

4.6.8 Practice Questions

Candidate: Keith Hibbard (hibbarkm@miamioh.edu)

Date: 2/11/2025, 1:51:21 PM • Time Spent: 02:06

Score: 100%

Passing Score: 80%

Question 1.

✓ Correct

You have a TCP/IP network with 50 hosts. There have been inconsistent communication problems between hosts. You run a protocol analyzer and discover that two hosts are assigned the same IP address.

Which protocol can you implement on your network to help prevent problems such as this?

- IP
- ICMP
- IGMP
- SNMP
- DHCP
- TCP

Explanation

You can use the dynamic host configuration protocol to set up a DHCP server that will assign IP addresses to network hosts automatically. DHCP servers will not assign the same IP address to two different hosts.

References

 [4.6.1 DHCP Overview](#)

 [4.6.2 DHCP Facts](#)

 [4.6.3 Set Up DHCP](#)

 [4.6.4 DHCP Configuration Facts](#)

resources\text\t_dhcp_ccna7\q_dhcp_01_ccna7.question.xml

Which of the following statements about the dynamic host configuration protocol (DHCP) are true? (Select two.)

- It cannot be configured to assign the same IP address to the same host each time it boots.
- It can deliver other configuration information in addition to IP addresses.
- A DHCP server assigns addresses to requesting hosts.
- It is used only to deliver IP addresses to hosts.
- It can deliver IP addresses to hosts, but it cannot provide DNS server host configuration information.

Explanation

DHCP servers deliver IP addresses as well as other host configuration information to network hosts, including the default gateway and DNS server.

DHCP can be configured to assign any available address to a host, or it can assign a specific address to a specific host.

References

 **4.6.1 DHCP Overview**

 **4.6.2 DHCP Facts**

 **4.6.3 Set Up DHCP**

 **4.6.4 DHCP Configuration Facts**

 **4.7.1 DNS**

 **4.7.2 Configure DNS**

 **4.7.3 DNS Facts**

 **4.7.4 Configure DNS on a Router**

 **4.7.5 DNS Configuration Facts**

resources\text\t_dhcp_ccna7\q_dhcp_02_ccna7.question.xml

You have a DHCP server on your network. Which of the following is the correct order of DHCP messages exchanged between a client and server when the client obtains an IP address using a 4-way handshake?

- DHCPREQUEST, DHCPOFFER, DHCPDISCOVER, DHCPACK
- DHCPOFFER, DHCPREQUEST, DHCPDISCOVER, DHCPACK
- DHCPREQUEST, DHCPOFFER, DHCPACK, DHCPDISCOVER
- DHCPDISCOVER, DHCPOFFER, DHCPREQUEST, DHCPACK
- DHCPACK, DHCPREQUEST, DHCPDISCOVER, DHCPOFFER

Explanation

A DHCP client uses the following process to obtain an IP address:

1. Lease Request. The client initializes a limited version of TCP/IP and broadcasts a DHCPDISCOVER packet requesting the location of a DHCP server.
2. Lease Offer. All DHCP servers with available IP addresses send DHCPOFFER packets to the client. These include the client's hardware address, the IP address the server is offering, the subnet mask, the duration of the IP lease, and the IP address of the DHCP server making the offer.
3. Lease Selection. The client selects the IP address from the first offer it receives and broadcasts a DHCPREQUEST packet requesting to lease the IP address in that offer.
4. IP Lease Acknowledgment. The DHCP server that made the offer responds, and all other DHCP servers withdraw their offers. The IP addressing information is assigned to the client, and the offering DHCP server sends a DHCPACK (acknowledgement) packet directly to the client. The client finishes initializing and binding the TCP/IP protocol.

References

 **4.6.1 DHCP Overview**

 **4.6.2 DHCP Facts**

 **4.6.3 Set Up DHCP**

 **4.6.4 DHCP Configuration Facts**

 **4.7.1 DNS**

 **4.7.2 Configure DNS**

 **4.7.3 DNS Facts**



4.7.4 Configure DNS on a Router



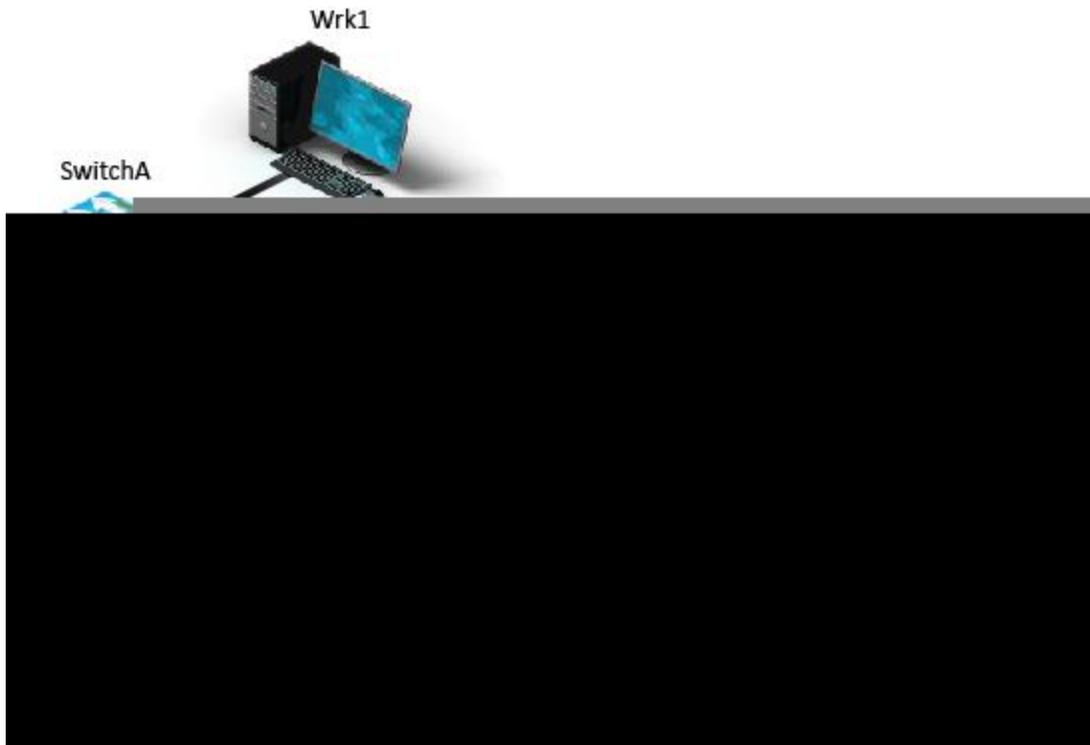
4.7.5 DNS Configuration Facts

resources\text\t_dhcp_ccna7\q_dhcp_03_ccna7.question.xml

You have a small network as shown.

You configure DHCP on Router1 to provide IP addresses to all hosts connected to SwitchA. Following the configuration, you verify that Wrk1 has received an IP address from the DHCP service. Wrk1 can ping every host on the subnet, but cannot communicate with any hosts connected to Switch B or on the internet.

What should you do?



- Manually configure the default gateway address on Wrk1.
- Configure NAT on Router1.
- Configure the DHCP server to deliver the default gateway address along with the IP address.
- Reconfigure the DHCP service to run on Router2 instead of Router1.

Explanation

The reason that Wrk1 cannot reach hosts on other subnets is because it has not been configured with a default gateway address. Configure the DHCP service to deliver the default gateway address.

Manually configuring the default gateway address on Wrk1 would require that you do the same for every host on the subnet. Manually configuring the default gateway also requires disabling DHCP, so you would also need to manually configure IP addresses for each host.

Configuring DHCP on Router2 would only solve the problem if the following conditions were met:

- The DHCP service on Router2 would need to be configured to deliver the default gateway address.
- DHCP requests originating from hosts attached to SwitchA would need to be able to pass through Router1.

NAT provides network address translation, where IP addresses are modified as they pass from a private network to the public network. In the diagram, NAT would be configured on Router2 for the entire network. By itself, NAT does not provide DHCP.

References

 **4.6.1 DHCP Overview**

 **4.6.2 DHCP Facts**

 **4.6.3 Set Up DHCP**

 **4.6.4 DHCP Configuration Facts**

resources\text\t_dhcp_ccna7\q_dhcp_04_ccna7.question.xml

You have a small network connected to the internet as shown below.

Router1 will provide NAT services to all hosts on the private network and DHCP services to hosts connected to SubnetA.

Srv1 is located on SubnetA. You want to make sure that this server is assigned the same IP address every time it boots, but you still want to centrally manage the address that it uses.

What should you do?

- Create an address pool with the IP address for Srv1.
- Configure a DHCP binding for Srv1.
- Manually configure the IP address for Srv1.
- Add a static inside-to-outside address translation rule for Srv1.
- Add a static outside-to-inside address translation rule for Srv1.

Explanation

DHCP dynamically assigns IP addresses to hosts. To make sure that a specific host gets the same IP address each time, create a binding for the host. The binding associates the MAC address with the desired IP address.

An address pool identifies all possible addresses that can be assigned to hosts using DHCP. The pool does not have settings to associate the address with a specific host.

NAT translations are used to make sure that an inside host IP address is always associated with a specific outside global IP address.

Use a static translation rule to allow outside hosts to contact inside hosts.

References

 **4.6.1 DHCP Overview**

 **4.6.2 DHCP Facts**

 **4.6.3 Set Up DHCP**

 **4.6.4 DHCP Configuration Facts**

resources\text\t_dhcp_ccna7\q_dhcp_05_ccna7.question.xml



You want to configure DHCP on your Cisco router to provide automatic IP address assignment to a single subnet. You will use 192.168.12.0/27 for the subnet address.

The router interface has been configured with an IP address of 192.168.12.1. Additionally, you want to make sure that a specific server, SrvFS, always gets the last IP address on the subnet.

How should you configure DHCP on the router? (Select two.)

- Create a DHCP binding for address 192.168.12.62.
- Create an address pool with a start address of 192.168.12.2 and end address of 192.168.12.62.
- Create a DHCP binding for address 192.168.12.14.
- Create an address pool with a start address of 192.168.12.2 and end address of 192.168.12.14.
- Create a DHCP binding for address 192.168.12.30.
- Create an address pool with a start address of 192.168.12.2 and end address of 192.168.12.30.

Explanation

The DHCP address pool identifies the range of IP addresses that can be assigned by the DHCP server. Because the router itself has been assigned the first IP address on the subnet, the pool range begins at 192.168.12.2. To identify the ending range, you must apply the subnet mask to the subnet to find the ending address. A 27-bit mask provides subnets with 32 addresses per subnet. Removing the last address for the broadcast address, the last address in the range is 192.168.12.30.

To assign an IP address to a specific host, define a DHCP binding. The DHCP binding associates the MAC address with the desired IP address. The assigned IP address can be part of the pool range.

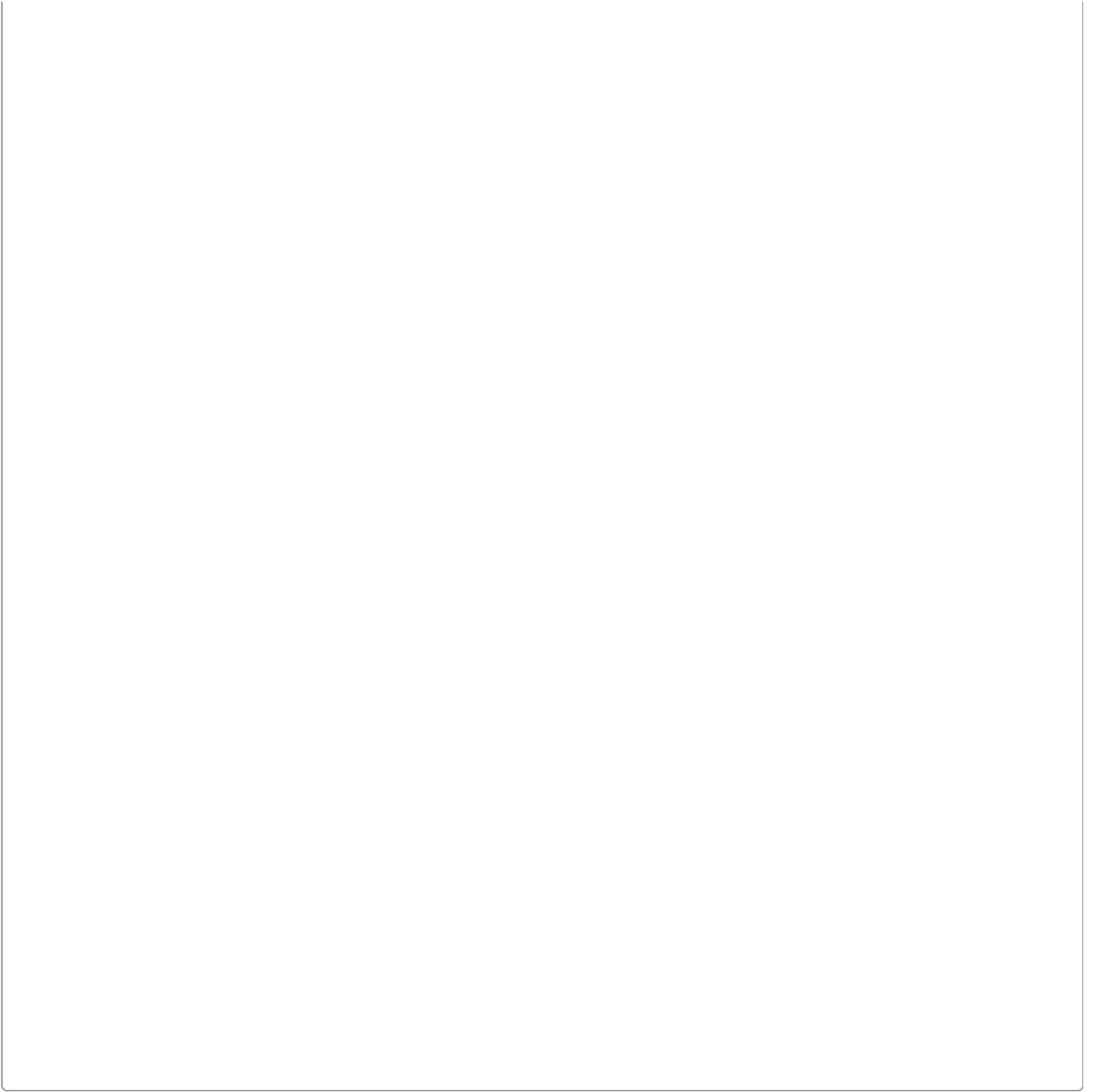
References

-  [4.6.1 DHCP Overview](#)
-  [4.6.2 DHCP Facts](#)
-  [4.6.3 Set Up DHCP](#)
-  [4.6.4 DHCP Configuration Facts](#)

resources\text\t_dhcpconfig_ccna7\q_dhcpconfig_01_ccna7.question.xml

Question 7.

✓ Correct



You have configured DHCP on your router. A partial configuration is shown below:

```
hostname RouterA
!
interface FastEthernet0/0
 ip address 192.168.11.1 255.255.255.0
 speed auto
 duplex auto
!
interface FastEthernet0/1
 ip address 192.168.12.1 255.255.255.0
 speed auto
 duplex auto
!
ip dhcp excluded-address 192.168.11.1 192.168.11.50
!
ip dhcp pool 0
 network 192.168.11.0 255.255.255.0
 domain-name westsim.com
 dns-server 192.168.11.2 192.168.12.2
!
ip dhcp pool 2
 host 192.168.11.166
 hardware-address 02c7.f800.0422
!
access-list 1 permit 192.168.11.0 0.0.0.255
!
```

Srv2 is a host connected to the Fa0/0 interface of RouterA with a MAC address of 02c7.f800.0422. When it boots, it is assigned the IP address of 192.168.11.166. It can only communicate with hosts on the same subnet.

What should you do to correct the problem?

- Add 192.168.11.166 as an excluded address.
- Change the host address in DHCP pool 2 to 192.168.11.1.
- Manually configure a default gateway address on Srv2.

→ Add a **default-router** statement to DHCP pool 2.

Add an **ip access-group** statement for Fa0/0.

Explanation

Srv2 cannot communicate with hosts on other subnets because it is not configured with a default router. This is happening because DHCP pool 2 is not configured with a **default-router** statement. This parameter assigns a default gateway value along with an IP address.

Manually configuring a default gateway for Srv2 would only work if you manually assigned the IP address; you cannot get the IP address from DHCP and have a manually assigned default gateway address.

Srv2 has been assigned the address of 192.168.11.166 because its MAC address matches the MAC address configured for pool 2.

Access lists are not used when configuring DHCP.

References

 **4.6.1 DHCP Overview**

 **4.6.2 DHCP Facts**

 **4.6.3 Set Up DHCP**

 **4.6.4 DHCP Configuration Facts**

resources\text\t_dhcpconfig_ccna7\q_dhcpconfig_03_ccna7.question.xml

You have a Cisco router connected to a local ISP. The ISP dictates that the router use DHCP to receive its IP address and other configuration information.

Which command should you use when configuring the ISP interface on the router?

- ip dhcp-client**
- ip dhcp database**
- **ip address dhcp**
- ip dhcp-server**

Explanation

To configure a Cisco device to use DHCP to receive configuration information, use the **ip address dhcp** command. On a router, use this command in interface mode for the physical interface. On a switch, use the command in VLAN 1 interface mode. The command replaces any manually configured address for the interface. The Cisco device also receives the default gateway and name server information from the DHCP router if those items are not manually specified.

Use the **ip dhcp-server** and **ip dhcp database** commands to manage a Cisco device that is a DHCP server. Use the **ip dhcp-client** command to configure advanced settings for the DHCP client.

References

 **4.6.1 DHCP Overview**

 **4.6.2 DHCP Facts**

 **4.6.3 Set Up DHCP**

 **4.6.4 DHCP Configuration Facts**

resources\text\t_dhcpconfig_ccna7\q_dhcpconfig_04_ccna7.question.xml

You have three hosts on network 192.168.10.0/24 as shown.

If interface Fa0/0 on RouterB has the **ip helper-address 172.17.10.20** configuration command in its running configuration, which of the following statements are true? (Select two.)

- The hosts may receive their IP address information through DHCP.
- RouterB will discard the DHCP packets from the hosts.
- RouterA will discard the DHCP packets routed through RouterB.
- RouterB will forward broadcast packets sent to the DNS, BOOTP, TFTP, FTP, and ARP ports.
- The voice traffic will be separated from the data traffic using 802.1q tagging.
- RouterB will forward broadcast packets sent to the: Time, DNS, BOOTP, and TFTP ports.

Explanation

The **ip helper-address *a.b.c.d*** interface configuration command configures an interface to forward UDP broadcasts, including BOOTP and DHCP, to the specified DHCP server address via IP unicast.

- The ***a.b.c.d*** address can be a specific DHCP server address, or it can be the network address if other DHCP servers are on the destination network segment. Using the network address enables other servers to respond to DHCP requests.
- If you have multiple servers (such as DNS, TFTP, or DHCP servers), you can configure one helper address for each server.

By default, when an interface is configured as a relay agent, it forwards packets sent to all the well-known UDP ports that may be included in a UDP broadcast message. You can configure the relay agent to eliminate specific ports from the forwarding service. The well-known UDP broadcast ports include the following:

- 37: Time

Copyright © 2014 Cisco Systems, Inc. All rights reserved.

49: FACCS