

? Blocking Specific Ports: Firewalls can enforce security policies by blocking or allowing traffic based on port numbers, ensuring that only permitted traffic reaches internal systems.

? Application Control: While firewalls manage network traffic, preventing applications from running typically requires software specifically designed for endpoint protection and application management.

References:

? Understanding Firewalls: Firewall Capabilities

? Network Security Best Practices: Network Security Guide

NEW QUESTION 9

What is the purpose of assigning an IP address to the management VLAN interface on a Layer 2 switch?

- A. To enable the switch to act as a default gateway for the attached devices
- B. To enable the switch to resolve URLs for the attached the devices
- C. To enable the switch to provide DHCP services to other switches in the network
- D. To enable access to the CLI on the switch through Telnet or SSH

Answer: D

Explanation:

The primary purpose of assigning an IP address to the management VLAN interface on a Layer 2 switch is to facilitate remote management of the switch. By configuring an IP address on the management VLAN, network administrators can access the switch's Command Line Interface (CLI) remotely using protocols such as Telnet or Secure Shell (SSH). This allows for convenient configuration changes, monitoring, and troubleshooting without needing physical access to the switch.

References :=

- Understanding the Management VLAN
- Cisco - VLAN Configuration Guide
- Remote Management of Switches

Assigning an IP address to the management VLAN interface (often the VLAN 1 interface by default) on a Layer 2 switch allows network administrators to remotely manage the switch using protocols such as Telnet or SSH. This IP address does not affect the switch's ability to route traffic between VLANs but provides a means to access and configure the switch through its Command Line Interface (CLI).

- A: The switch does not act as a default gateway; this is typically a function of a Layer 3 device like a router.
- B: The switch does not resolve URLs; this is typically a function of DNS servers.
- C: The switch can relay DHCP requests but does not typically provide DHCP services itself; this is usually done by a dedicated DHCP server or router.

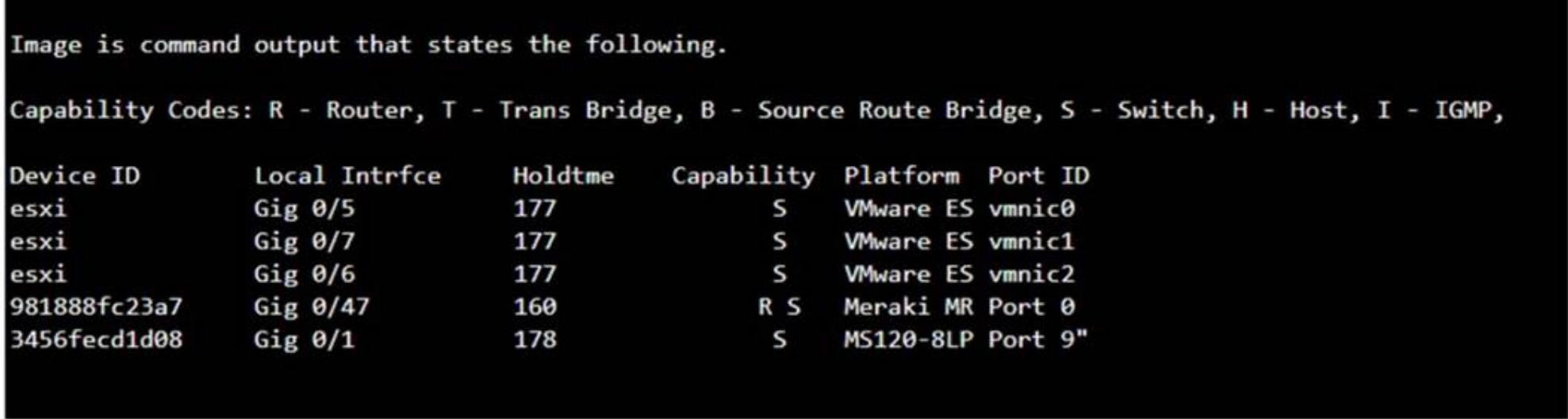
Thus, the correct answer is D. To enable access to the CLI on the switch through Telnet or SSH.

References :=

- Cisco VLAN Management Overview
- Cisco Catalyst Switch Management

NEW QUESTION 10

Which command will display the following output?



- A. show mac-address-table
- B. show cdp neighbor
- C. show inventory
- D. show ip interface

Answer: B

Explanation:

The command that will display the output provided, which includes capability codes, local interface details, device IDs, hold times, and platform port ID capabilities, is the show cdp neighbor command. This command is used in Cisco devices to display current information about neighboring devices detected by Cisco Discovery Protocol (CDP), which includes details such as the interface through which the neighbor is connected, the type of device, and the port ID of the device.

References :=

- Cisco - show cdp neighbors

The provided output is from the Cisco Discovery Protocol (CDP) neighbor table. The show cdp neighbor command displays information about directly connected Cisco devices, including Device ID, Local Interface, Holdtime, Capability, Platform, and Port ID.

- A. show mac-address-table: Displays the MAC address table on the switch.
- C. show inventory: Displays information about the hardware inventory of the device.
- D. show ip interface: Displays IP interface status and configuration. Thus, the correct answer is B. show cdp neighbor.

References :=

- Cisco CDP Neighbor Command
- Understanding CDP

NEW QUESTION 10

Examine the following output:

Examine the following command output:

```
C:\Admin>tracert www.cisco.com
5
over a maximum of 30 hops:

 1  <1 ms  <1 ms  <1 ms  2603-6081-943f-72ec-a240-a0ff-fe67-3c14.res6.big.com [2603:6081:943f:72ec:a240:a0ff:fe67:3c14]
 2  13 ms  11 ms  16 ms  2603-90b3-0a00-01bb-0000-0000-0000-0001.wifi6.biginternet.com [2603:90b3:a00:1bb::1]
 3  17 ms  25 ms  18 ms  lag-61.zblnnc1001h.netops.exchange.com [2001:db8:a000:0:4::8:d4c]
 4  16 ms  13 ms  11 ms  lag-29.drhmncev02r.netops.exchange.com [2001:db8:a000:0:4::2:152]
 5  *      *      *      Request timed out.
 6  *      *      *      Request timed out.
 7  19 ms  18 ms  27 ms  lag-0.pr2.dca10.netops.provider.com [2001:db8:1998:0:4::517]
 8  21 ms  32 ms  23 ms  2001:db8:1998:0:8::639
 9  16 ms  15 ms  18 ms  vlan-103.r10.spine101.iad03.fab.netarch.provider.com [2600:1408:b400:40b::1]
10  15 ms  17 ms  22 ms  vlan-110.r03.leaf101.iad03.fab.netarch.provider.com [2600:1408:b400:f03::1]
11  17 ms  17 ms  23 ms  vlan-104.r08.tor101.iad03.fab.netarch.provider.com [2600:1408:b400:2908::1]
12  25 ms  19 ms  19 ms  g2600-1408-c400-038d-0000-0000-0000-0b33.deploy.static.et.com [2600:1408:c400:38d::b33]

Trace complete.
```

Which two conclusions can you make from the output of the tracert command? (Choose 2.) Note: You will receive partial credit for each correct answer.

- A. The trace successfully reached the www.cisco.com server.
- B. The trace failed after the fourth hop.
- C. The IPv6 address associated with the www.cisco.com server is 2600:1408: c400: 38d: : b33.
- D. The routers at hops 5 and 6 are offline.
- E. The device sending the trace has IPv6 address 2600:1408:c400:38d :: b33.

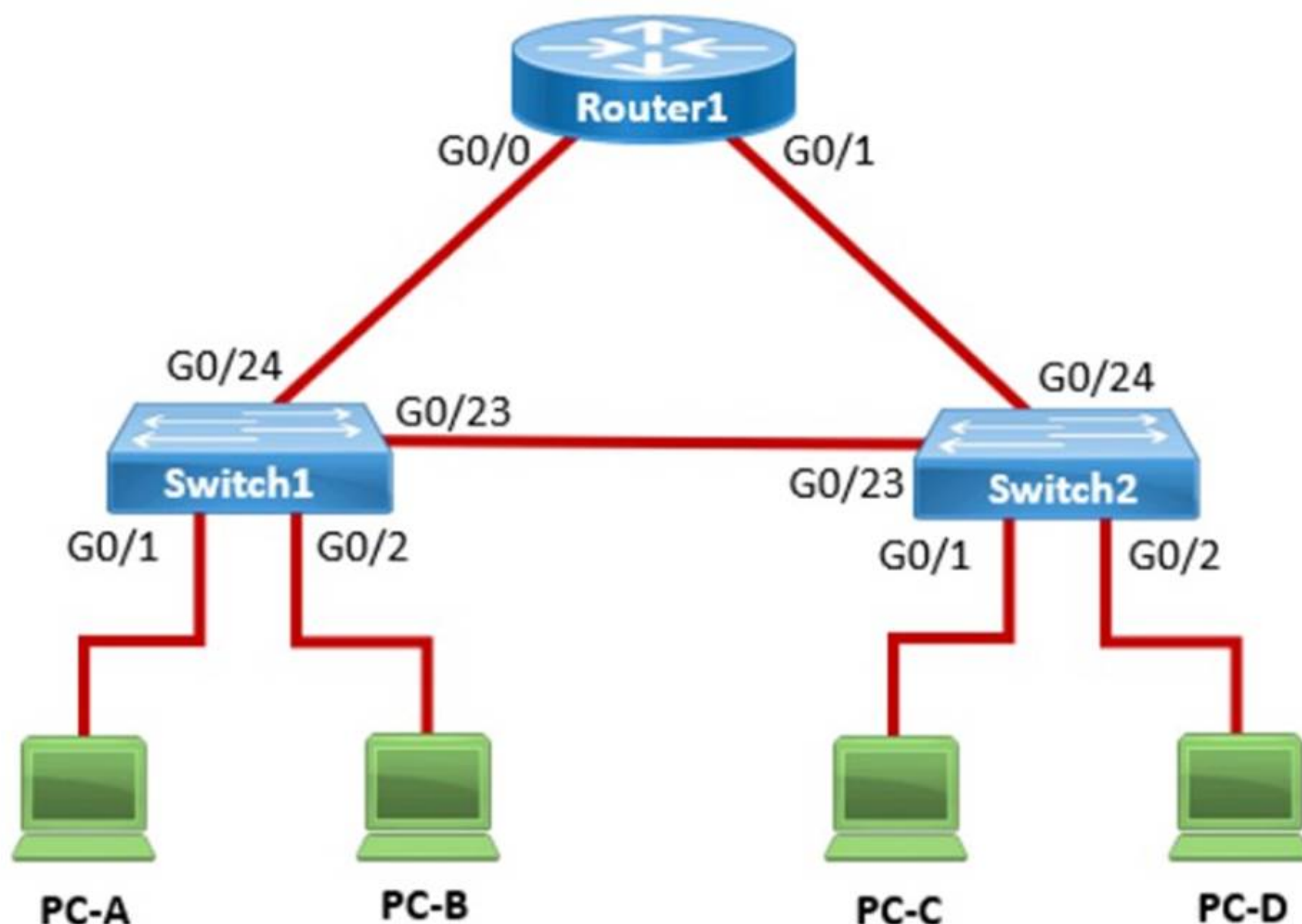
Answer: AC

Explanation:

- Statement A: "The trace successfully reached the www.cisco.com server." This is true as indicated by the "Trace complete" message at the end, showing that the trace has reached its destination.
- Statement C: "The IPv6 address associated with the www.cisco.com server is 2600:1408:c400:38d::b33." This is true because the final hop in the trace, which is the destination, has this IPv6 address.
- Statement B: "The trace failed after the fourth hop." This is incorrect as the trace continues beyond the fourth hop, despite some intermediate timeouts.
- Statement D: "The routers at hops 5 and 6 are offline." This is not necessarily true. The routers might be configured to not respond to traceroute requests.
- Statement E: "The device sending the trace has IPv6 address 2600:1408:c400:38d::b33." This is incorrect; this address belongs to the destination server, not the sender. References:
- Understanding Traceroute: Traceroute Guide

NEW QUESTION 11

In the network shown in the following graphic, Switch1 is a Layer 2 switch.



PC-A sends a frame to PC-C. Switch1 does not have a mapping entry for the MAC address of PC-C. Which action does Switch1 take?

- A. Switch1 queries Switch2 for the MAC address of PC-C.
- B. Switch1 drops the frame and sends an error message back to PC-A.
- C. Switch1 floods the frame out all active ports except port G0/1.
- D. Switch1 sends an ARP request to obtain the MAC address of PC-C.

Answer: B

Explanation:

In a network, when a Layer 2 switch (like Switch1) receives a frame destined for a MAC address that is not in its MAC address table, it performs a flooding operation. This means the switch will send the frame out of all ports except the port on which the frame was received. This flooding ensures that if the destination device is connected to one of the other ports, it will receive the frame and respond, allowing the switch to learn its MAC address.

? A. Switch1 queries Switch2 for the MAC address of PC-C: This does not happen in

Layer 2 switches; they do not query other switches for MAC addresses.

? A. Switch1 drops the frame and sends an error message back to PC-A: This is not the default behavior for unknown unicast frames.

? D. Switch1 sends an ARP request to obtain the MAC address of PC-C: ARP is used by devices to map IP addresses to MAC addresses, not by switches to find unknown MAC addresses.

Thus, the correct answer is B. Switch1 floods the frame out all active ports except port G0/1.

References:=

? Cisco Layer 2 Switching Overview

? Switching Mechanisms (Cisco)

NEW QUESTION 14

You want to store files that will be accessible by every user on your network. Which endpoint device do you need?

- A. Access point
- B. Server
- C. Hub
- D. Switch

Answer: B

Explanation:

To store files that will be accessible by every user on a network, you would need a server. A server is a computer system that provides data to other computers. It can serve data to systems on a local network (LAN) or a wide network (WAN) over the internet. In this context, a file server would be set up to store and manage files, allowing users on the network to access them from their own devices¹.

References:=

? What is a Server?

? Understanding Servers and Their Functions

A server is a computer designed to process requests and deliver data to other computers over a local network or the internet. In this case, to store files that will be accessible by every user on the network, a file server is the appropriate endpoint device. It provides a centralized location for storing and managing files, allowing users to access and share files easily.

? A. Access point: Provides wireless connectivity to a network.

? C. Hub: A basic networking device that connects multiple Ethernet devices together, making them act as a single network segment.

? D. Switch: A networking device that connects devices on a computer network by using packet switching to forward data to the destination device.

Thus, the correct answer is B. Server.

References:=

? File Server Overview (Cisco)

? Server Roles in Networking (Cisco)

NEW QUESTION 18

Which two pieces of information should you include when you initially create a support ticket? (Choose 2.)

- A. A detailed description of the fault
- B. Details about the computers connected to the network
- C. A description of the conditions when the fault occurs
- D. The actions taken to resolve the fault
- E. The description of the top-down fault-finding procedure

Answer: AC

Explanation:

? Statement A: "A detailed description of the fault." This is essential for support staff to understand the nature of the problem and begin troubleshooting effectively.

? Statement C: "A description of the conditions when the fault occurs." This helps in reproducing the issue and identifying patterns that might indicate the cause of the fault.

? Statement B: "Details about the computers connected to the network." While useful, this is not as immediately critical as understanding the fault itself and the conditions under which it occurs.

? Statement D: "The actions taken to resolve the fault." This is important but typically follows the initial report.

? Statement E: "The description of the top-down fault-finding procedure." This is more of a troubleshooting methodology than information typically included in an initial support ticket.

References:

? Best Practices for Submitting Support Tickets: Support Ticket Guidelines

NEW QUESTION 20

Which device protects the network by permitting or denying traffic based on IP address, port number, or application?

- A. Firewall
- B. Access point
- C. VPN gateway

D. Intrusion detection system

Answer: A

Explanation:

? Firewall: A firewall is a network security device that monitors and controls incoming and outgoing network traffic based on predetermined security rules. It permits or denies traffic based on IP addresses, port numbers, or applications.

? Access Point: This is a device that allows wireless devices to connect to a wired network using Wi-Fi. It does not perform traffic filtering based on IP, port, or application.

? VPN Gateway: This device allows for secure connections between networks over the internet, but it is not primarily used for traffic filtering based on IP, port, or application.

? Intrusion Detection System (IDS): This device monitors network traffic for suspicious activity and policy violations, but it does not actively permit or deny traffic.

References:

? Understanding Firewalls: Firewall Basics

NEW QUESTION 23

DRAG DROP

Move each network type from the list on the left to the correct example on the right.

Network Types

WAN

PAN

MAN

LAN

Examples

Two home office computers are connected to a switch by Ethernet cables.

Network Type

Three government buildings in the same city connect to a cable company over coaxial cables.

Network Type

A cell phone connects to a Bluetooth headset.

Network Type

A financial institution connects its branches through a telecommunications service provider.

Network Type

- A. Mastered
B. Not Mastered

Answer: A

Explanation:

? Two home office computers are connected to a switch by Ethernet cables.

? Three government buildings in the same city connect to a cable company over coaxial cables.

? A cell phone connects to a Bluetooth headset.

? A financial institution connects its branches through a telecommunications service provider.

? LAN (Local Area Network): Used for connecting devices within a small geographical area such as a single building or home.

? MAN (Metropolitan Area Network): Covers a larger geographical area than a LAN, typically a city or campus.

? PAN (Personal Area Network): Connects devices within the range of an individual person, such as connecting a phone to a Bluetooth headset.

? WAN (Wide Area Network): Spans large geographical areas, connecting multiple LANs across cities, countries, or continents.

References:

? Network Types Overview: Cisco Networking Basics

? Understanding Different Network Types: Network Types Guide

NEW QUESTION 27

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