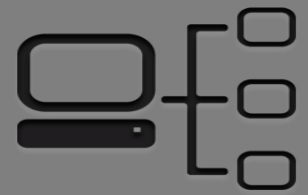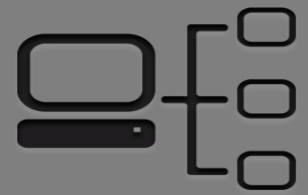# Types of Computer Networks

- Network Architecture
  - Client-Server
  - Peer-to-Peer
- Networks by Size
  - Local Area Network (LAN)
  - Campus Area Network (CAN)
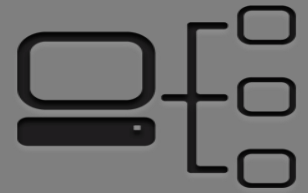 - Metropolitan Area Network (MAN)
  - Wide Area Network (WAN)

Client-Server Network

- Network is Composed of Clients and Servers
- Servers Provide Resources
- Clients Receive Resources
- Servers Provided Centralized Control Over Network Resources (files, printers, authentication, etc.)
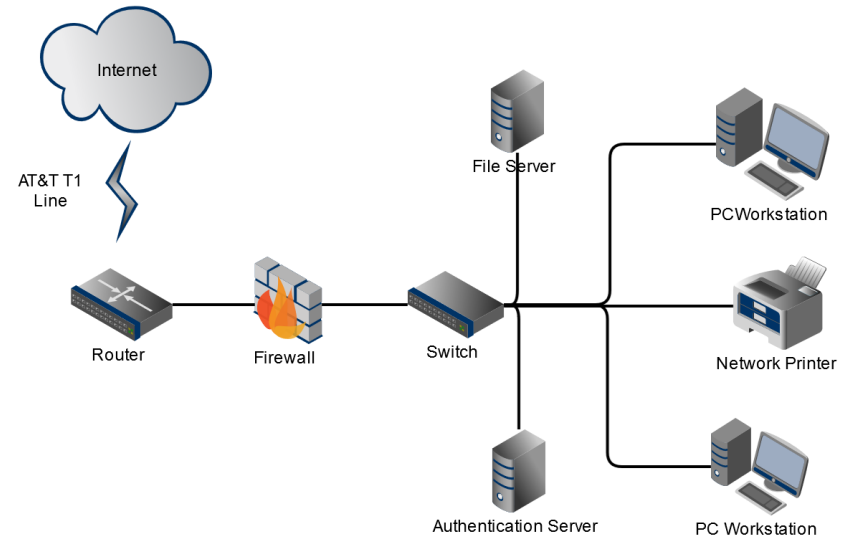
Client/Server Architecture

Advantages

- Centralized user accounts, security, and access controls to simply network administration.

- More powerful servers equate to more efficient access to network resources; scales up more efficiently than peer-to-peer.

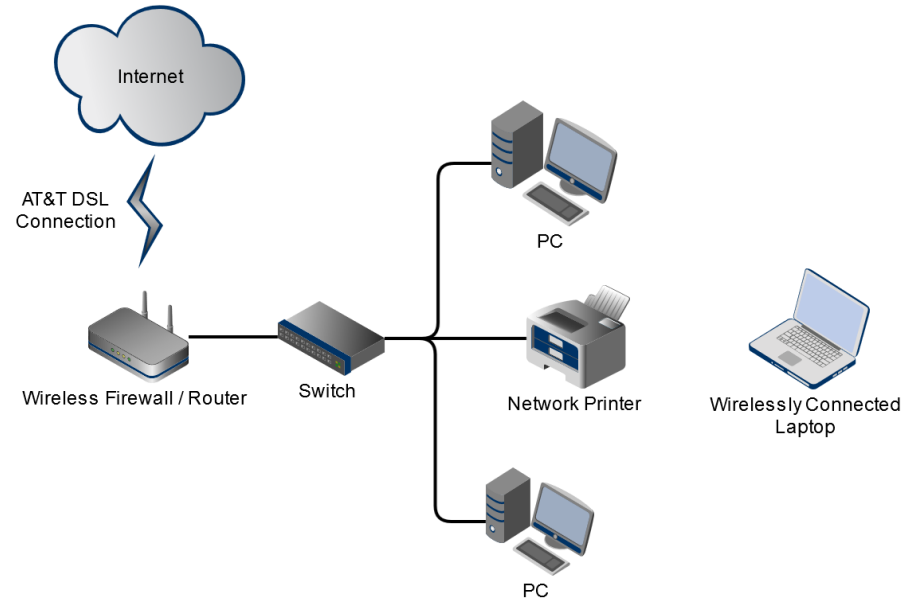- A single password for network logon delivers access to all resources.

Disadvantages

- Server failure renders a network unusable or results in loss of network resources.

- Complex, special-purpose server software requires allocation of expert staff.

- Dedicated hardware and specialized software add to the cost of ownership.
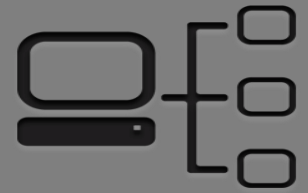
Peer-to-Peer Network
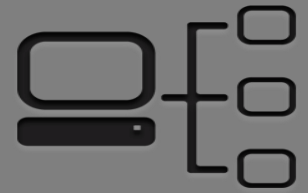
- All Computers on the Network Are Peers
- No Dedicated Servers
- There Is No Centralized Control over Shared Resources
- Any Individual Machine Can Share Its Resources as It Pleases
- All Computers on the Network Can Act as Either a Client (Receive Resources) or a Server (Provide Resources)

Internet

AT&T DSL Connection

Wireless Firewall / Router   Switch

PC

Network Printer

Wirelessly Connected Laptop

PC

Peer-to-Peer Architecture

Advantages

- Easy to install and configure.
- Does not depend on the presence of a dedicated server.
- Individual users control their own shared resources.
- Inexpensive to purchase and operate.
- No dedicated administrators are needed to run the network.

Disadvantages

- Network security applies only to a single resource at a time.
- Users may be forced to use as many passwords as there are shared resources.
- Each machine must be backed up individually to protect all shared data.
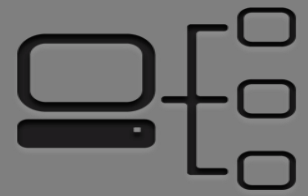- There is no centralized organizational scheme to locate or control access to data.

Local Area Network (LAN)
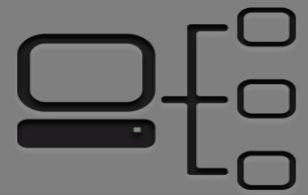
- A computer network within a small geographical area, such as a single room, building or group of buildings.
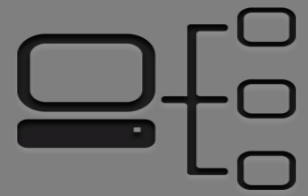
Network Switch
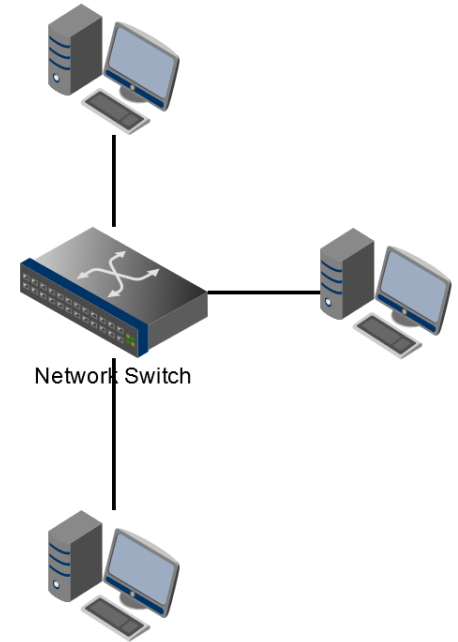
Campus Area Network (CAN)

- A computer network of multiple interconnected LANs in a limited geographical area, such as a corporation, government agency, or university campus.
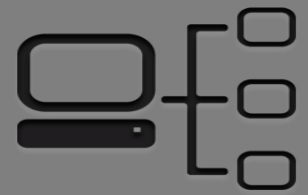
Metropolitan Area Network (MAN)

- A computer network that interconnects users with computer resources in a city.

- Larger than a campus area network, but smaller than a wide area network.

Wide Area Network (WAN)

- A computer network that extends over a large geographical distance, typically multiple cities and countries.