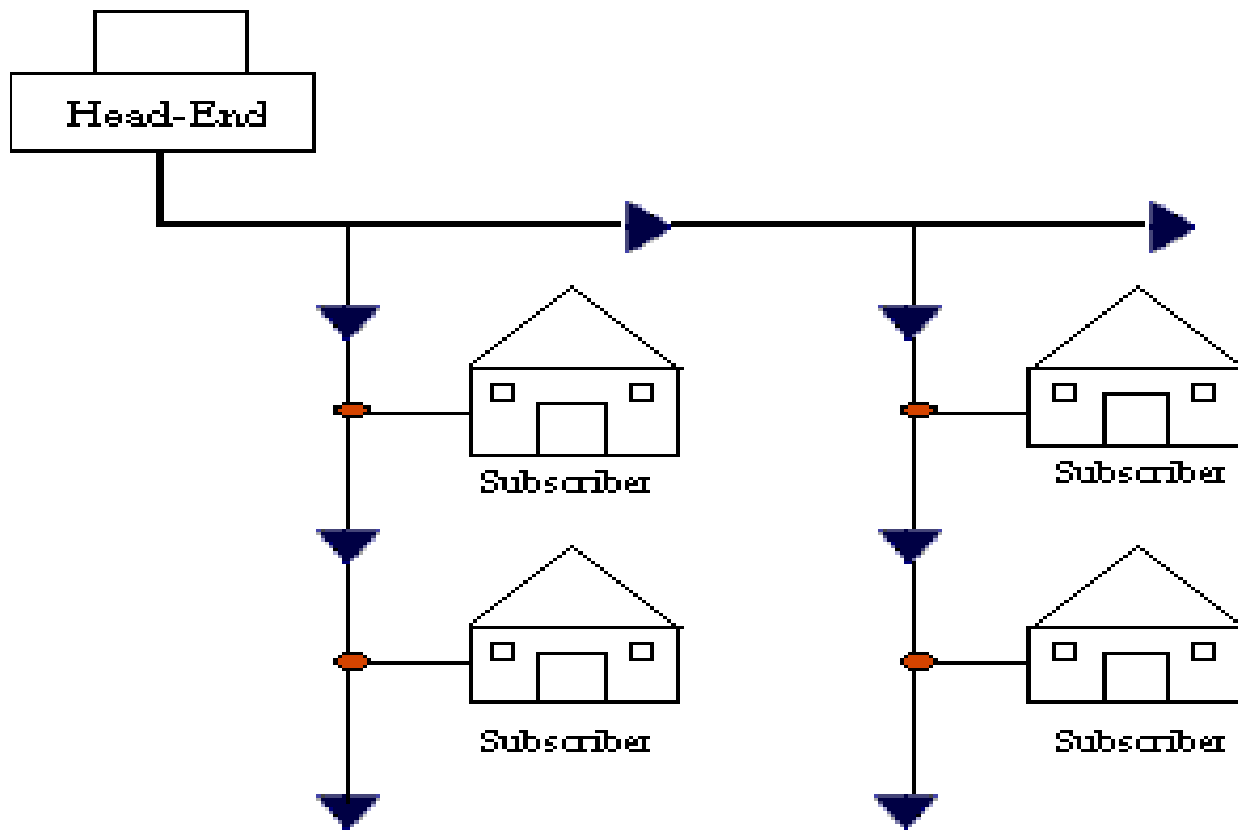# Types of Network

LOCAL AREA NETWORK

- LANs are **privately-owned networks** within a <u>single building</u> or campus of up to a few <u>kilometres in size</u>.

- Connect personal <u>computers</u> and workstations in <u>company offices</u> and factories to <u>share resources (e.g., printers) and exchange information.</u>

- LANs may use a transmission technology consisting of a cable.

- Other major advantages:

  - Cost reductions through sharing of information and databases, resources and network services.
  - Increased information exchange between different departments in an organization, or between individuals.
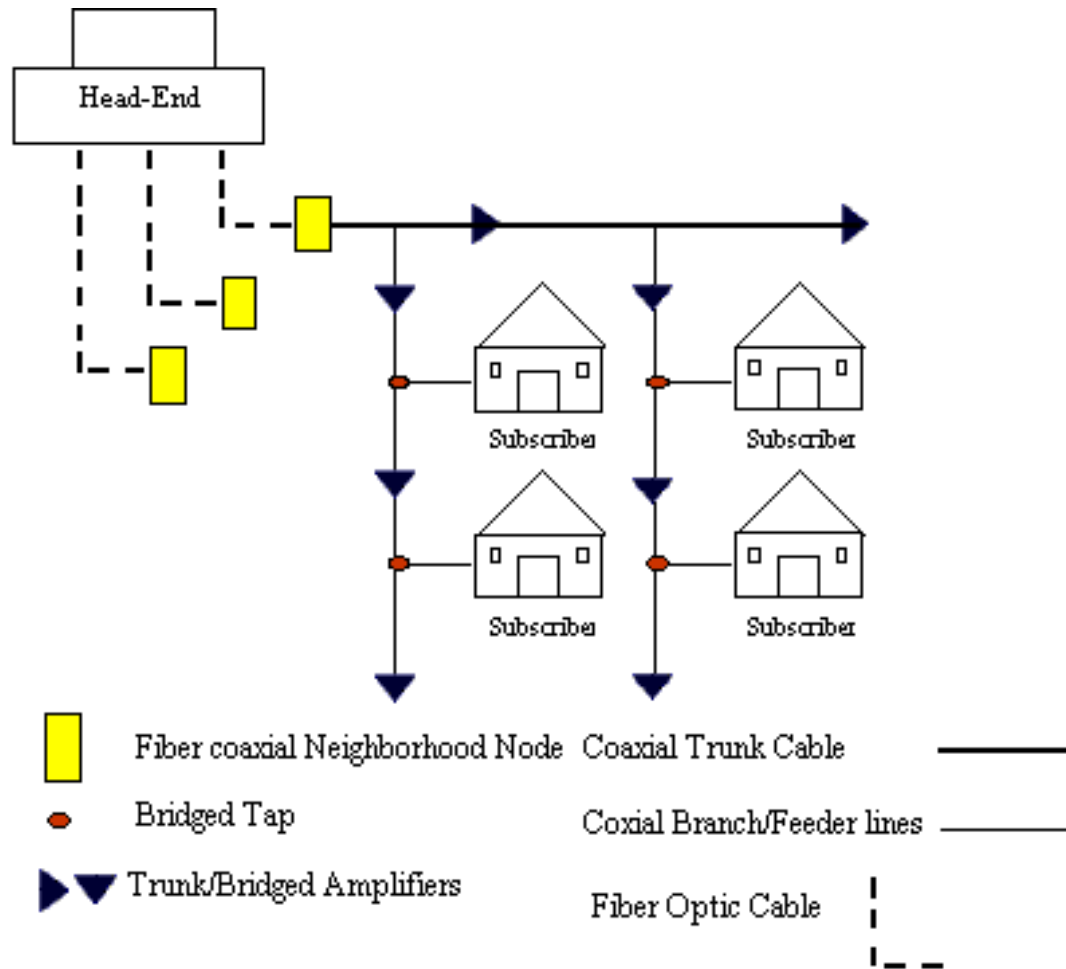 - The trend to automate communication and manufacturing process.
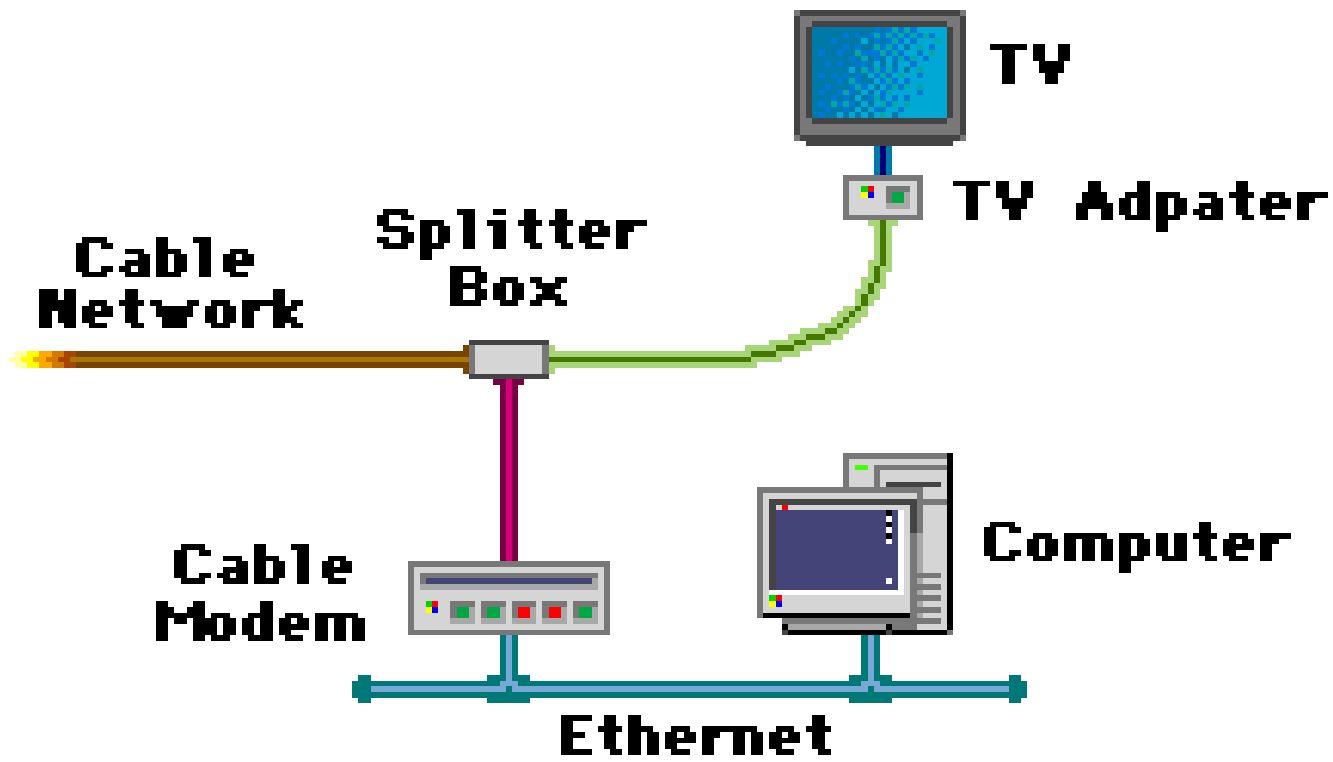
Metropolitan Area Networks

- A **metropolitan area network, or MAN, covers a city.**

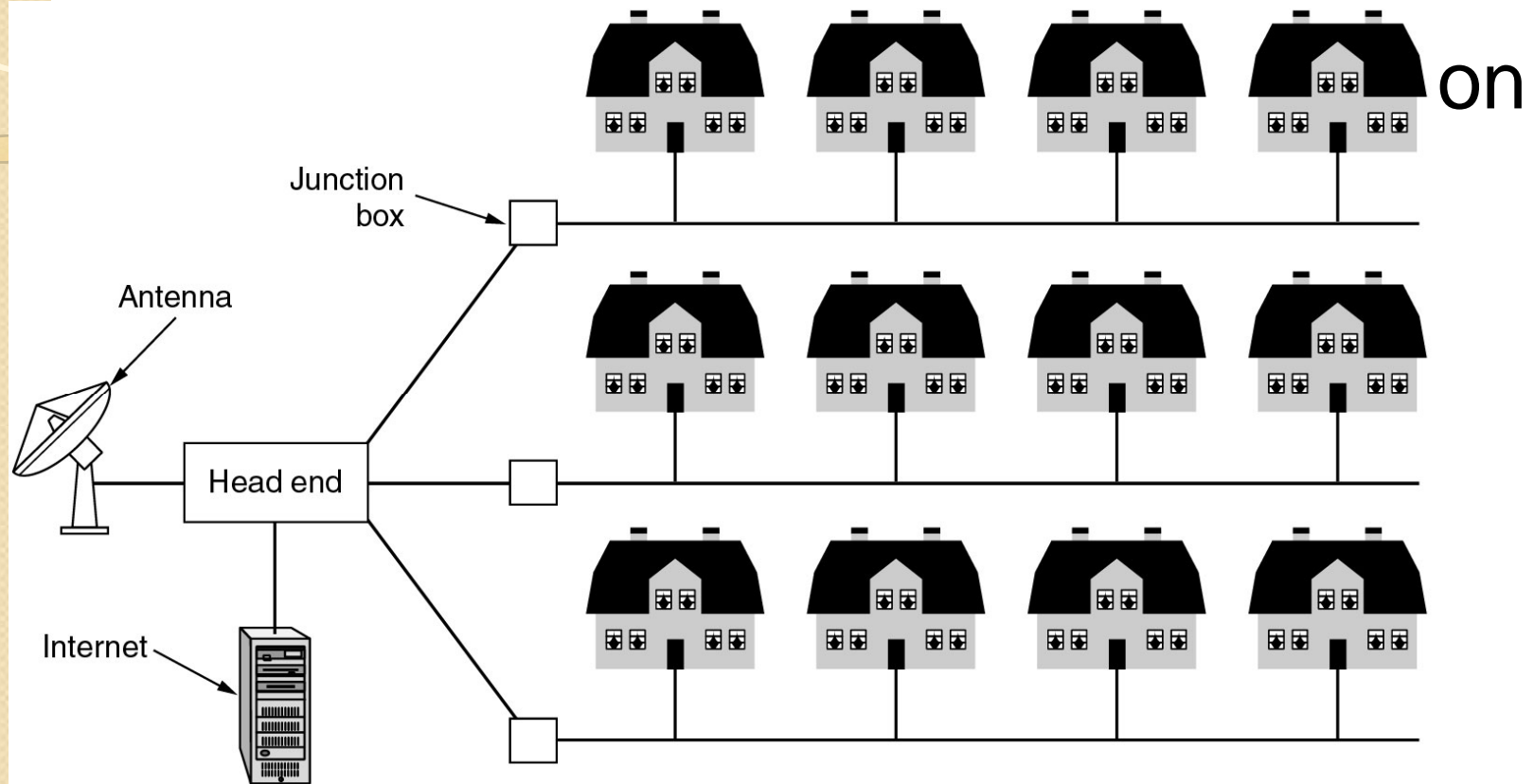- Example of a MAN is the cable television network available in many cities

Head-End

Subscriber

Subscriber

Subscriber

Subscriber

A Traditional Cable network

Head-End

Subscriber

Subscriber

Subscriber

Subscriber

Fiber coaxial Neighborhood Node   Coaxial Trunk Cable

Bridged Tap

Coxial Branch/Feeder lines

Trunk/Bridged Amplifiers

Fiber Optic Cable

A Modern Cable network

TV

TV Adpater

Splitter
Box

Cable
Network

Cable
Modem

Computer

Ethernet

Metropolitan Area Networks

on

Wide Area Networks

- **WAN spans a large geographical area, often a** country or continent.

- WAN contains a collection of machines intended for running user programs. These machines are called **hosts.**

- The hosts are connected by a **communication subnet**

- The hosts are owned by the customers

- The communication subnet is typically owned and operated by a telephone company or Internet service provider

- Subnet carry messages from host to host, just as the telephone system carries words from speaker to listener.

Relation between hosts on LANs and the subnet
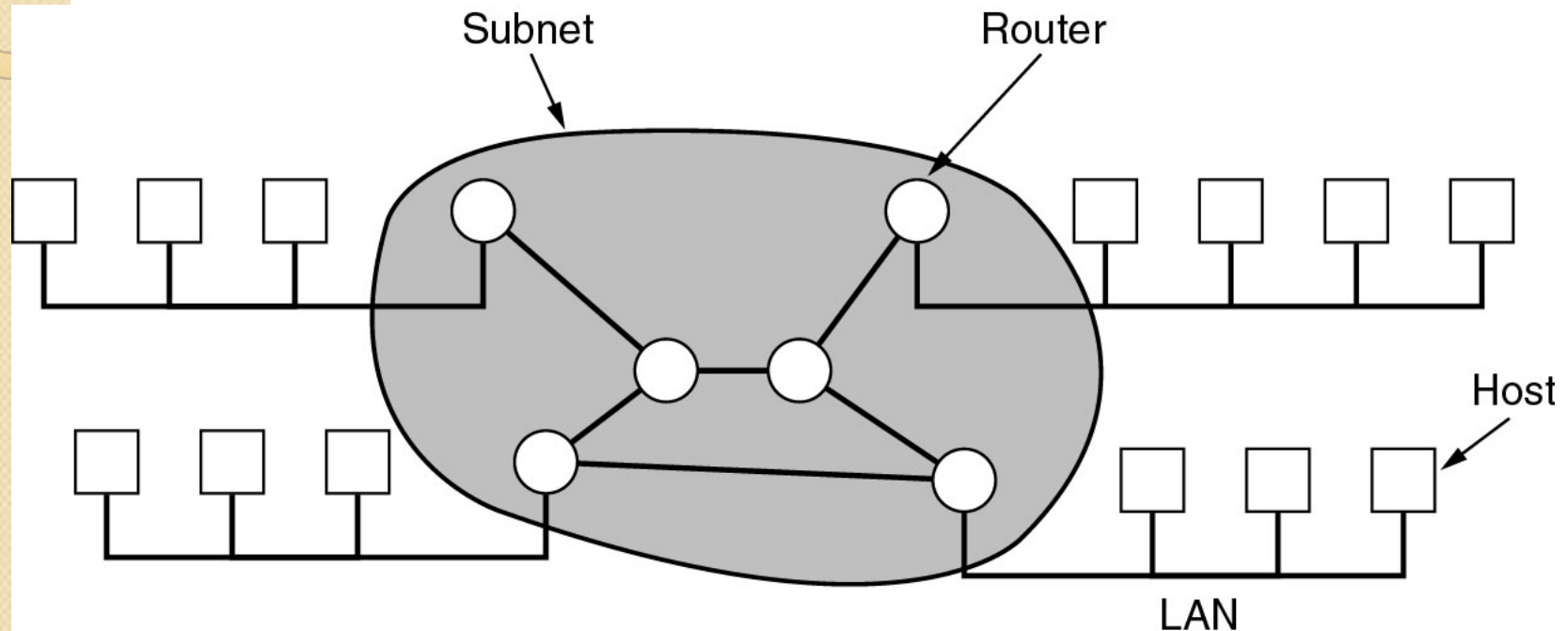
• **Router :a device that connects at least 2 n/w s. understand protocols like IP. can be programmed to change the roots of packet.**
•**Subnet : is a identifiably separate part of Organization network, may represent all the machines at one geographical location.**
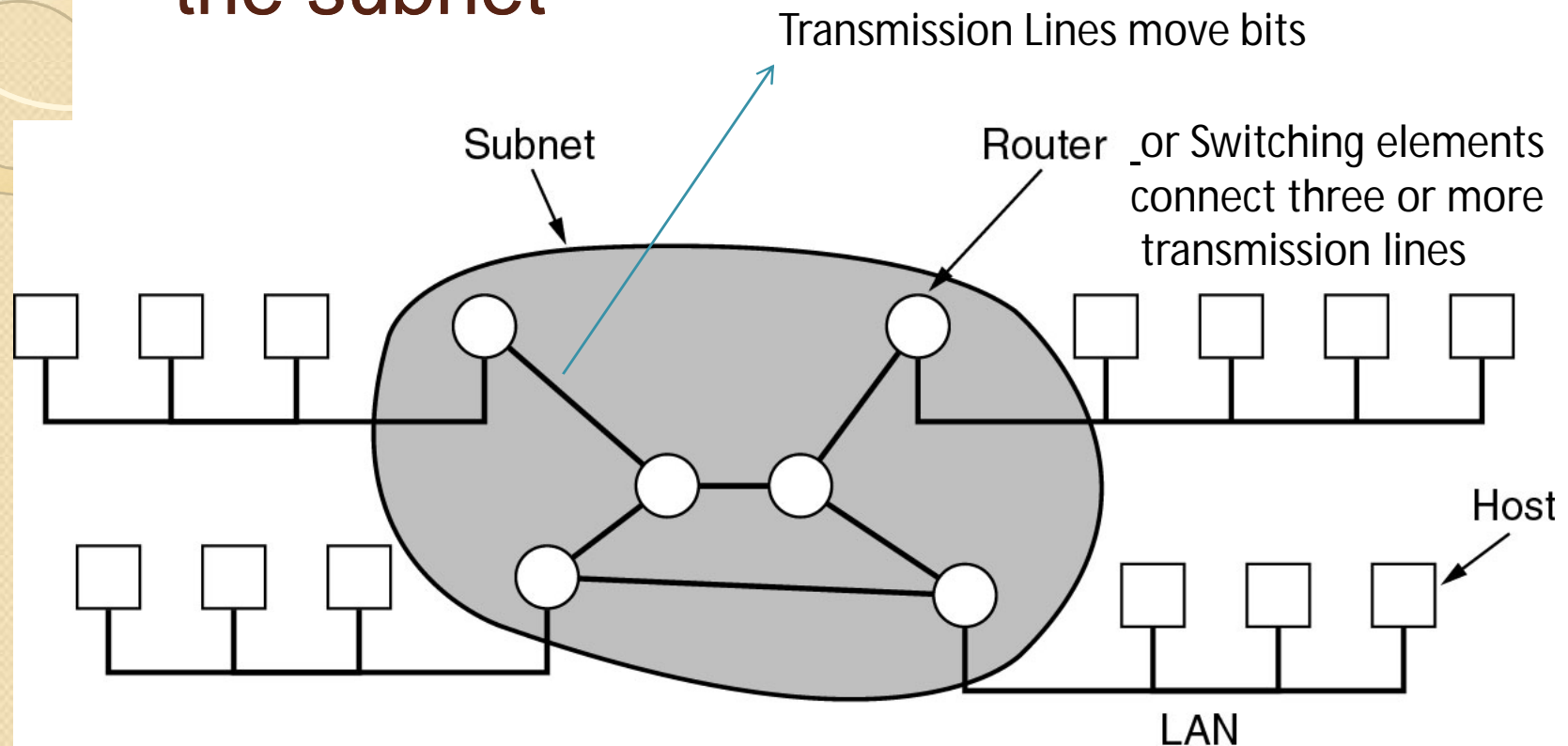
Subnet is owned by telephone or internet service provider
Like MTNL, its job is carry msg from host to host.

Subnet

Router

Host

LAN
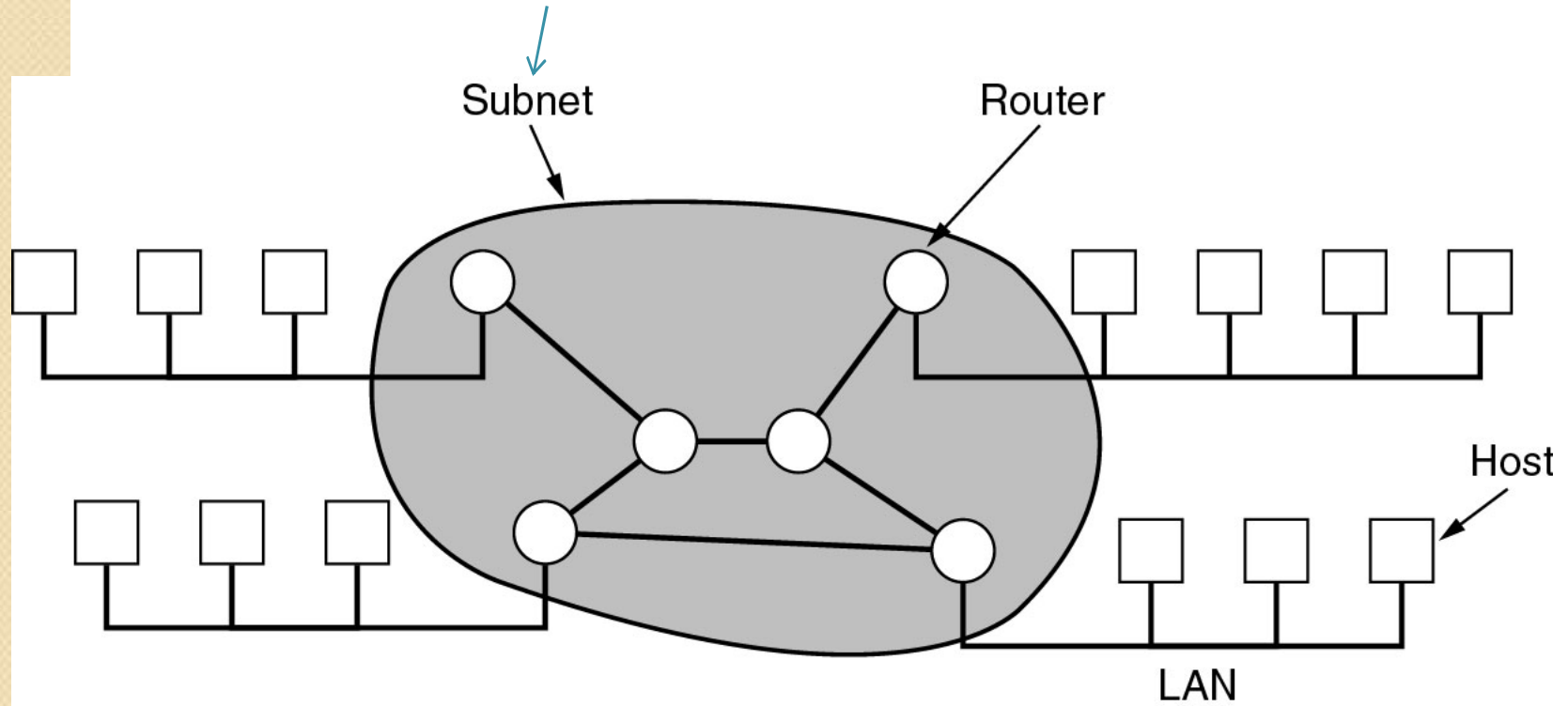
Hosts are owned by customers
Like phones are owned by us

Relation between hosts on LANs and the subnet.

Relation between hosts on LANs and the subnet

Transmission Lines move bits

Subnet

Router or Switching elements connect three or more transmission lines
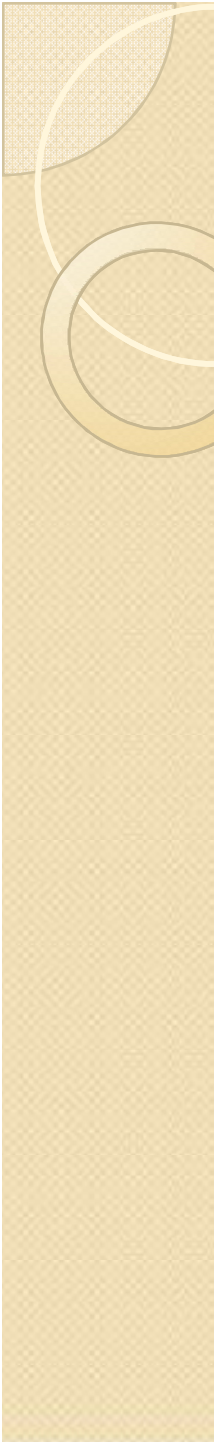
Host

LAN

•**Subnet consist of <u>transmission lines </u>(move data b/t machines with help of copper wires etc) & <u>switching elements </u>or Routers(are special computers that connect 2 or more transmission lines.)**

MAN AND INTERNET

- **WAN** (wide area network), in comparison to a MAN, is not restricted to a geographical location, although it might be confined within the bounds of a state or country. A WAN connects several LANs, and may be limited to an enterprise (a corporation or an organization) or accessible to the public. The technology is high speed and relatively expensive. The Internet is an example of a worldwide public WAN.

- Subnet consists of two distinct components:
  - Transmission lines
  - Switching elements
- <u>Transmission lines</u> move bits between machines and can be made of copper wire, optical fibre

- <u>Switching elements</u> are specialized computers that connect three or more transmission lines
- When data arrive on an incoming line, the switching element must choose an outgoing line on which to forward them.

- These switching computers are named as <u>router</u>

- What is Packet
- Store and forward subnet

Wide Area Networks (2)

A stream of packets from sender to receiver.
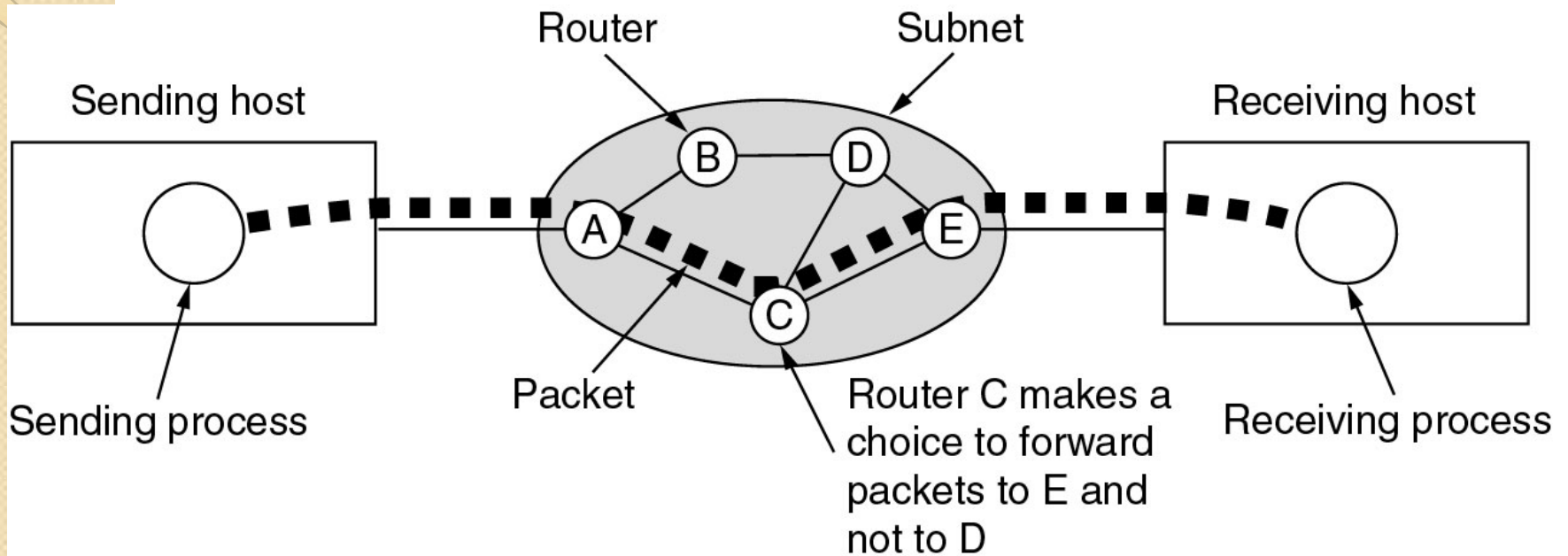
A receives a packet at its input line and finds that the output line towards C is not free. SO it stores the packets until the outgoing line towards C is free. Once it is free it forwards the packets to C. after Then C makes a choice whether it has to forward the packet to E or D. It has chosen E

Application

- Different types of network connection in real life.
- Connecting different types of network devices.

Scope of Research

- Develop a type of network having more speed and less complex.

Assignment

- Explain LAN, MAN & WAN in detail