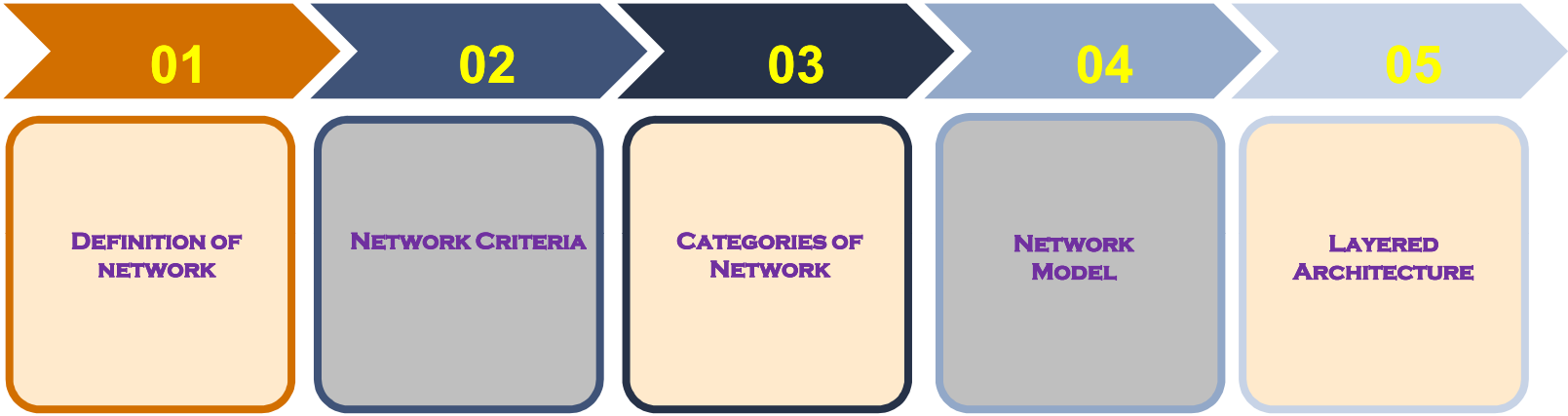
Today's Discussion



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Fundamentals of Network

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FUNDAMENTALS OF NETWORK

Objective:

This topic will introduce the students to the different categories of network and their applications. They will understand the concept of network model and know the advantages of layering.

Definition

- *A network is a set of devices (often referred to as nodes) connected by communication links.*

- *A node can be a computer, printer, or any other device capable of sending and/or receiving data generated by other nodes on the network.*

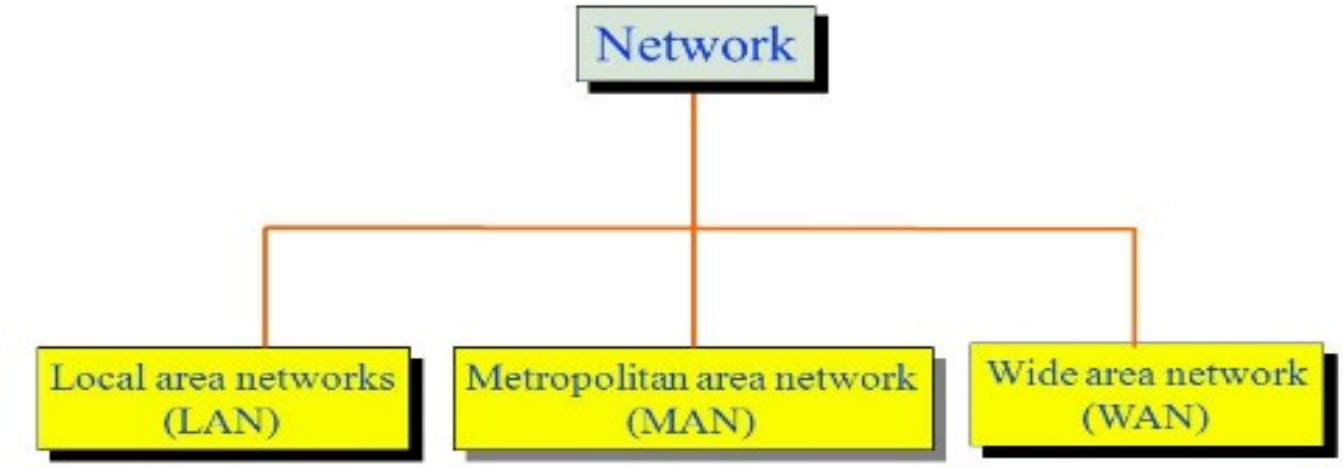
Network Criteria

- **Performance**
  - *Transit time*
  - *Response time*
  - *No. of users*
  - *Transmission medium*
- **Reliability**
  - *Frequency of failure*
  - *Time taken to recover from failure*
- **Security**
  - *Protecting data from un-authorized access*
  - *Protecting data from damage*

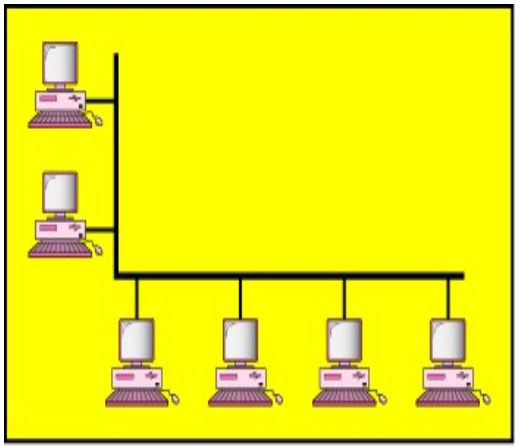
Categories of Network

Three primary categories

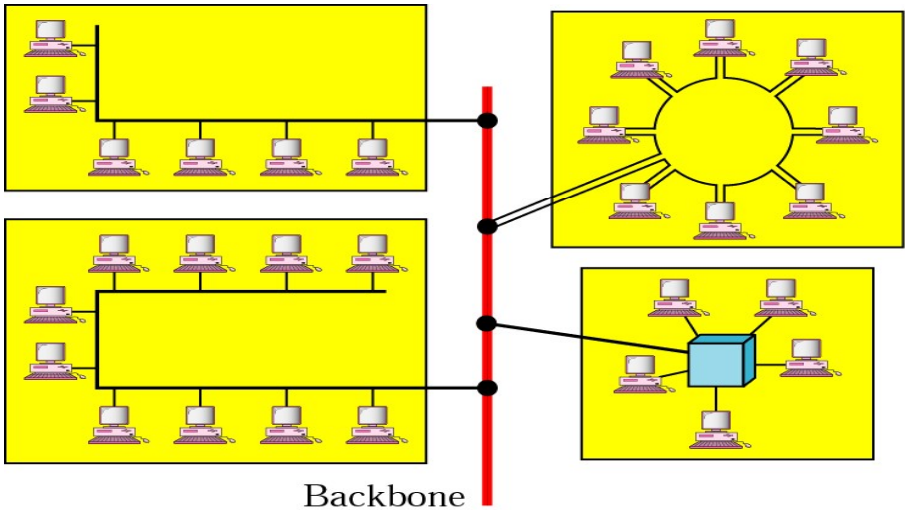
- size, ownership, distance it cover, physical architecture



LAN



a. Single-building LAN



b. Multiple-building LAN

Advantages & Disadvantages

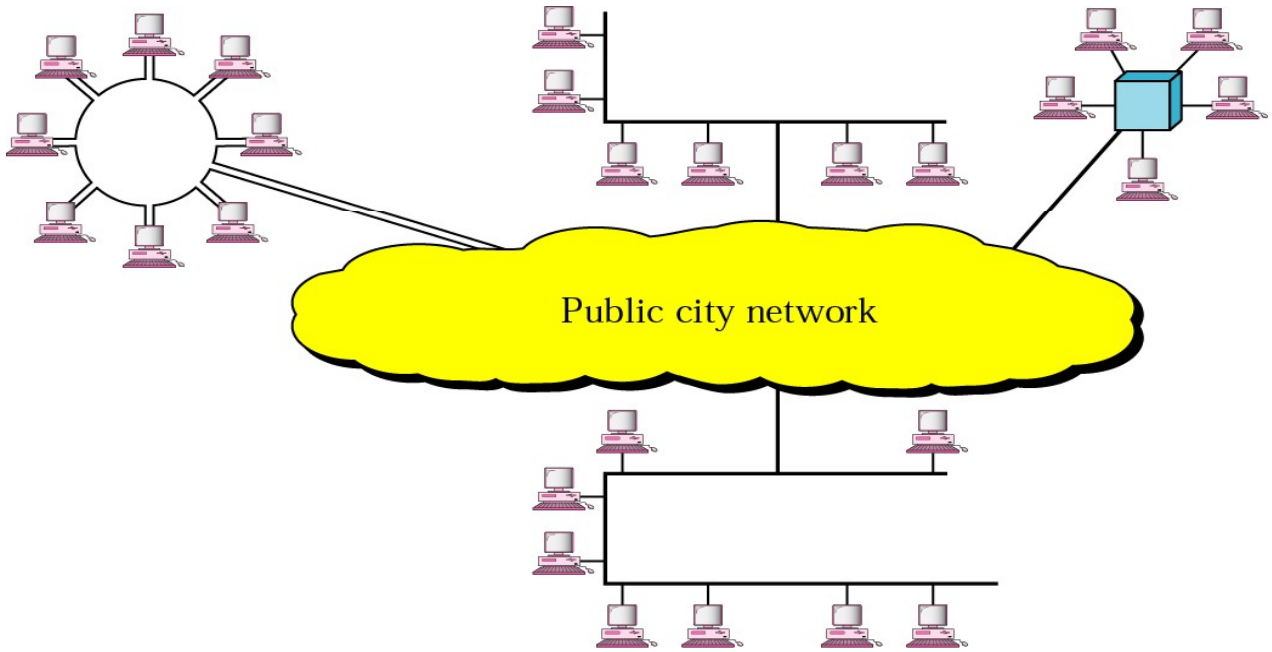
Advantages:

- ✓*Higher data rate or speed*
- ✓*Reduced cost*
- ✓*Easy to transfer and manage data*
- ✓*Data security*
- ✓*Single internet connection*

Disadvantages:

- ✓*High initial cost of installation*
- ✓*Requires a constant LAN administration*

MAN



Advantages & Disadvantages

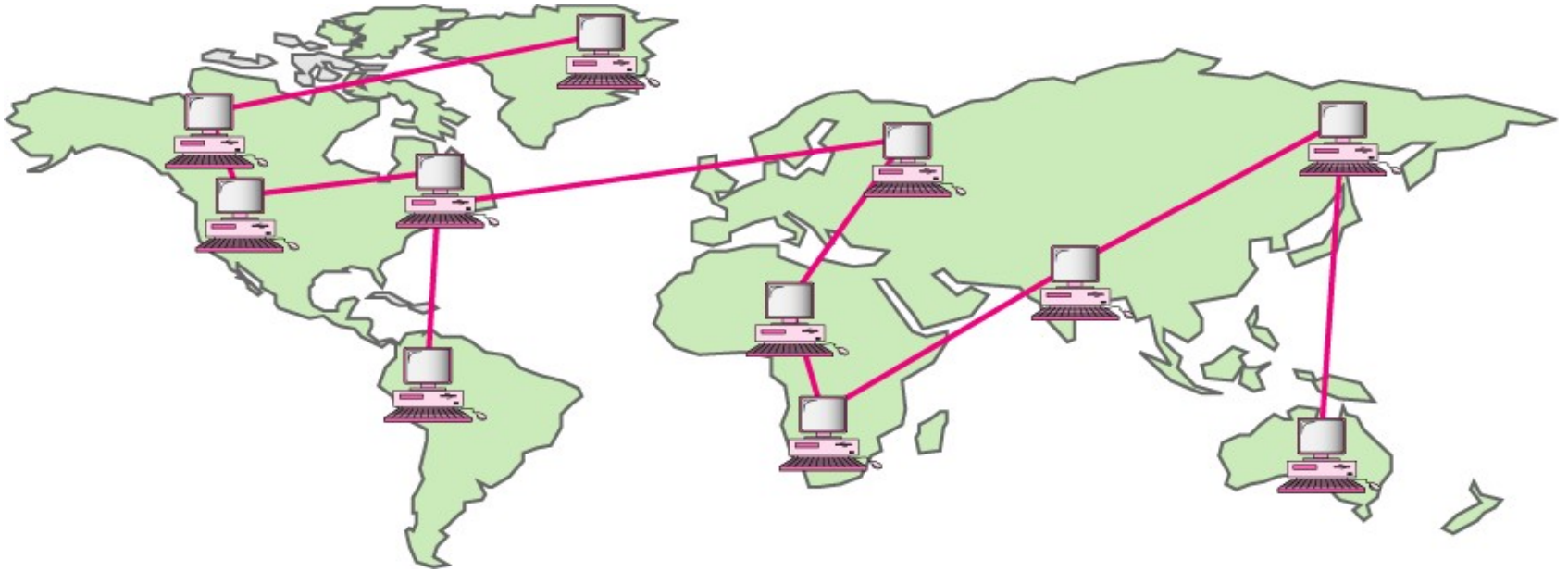
Advantages:

- ✓*Fast communication using high speed carriers*
- ✓*Excellent support for an extensive size network*
- ✓*Support for full duplex data transmission*
- ✓*Includes an entire city or some of its parts*

Disadvantages:

- ✓*More cabling is required*
- ✓*Tough to provide system security*

WAN



Advantages & Disadvantages

Advantages:

- ✓*Larger geographical area*
- ✓*Easy longer distance communication*

Disadvantages:

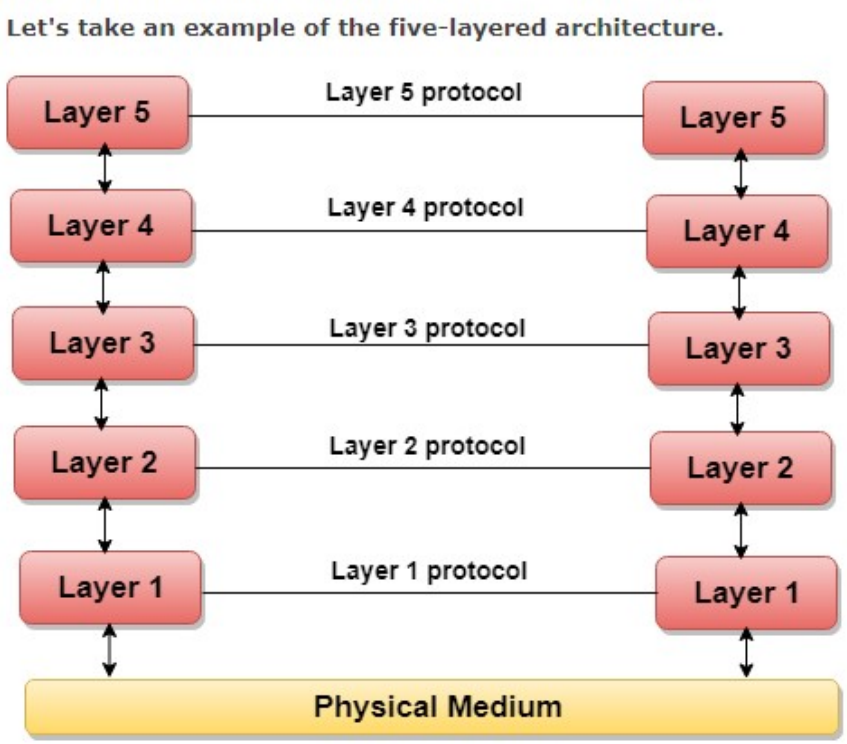
- ✓*Higher initial set up cost*
- ✓*Difficult to maintain*
- ✓*More errors and issues*
- ✓*More time to resolve issues*
- ✓*Lower security*

Network Model

❖ ***Computer network models*** ***are responsible for establishing a connection among the sender and receiver and transmitting the data in a smooth manner respectively.***

❖ ***There are two computer network models i.e. OSI Model and TCP/IP Model on which the whole data communication process relies.***

Layered Architecture



Requirement:

- ***Divide & Conquer Approach***
- ***Modularity***
- ***Easy to modify***
- ***Easy to test and debug***

Quiz Time

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Thank You

Any questions?