

Chapter 3: Network Security

→ Network Definition

- 2 or more computers connected
- Share resources (printer, scanner, files ...)
- Allow secure electronic communication
- Connect computers in offices, buildings, country or even world
- Use various technologies (wireless, satellite, cables ...)

→ Network Purpose

- Share a single internet connection
- Access same hardware and software
- Share centralized backup devices.

5) VPN (Virtual Private Network)

- Secure/reliable private connection
- Uses existing public network (Internet)
- Connects to private network from remote location.

→ Network Types

1) PAN (Personal Area Network)

- Range: 0-10 meters
- Individual person use
- Connects personal devices (laptop, phone, media player...)

2) LAN (Local Area Network)

- Small area connection (office...)
- Low cost with inexpensive hardware (hubs, ethernet cables)
- Higher security/faster data transmit

3) MAN (Metropolitan Area Network)

- Larger geographic area
- Interconnect different LANs through telephone exchange line
- Ex: communication between banks in a city

4) WAN (Wide Area Network)

- Large geographical area (states, countries) through telephone line, fiber optic cables, satellite links
- Used in business, government, education ...
- Internet: biggest WAN in the world

→ Network Administrator

- Keep organization's computer up to date

→ Fire Wall

- Device, hardware or software
- Guards access to private network / computer
- Keep unauthorized/unwanted network traffic out

→ Wireless Network

- Uses radio frequency (RF)
- No physical wires or cables
- If not secure/protected = open connection
- Anyone with computer/device might access network
- Wireless eavesdroppers can intercept data

→ Wireless Security Protocols

- WEP: easily broken
- WPA/WPA2: based on encryption
- MAC: Media Access Control

→ Access Control

- Username: Unique identifier for person attempting access
- Password: 5-16 characters to determine legitimate access
- Good Password Policies
 - Adequate length
 - Adequate characters mix
 - Don't share it
 - Change it regularly
 - Hard to guess
 - Not found in a dictionary

→ Biometric Security Techniques

- Fingerprint Scan
- Hand Geometry
- Retina Scan (Eye Scan)
- Face Recognition