Lesson 25
Network Fundamentals

Computer Literacy BASICS: A Comprehensive Guide to IC^3, 4th Edition

Objectives

- Describe a network.
- Identify the benefits of a network.
- Evaluate the risks of network computing.
- Identify client/server networks.
- Identify network types.
- Understand network communications.
- Resolve network security issues.

Vocabulary

- biometric security measure
- cable modem
- client
- client/server network
- communications channels
- digital subscriber line (DSL)
- extranet
- firewall
- hacker
- hub
- Internet
- intranet
- local area network (LAN)
- modem
- node
- peer-to-peer (P2P) network
- proxy server
- Public Switched Telephone Network (PSTN)
- router
- server
- server operating system
- T-1 line
- wide area network (WAN)
- WiMAX
- wireless Internet service provider
- (WISP)
- wireless LAN
- (WLAN)

Introducing Networks

- A network is simply a group of _____ or more computers _____ together.
- Digital, mobile, and standard _____ are supported through the Public Switched Telephone Network (PSTN).

Identifying the Benefits of a Network

- A network like the Internet provides _____ communication. Other benefits include:
  - _____ sharing
  - Collaborative environment
  - _____ sharing
  - _____ sharing
  - Enhanced communication

Evaluating the Risks of Networked Computing

- The _____ of a computer network is challenged every day by

equipment malfunctions, _____ failures, computer hackers, and virus attacks.

- Equipment malfunctions and system failures can be caused by _____ disasters such as floods or storms, _____, and electrical disturbances such as brownouts or blackouts.

- Other disadvantages of networks include:
  - Individual _____ of autonomy
  - _____ code
  - _____ faults
  - _____ and management costs
  - _____ of privacy

Identifying Client/Server Networks

- The term client/server _____ describes a network design model.
- In most instances, the _____ is a software program such as Internet Explorer.
- The server is _____ (a computer) and can be one of _____ types, such as a mail server, a database server, an FTP server, an application server, or a Web server.
- Server operating systems are high-end _____ designed to provide network control and include special functions for connecting computers and other devices into a network.

Identifying Network Types

Local Area Networks:

- Most LANs _____ personal computers, workstations, and other devices such as printers and scanners in a _____ geographical area, such as an office building, school, or home.

Wide Area Networks (WAN):

- A WAN covers a _____ geographical area and can contain communication links across metropolitan, _____, or national boundaries.

Other Types of Networks

- _____/server network
- _____-to-peer network
- Intranet
- Extranet
- Internet

Understanding Network Communications

Communication Hardware:

- Modem
- _____ modem
- _____ subscriber line
- T-1 line
- Wireless

Resolving Network Security Issues

- The most common form of _____ access to data is the use of _____, which are similar to combinations you need to remove a lock.
- Other security measures include:
  - _____ identification cards
  - Firewalls
  - _____ software
  - Proxy server

Planning for Security:

Guidelines include:

- Selective _____ process
- _____ data backup
- _____ security measures

Wireless Security:

- Wireless networking has many _____ issues and hackers have found it easy to access wireless networks.

Summary

In this lesson, you learned:

- A network is a group of two or more computers linked together.
- A telephone network is similar in makeup to a computer network. The Public Switched Telephone Network (PSTN) supports telephone service, and it is the world's largest collection of interconnected commercial and government-owned voice-oriented systems.
- You can use a network for information sharing, hardware sharing, software sharing, and as a collaborative environment.
- Networks are categorized according to size as local area networks (LANs) and wide area networks (WANs).
- LANs connect personal computers, workstations, and other devices such as printers and scanners in a limited geographical area, such as an office building, a school, or a home.
- A WAN is made up of several connected local area networks.
- In a client/server network, one or more computers on the network acts as a server. The server manages network resources. In a peer-to-peer (P2P) network, all of the computers are equal. No computer is designated as the server. People on the network each determine what files on their computer they share with others on the network.
- Data insecurity is a risk with many networks. Some risks to computers are natural causes, some are accidents, and others are intentional.
- The best way to protect data is to effectively control the access to it. Generally, this protection is the responsibility of the network administrators and security personnel. If unauthorized persons gain access to data, they may obtain valuable information or trade secrets. Hackers are people who break into computer systems to steal services and information.
- Transmission media can be either physical or wireless.
- A modem is a type of communications device. A hub is a device that controls the incoming and forwarding of data. A router directs traffic on the Internet or on multiple connected networks.