Chapter 1 - Exploring the Network

Study Guide

Tips for success: While answering the questions read Chapter 1, review the summary, and complete the practice Quiz.

After completion of this chapter, you should be able to:

• Explain how multiple networks are used in everyday life.
• Explain the topologies and devices used in a small to medium-sized business network.
• Explain the basic characteristics of a network that supports communication in a small to medium-sized business.
• Explain trends in networking that will affect the use of networks in small to medium-sized businesses.

1. What forms of online communication do you use on a daily basis?
   Social Media, Online Chats

2. How has the internet changed the way we work and play?
   Allows me to complete my task faster

3. Why is the Internet considered a “network of networks”?
   It initially linked more networks and never quit at doing that. :) Also, all computers connected to the internet are interconnected and accessible.

4. What is a server? Explain the Client - Server relationship.
   A computer or computer program that manages access to a centralized resource or service in a network.

5. What is an end device? Give 3 examples.
   Mobile device, laptop, PC desktop
6. What is the function of an intermediary network device? List some examples of the types of intermediary devices you must pass through to access the internet.

Marriott devices interconnect devices. These devices provide connectivity and work behind the scenes to ensure the data flows across the network.

Network access

Routers

Firewalls

7. Not all network media has the same characteristics and is appropriate for the same purpose. What are some criteria you should consider when choosing network media?

The cost, the amount of data, speed

8. Compare and Contrast:

<table>
<thead>
<tr>
<th>Physical Topology</th>
<th>Logical Topology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify the physical location of intermarried devices, Configured ports, and cable installation</td>
<td>Identified devices, Ports, and IP addresses</td>
</tr>
</tbody>
</table>

9. Complete Activity 1.2.1.7 - Network Component Representations and Functions.

10. Is this a WAN or LAN feature? Write WAN or LAN in the space provided beside each feature:

**LAN**
- Provide high speed bandwidth to internal end devices and intermediary devices.
- Interconnect end devices in a limited area such as a home, school, office building, or campus.

**WAN**
- Interconnect networks over wide geographical areas such as cities, states, or continents.
- Usually administered by multiple service providers.
- Typically provide slower speed links between LANs.
11. Explain the difference between and Intranet, Extranet and Internet:

Internet - This is the world-wide network of computers accessible to anyone who knows their Internet Protocol.

Intranet - This is a network that is not available to the world outside of the Intranet. If the Intranet network is connected to the Internet, the Intranet will reside behind a firewall.

Extranet - An Extranet is actually an Intranet that is partially accessible to authorised outsiders.

12. Give some key characteristics of each type of Internet connection:

a. Cable - offered by cable television service providers, The Internet data signals as carry both same co-ax cable.

b. DSL - provides a high being with always on connection to the Internet it requires a special high-speed modem that separates the DSL signal from the telephone.

c. Cellular - Cellular Internet access uses a cell phone network to connect, Where ever you can get a cell phone signal cellular Internet access.

d. Satellite - satellite service is good option for homes or offices that do not have access to DSL, Satellite dishes will quire a clear line of sight the satellite service might be difficult heavily wooded areas.

e. Dial-up Telephone - an inexpensive option that uses any phone line and Motin to connect to the ISP.

f. Dedicated Leased Line - this is a dedicated connection from the service provider to the customers preferences.

g. Metro Ethernet - Metro ethernet is to be available from from a provider to the customers premises we're dedicated copper or fiber connection.

13. Explain the difference between a traditional dedicated network and a converged network.

Dedicated networks for voice, video and computer data communications required a different type of device in order to access the network. Telephones, televisions, and computers used specific technologies and different dedicated network structures, to communicate.
Converged networks are capable of delivering voice, video and data services over the same communication channel or network structure.

14. What is a Fault Tolerant Network?
There are many levels of fault tolerance, the lowest being the ability to continue operation in the event of a power failure. Many fault-tolerant computer systems mirror all operations -- that is, every operation is performed on two or more duplicate systems, so if one fails the other can take over.

15. Compare and Contrast:

<table>
<thead>
<tr>
<th>Circuit Switched Networks</th>
<th>Packet Switched Networks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priority to existing Circuit connections at the expense of new Circuit request</td>
<td>This typing network is that a signal message can be broken into multiple messages blocks</td>
</tr>
</tbody>
</table>

16. How is QoS used to make congested networks more efficient?

Create higher expenditures for the quality of delivered services

17. Explain the three goals of network security:
   a. Ensuring Confidentiality - that the intended arthritis recipients can access and read the data
   b. Maintaining Communication Integrity - means having the assurance that information has not been altered in the transmission
   c. Ensuring Availability - means having the assurance of timely and reliability access to data services for authorized users

18. Complete Activity 1.3.2.7 - Reliable Networks

19. List some Advantages and Disadvantages of the BYOD trend:
   Allows everyone to be connected, able to use personal tools to complete your work
   Use of Facebook or any other social media that is not allowed
20. What are some things that have led to the need for an increase in Video Communication?
Allows people to see face from two faced from anywhere in the world just using your home Internet connection

21. What are some benefits of Cloud Computing?
   - Allows flexibility
   - Reduce cost
   - Refocuses of IT resources

22. Explain Powerline Networking: it's an emerging trend of home networks that used extends electrical wiring to connect devices

23. Give examples of security solutions:

<table>
<thead>
<tr>
<th>Home/Small Office</th>
<th>Large Corporate Network</th>
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</thead>
<tbody>
<tr>
<td>Computer firewall, Antivirus software</td>
<td>Antivirus software, firewall filtering, our wall hardware, ACL, VPN</td>
</tr>
</tbody>
</table>

24. Complete Activity 1.4.3.3 - Network Security Terminology

25. What is the CCNA certification and what are some benefits of obtaining the CCNA?
Validates an individual's ability to install and configure, operate and troubleshoot medium-size routes switches