Network+ Guide to Networks, Seventh Edition

Chapter 1, Solutions

Review Questions

1. In the client-server model, what is the primary protocol used for communication between a browser and Web server?

   A. FTP

   B. TCP

   C. HTTP

   D. SSL

Answer: C. HTTP

2. Which two encryption protocols might be used to provide secure transmissions for browser and Web server communications?

   A. HTTP and HTTPS

   B. SSL and TLS

   C. SSL and HTTP

   D. TCP and UDP

Answer: B. SSL and TLS

3. Apache is a popular example of what type of networking software?

   A. Web server

B. Browser

C. Email server

D. Email client

Answer: A. Web server

4. Which email protocol allows an email client to download email messages to the local computer?

A. IMAP4

B. SMTP

C. TCP

D. POP3

Answer: D. POP3

5. Which email protocol allows an email client to read mail stored on the mail server?

A. IMAP4

B. SMTP

C. TCP

D. POP3

Answer: A. IMAP4

6. Which client-server application allows an administrator to control a remote computer, but does not encrypt or secure the communication between client and server?

A. Telnet

B. Remote Desktop

C. FTP

D. SSH

Answer: A. Telnet

7. Which application embedded in Windows operating systems allows remote control of a computer and uses the RDP secure protocol for transmissions?

A. Telnet

B. Remote Desktop

C. FTP

D. SSH

Answer: B. Remote Desktop

8. What service provided by Windows Server 2012 R2 allows a computer to serve up applications to other computers on the network?

A. Remote Desktop Services

B. Windows 8.1

C. File Transfer Protocol

D. Active Directory

Answer: A. Remote Desktop Services

9. List three types of services a network might support that are considered part of unified communications or convergence.

A. File transfers, print services, and conversational voice

B. User authentication, streaming live audio and video, and print services

C. Web services, email services, and file services

D. Conversational voice, streaming live audio and voice, and streaming stored audio and voice

Answer: D. Conversational voice, streaming live audio and video, and streaming stored audio and video

10. Which Session layer protocol is a streaming live video teleconference likely to use on the network?

A. UDP

B. SMTP

C. RTP

D. TCP

Answer: C. RTP

11. A network consists of 10 computers, all running Windows 7 Professional. One computer acts as a file server and serves up data to other computers on the network. Which networking model does the network use?

Answer: Peer-to-peer model

12. In Question 11, suppose one computer is upgraded from Windows 7 Professional to Windows Server 2012 R2. Which networking model can the network now support that it could not support without the upgrade?

Answer: Client-server model

13. What is the name of the domain controller database that Windows Server 2012 R2 uses to store data about user access and resources on the network?

Answer: Active Directory

14. A network consists of seven computers and a network printer all connected directly to one switch. Which network topology does this network use?

Answer: Star topology

15. In Question 14, suppose a new switch is connected to the first switch by way of a network cable and three computers are connected to the new switch. Which network topology is now used?

Answer: Star-bus topology

16. What is the fundamental distinction between a Layer 2 switch and a router?

Answer: A Layer 2 switch belongs only to its local network, and a router belongs to two or more networks.

17. What is the fundamental distinction between a node and a host?

Answer: A host is a computer that hosts a resource on the network, and a node is any computer or device that can be addressed on the network.

18. What is the fundamental distinction between a MAN and a WAN?

Answer: A MAN covers a small geographical area, and a WAN covers a large geographical area.

19. What is a message called that is delivered by TCP? What is a message called that is delivered by UDP? At which layer do the two protocols work?

Answer: Segment

Answer: Datagram

Answer: Transport layer

20. Which type of address is used at the Transport layer to identify the receiving application?

Answer: Port number

21. Is TCP or UDP normally used when streaming live video? Why?

Answer: UDP, because guaranteed delivery is not as important as fast transmissions.

22. At the Network layer, what is a message called?

Answer: A packet

23. What is the primary protocol used at the Network layer?

Answer: IP (Internet Protocol)

24. At the Network layer, what type of address is used to identify the receiving host?

Answer: IP address

25. What is a PDU called at the Link layer?

Answer: A frame

26. At the Link layer, which type of network address is used to identify the receiving node?

Answer: Physical address, MAC address, hardware address, or Data Link layer address

27. Why is it important to wear an ESD strap when installing a server in a rack?

Answer: To protect the server against static electricity, or ESD

28. A computer is unable to access the network. When you check the LED lights near the computer's network port, you discover the lights are not lit. Which layer of the OSI model are you using to troubleshoot this problem? At which two layers does the network adapter work?

Answer: Physical layer

Answer: Link layer and Physical layer

29. A user complains that he cannot access a particular Web site, although he is able to access other Web sites. At which layer of the OSI model should you begin troubleshooting the problem?

Answer: Application layer

30. A user complains that Skype drops her videoconference calls and she must reconnect. At which layer of the OSI model should you begin troubleshooting? Which OSI layer is responsible for not dropping the Skype connection?

Answer: Application layer, Session layer

[A HD] Hands-On Projects

[B HD] Project 1-1: Set Up a Small Network

[BT] For this project, you'll need two Windows 7 or Windows 8.1 computers, a small consumer-grade switch (one that does not require its firmware to be configured), and two regular network cables (a regular network cable is also called a straight-through cable). Do the following to set up a small network:

1. Use the network cables to connect each computer to the switch. Make sure the switch has power. Verify the LED lights on the network ports of the computers and switch are lit and/or blinking to verify network connectivity and activity.
2. Open the Network and Sharing Center of each computer to verify that Windows sees the computer connected to the network. (In Windows 7, click **Start**, **Control Panel**, and make sure Control Panel is set to **Small icons** view. Then click **Network and Sharing Center**. In Windows 8.1, to open Control Panel, right-click the **Start** button and click **Control Panel**.)
3. If you don't see connectivity, reset the connection by restarting the computer. In Chapter 2, you'll learn about easier methods to verify and reset a network connection.
4. Open Windows Explorer or File Explorer and look in the Network group in the navigation pane. You should see the other computer listed. You won't be able to access resources on the other computer unless you share these resources in a homegroup or share a specific folder or file.

Answer the following questions:

1. Does your network use a client-server or peer-to-peer model?

Answer: Peer-to-peer model

2. What is the topology of your network?

Answer: Star topology

3. If the lights on the switch ports were not lit or blinking, what is the best theory of probable cause? At what layer of the OSI model would this theory be?

Answer: The switch does not have power or the cables are not connected at both ends.

Answer: Physical layer

[BT] As you work your way through this book, you will continue to build your small network and its resources.

[B HD] Project 1-2: Guidelines for Installing a Switch

While working as an intern in a corporate data center, you are asked to research the guidelines for installing a Cisco Nexus 5000 series switch in a rack. Search the Cisco Web site and other sites and answer the following questions:

1. Find a photo of any Nexus 5000 series switch. How much does the switch cost? Create a screenshot showing a photo of the switch and its price.

2. What are the two types of racks Cisco recommends for the rack? Find a rack of each type that meets these qualifications. Create screenshots showing a photo of each rack, its manufacturer, and price.

   Answer: Open EIA rack and perforated EIA cabinet

3. Create a screenshot showing the required equipment for installing the switch.

4. Create a screenshot showing the additional items needed to ground the switch.

5. Why does Cisco recommend you keep the shipping container?

   Answer: In case you need to ship the switch in the future.

6. Which installs first, the brackets or the sliders?

   Answer: The brackets

7. Create a document and insert into it the screenshots you made and the answers to the questions. Include in the document your name and course information and email the document to your instructor.

Answer:

Note to instructors: Installation guide is at this link:

http://www.cisco.com/c/en/us/td/docs/switches/datacenter/nexus5000/hw/installation/guide/nexus_5000_hig/install5500.html#wp1217327

[B HD] Project 1-3: Research Network Operating Systems

The client/server network at Scoops currently depends on one server machine running Windows Server 2008 as its NOS. However, the system was installed five years ago, and the chain is growing. The company's general manager has heard a lot of good things about Linux operating systems—in particular, a type of Linux called Fedora. He asks you to find out how these two NOSs differ in their file sharing, remote access, and mail service capabilities. Also, he wonders how the two compare in their ease of use, reliability, and support. He remarks that he doesn't want to spend a lot of time looking after the server, and reminds you that he is not a technical expert. After some research, what can you tell him about the similarities and differences between these two NOSs? Do you advise the Scoops chain to change its server's NOS to Linux? Why or why not?

[B HD] Project 1-4: IT and Networking Certifications

[BT] This book prepares you to take the CompTIA Network+ N10-006 exam, which is considered a fundamental benchmark toward a career in IT. Many other IT certifications apply to IT and networking. Use the Web to research and answer the following questions:

1. Which certification does CompTIA recommend a candidate for the Network+ exam already have?

Answer: CompTIA A+ certification

2. How long does CompTIA recommend you work in networking before you take the Network+ exam?

Answer: Nine to 12 months of work experience

3. Cisco offers a full range of certifications focused on all aspects of networking. How long does Cisco recommend you work in networking before you take the CCNA Routing and Switching exam for certification?

Answer: One to three years job experience

4. How long does Cisco recommend you work in networking before you take the CCIE Routing and Switching exam?

Answer: Three to five years job experience

5. Microsoft offers a group of certifications collectively called the Microsoft Certified Solutions Expert (MCSE). What are the eight MCSE certifications?

Answer: Server Infrastructure, Desktop Infrastructure, Private Cloud, Data Platform, Business Intelligence, Messaging, Communication, and SharePoint

[BT] Search online for a job opening in IT networking in your geographical area and save or print the job description and requirements. (Excellent sites that post IT jobs are Indeed.com and Monster.com.) Answer the following questions about the job:

6. Which degrees are required or recommended?

Answer will vary.

7. What types of skills are required or recommended?

Answer will vary.

8. Which IT certifications are required or recommended?

Answer will vary.