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CompTIA IT Fundamentals Study Guide (FC0-U61)

Chapter 8:

Networking Concepts and Technologies

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Chapter 8: Networking Concepts and Technologies

- Compare and contrast common Internet service types
  - Fiber optic
  - Cable
  - DSL
  - Wireless
    - Radio Frequency
    - Satellite
    - Cellular
- Compare and contrast storage types
  - Local network storage types
    - NAS
    - File server
  - Cloud storage service
- Explain basic networking concepts
  - Basics of network communication
    - Basics of packet transmission
    - DNS
      - URL-to-IP translation
    - LAN vs. WAN
    - Device addresses
      - IP address
      - MAC address
    - Basic protocols
      - HTTP/S
      - POP3
      - IMAP
      - SMTP
    - Devices
      - Modem
      - Router
      - Switch
      - Access point
      - Firewall
- Given a scenario, install and configure a basic wireless network
  - 802.11a/b/g/n/ac
    - Older vs. newer standards
    - Speed limitations
    - Interference and attenuation factors
  - Best practices
    - Change SSID
    - Change default password
    - Encrypted vs. unencrypted
      - Open
        - » Captive portal
      - WEP
      - WPA
      - WPA2

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External Network Connections

- Dial-up/POTS
- DSL
- Cable
- Fiber-Optic Internet
- Satellite
- Cellular networking
- Radio frequency Internet

Internal Network Connections

- Wired
  - Ethernet
  - Copper vs. Fiber-optic
- Wireless
  - Wi-Fi (802.11a/b/g/n/ac)
  - Bluetooth
  - Infrared

Networking Devices

- Modem
- Switch
- Access point
- Router
- Firewall

Network Protocols

- Language that computers speak
- Transmission Control Protocol/ Internet Protocol (TCP/IP) is the most common one

TCP/IP Fundamentals

- Suite of protocols working together
- IP addresses
- Dynamic Host Configuration Protocol (DHCP)
- Domain Name System (DNS)
- Automatic Private IP Addressing (APIPA)
- Public vs. private IP addresses

Network Storage Options

- Local network storage
  - File server
  - Network attached storage (NAS)
- Cloud storage

Basic Steps for Setting Up a SOHO Router

1. Change the router's SSID.
2. Change the administrator username and password. Give it a strong password.
3. Enable WPA2 Personal with AES.
4. Choose a high-quality passphrase.
5. From the client side, select WPA2 and enter the security passphrase to connect.

Network Name

- Wireless network name is the Service Set Identifier (SSID)
  - Uniquely identifies a wireless network
  - All clients must be configured with the appropriate SSID

Router Administrator Account

- Change the name of the account (if possible) from the default
  - Makes it harder to hack
- Set a strong password – do not give it out
- What to do if you forget the password

Choosing a Passphrase

- This is the password clients will use to access the network
- Generally, not given to clients but typed in by an administrator
- Make sure the password is different than the administrator password

Client Configuration

- Search for or provide SSID
- Ensure security is set to the appropriate standard
- Enter the passphrase

Wireless Security

- Open portals (not secure at all)
  - Captive portal
- Wired Equivalency Protocol (WEP)
- Wi-Fi Protected Access (WPA)
- Wi-Fi Protected Access 2 (WPA2)

Additional Wireless Router Services

- Guest access
- DHCP
- NAT
- QoS
- Firewall