

Computer Networks CSE306

Lecture 0

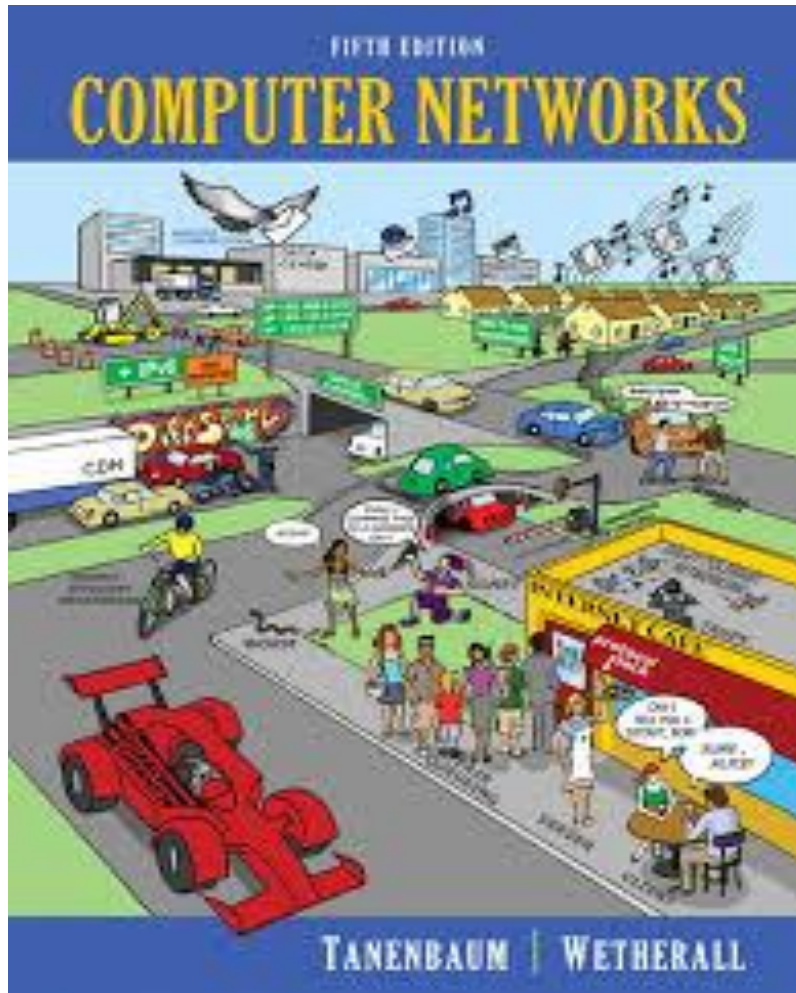
Course details

- LTP – 3 0 0 [Three lectures & /week]
- **Course Mapping**
 - This is mapped with CompTIA Network + certification completely and those who will clear the same, the score is mapped with the grade as per the LPU examination system.
- **Text Book**
- DATA COMMUNICATION AND NETWORKING
BY BEHROUZ FOROUZAN, MCGRAW HILL EDUCATION



Course Assessment Model

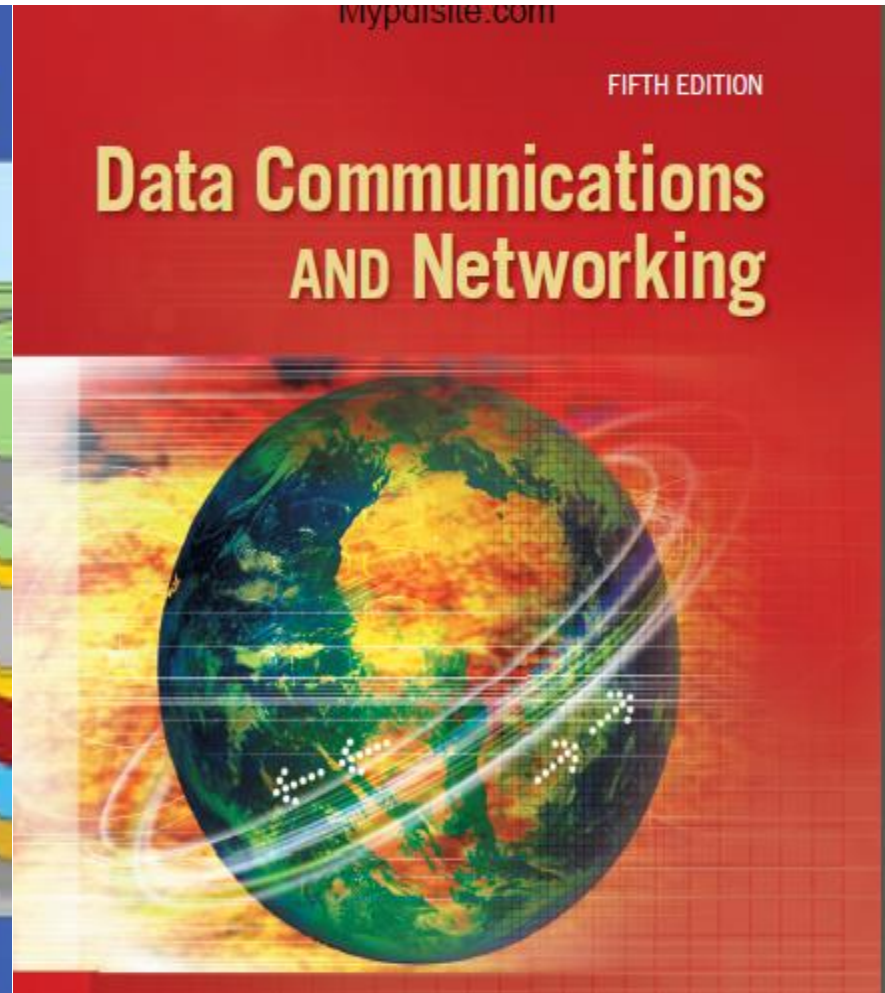
• Marks break up*	
• Attendance	5
• CA (Two best out of three tasks)	25
• MTE	20
• ETE	50
• Total	<hr/> 100



Reference Book 1

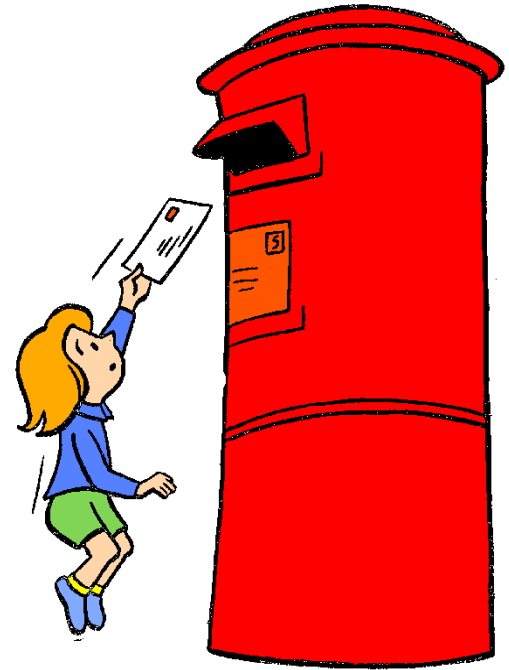
Ed 5

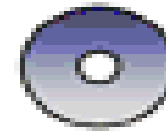
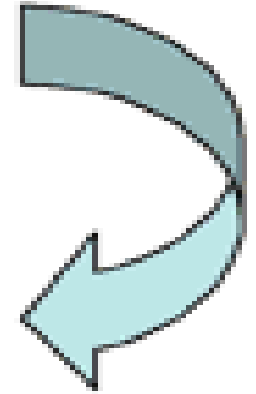
cdr.network@gmail.com



Text Book

1/14/2022





DVD



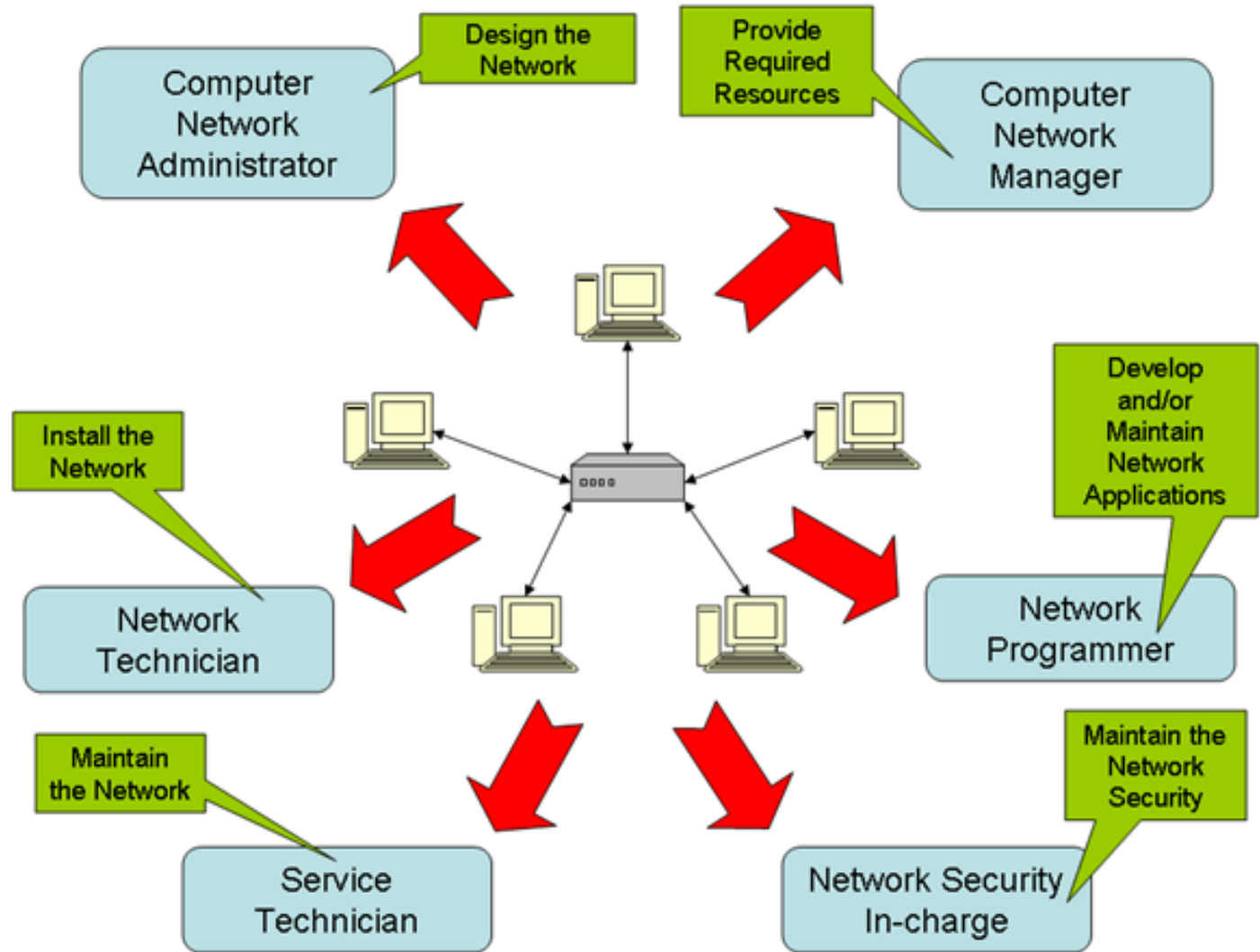
SATELLITE/CABLE/IP



OVER THE AIR



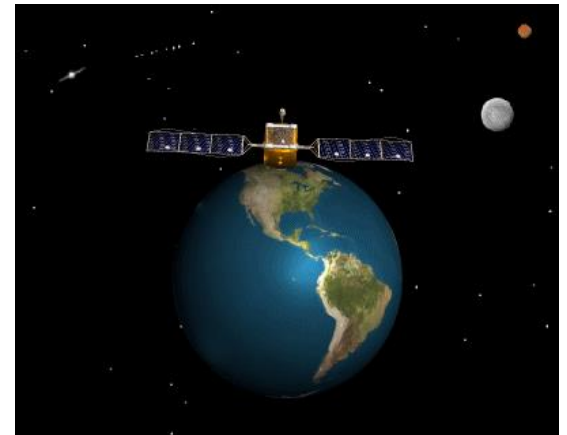
Why Study ?



(Career Avenues in Computer Networking)

Objective of Computer Networks

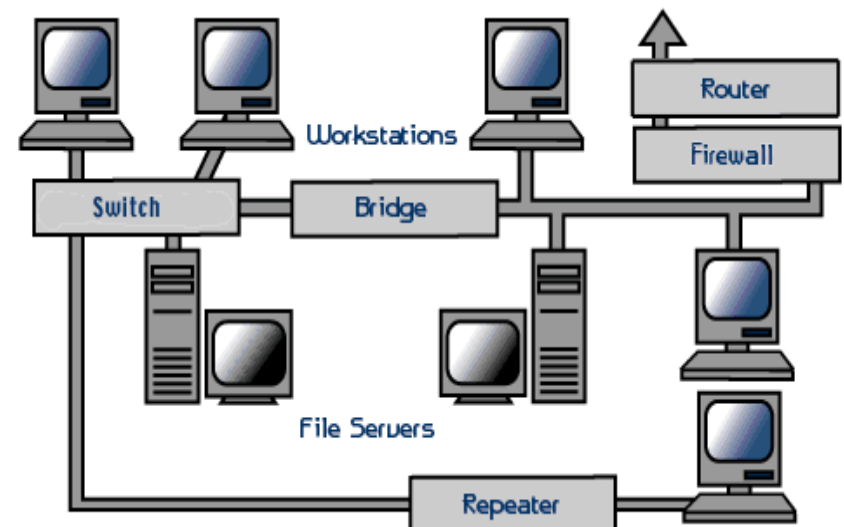
- Networking has revolutionized the way in which we work, connect and communicate to the world.



Networking is about making connections and finding out what we can do to help each other. It's about service.

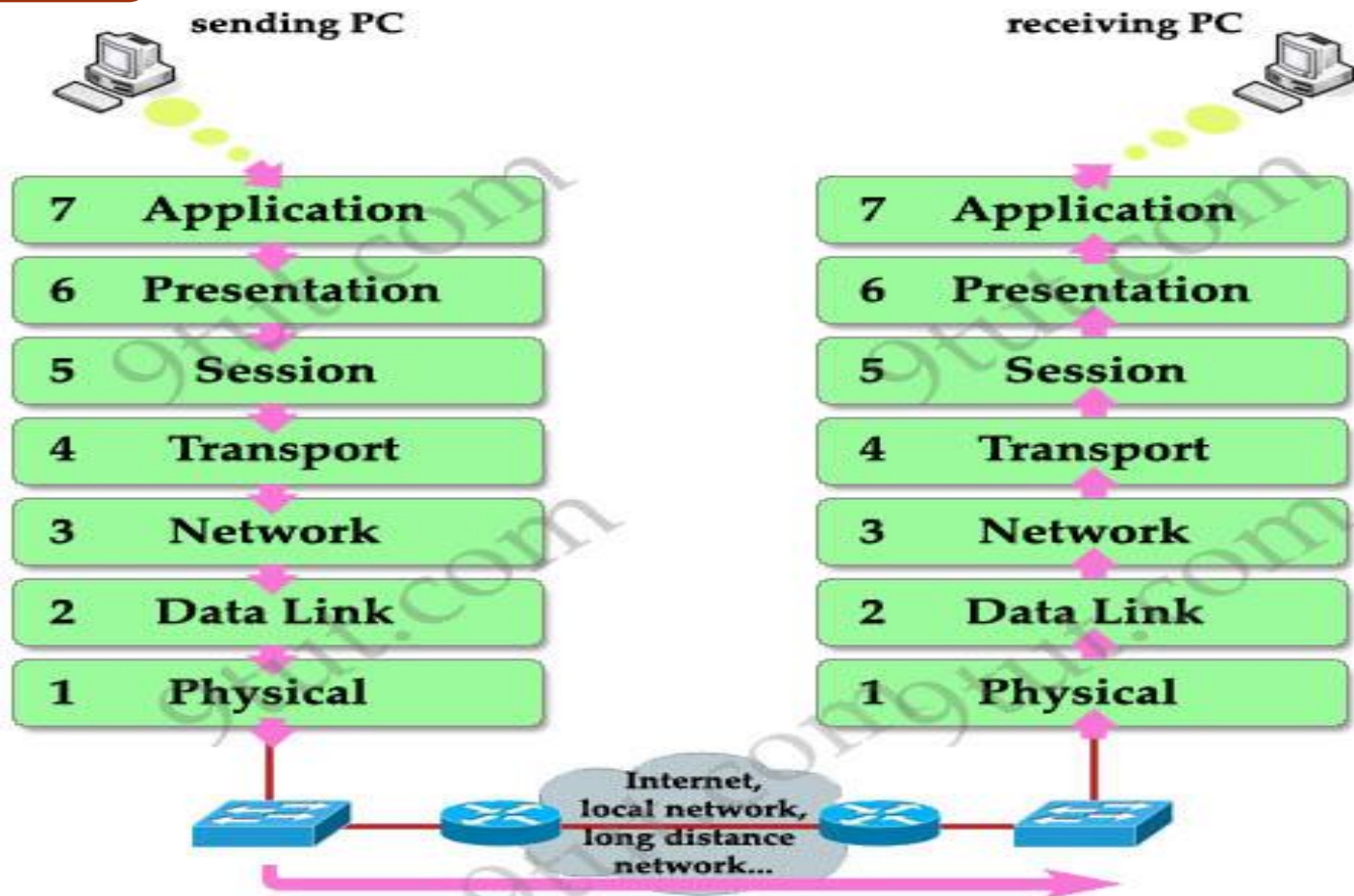
What Is Networking

A computer **network** or data **network** is a telecommunications **network** that allows computers to exchange data.



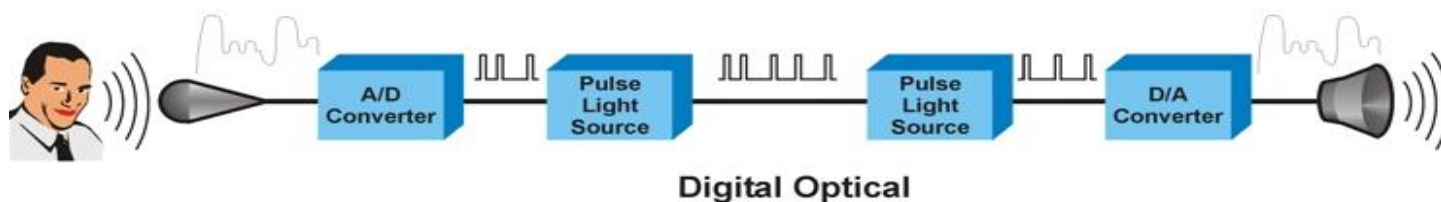
OSI and TCP Model

Unit 1



PHYSICAL LAYER: Signal & Media

Unit 2



DATA LINK LAYER

Unit 3

Physical Addressing

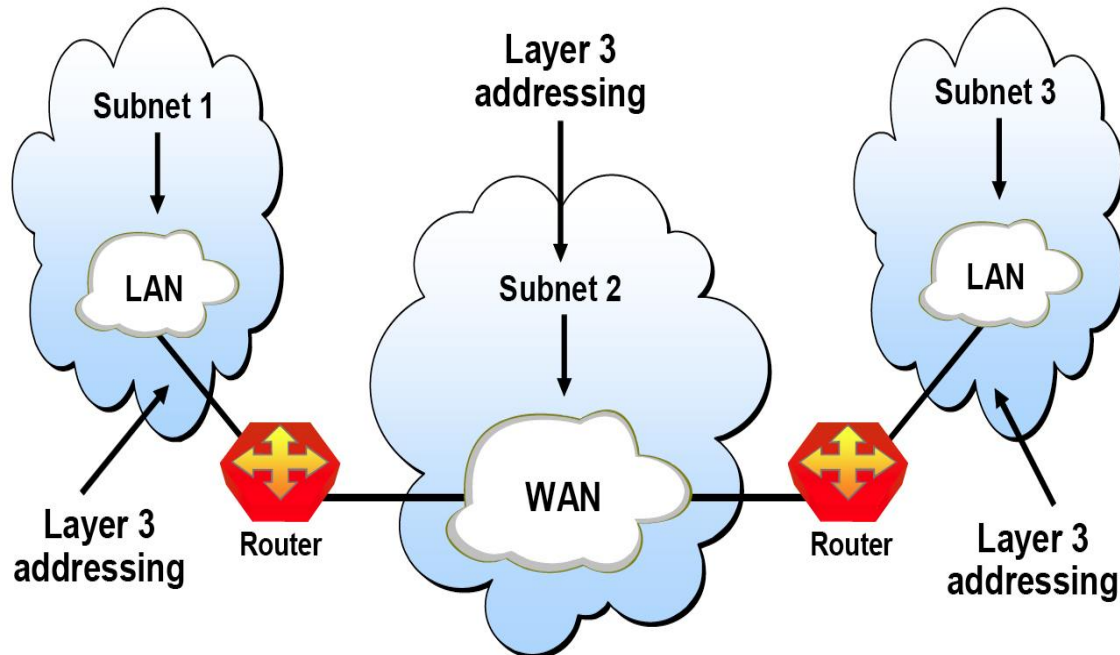
Framing

Flow Control

Error Control

NETWORK LAYER: IP Addressing

Unit 4



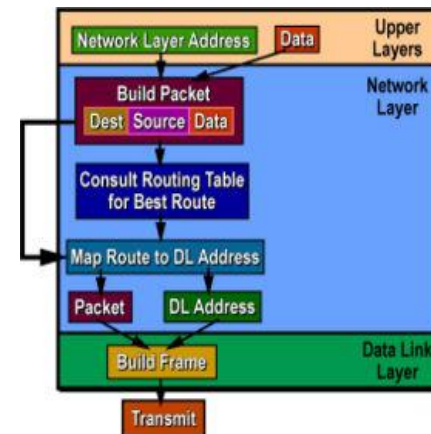
An IPv4 address (dotted-decimal notation)

172 . 16 . 254 . 1

↓ ↓ ↓ ↓
10101100.00010000.11111110.00000001

One byte = Eight bits

Thirty-two bits (4 * 8), or 4 bytes

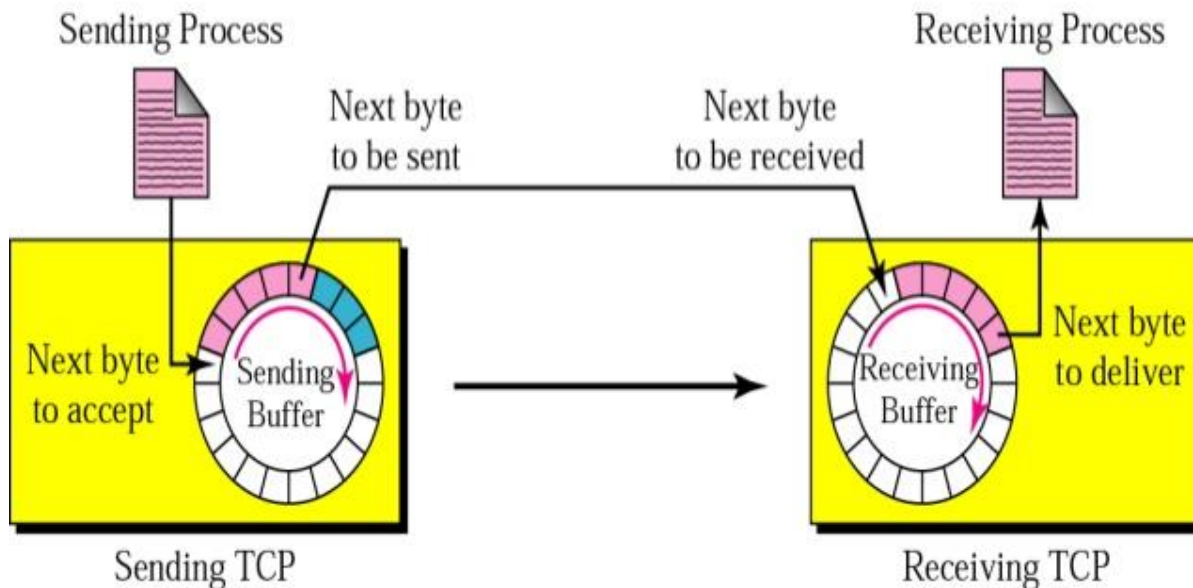


TRANSPORT LAYER

Unit 5

Sending & Receiving Window

1. Reliable delivery of data
2. Ordering of delivery
3. Port addressing
4. Segmentation and reassembly
5. Connection control
6. Flow control and Error control
7. Main protocols are TCP and UDP



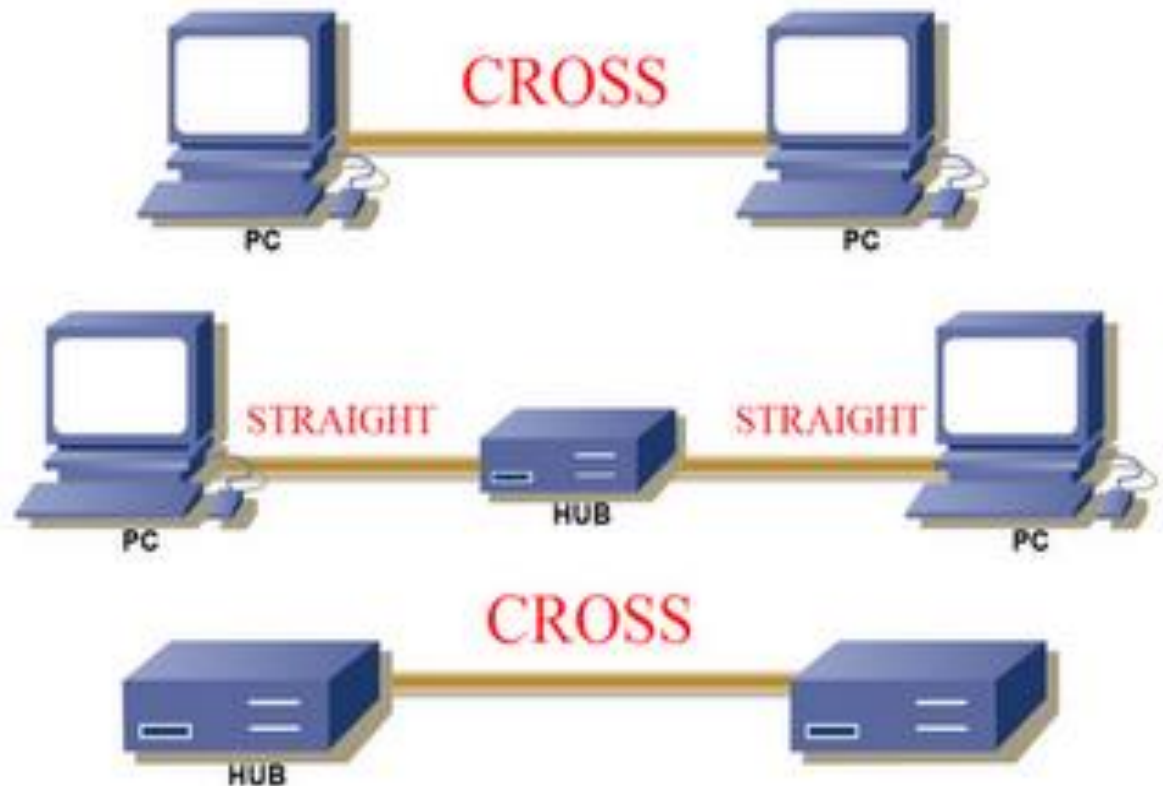
APPLICATION LAYER

Unit 6



Types of Devices

- Laptops
- PDAs
- Cell phones
- Pagers
- Sensors
- Hub
- Switch
- Router etc



A hand-drawn illustration titled "The Internet of THINGS". At the center is a stylized Earth globe with blue oceans and green continents. Numerous black lines radiate from the globe, connecting it to various smart objects and scenarios. These include:

- A house labeled "CONNECTED OBJECTS" with icons for a person, dog, location pin, and satellite.
- A car with a Wi-Fi symbol above it.
- A potted plant labeled "CONNECTED PLANT" with a leafy sprout growing from it.
- A person wearing glasses and holding a device, with a speech bubble containing two vertical bars (||).
- A blue jacket with a Bluetooth symbol on it.
- A pair of headphones.
- A red circle with the number "4" inside.
- A small drone or aircraft with a "3km range" label.
- Three colorful flowers (yellow, yellow, and red) at the bottom left.

The title "The Internet of THINGS" is written in a large, handwritten font at the top right. At the bottom, the phrase "CONNECT THE WORLD" is written in a similar handwritten style. The entire drawing is done in a simple, sketchy, hand-drawn style with bold outlines and flat colors.

CONNECT THE WORLD

FUTURE SCOPE



They receive live information from the road authority about the state of the roads including traffic jams, accidents and weather. The car transmits information to the road authority regarding speed, distance travelled, use of windscreen wipers, etc.

Challenges

- Bandwidth
- Security risks
- Wide variety terminals and devices with different capabilities
- Fit more functionality into single, smaller device
- QoS



Limitations to Computer Network

- Cyber Crime.
- Need Connectivity.
- Global Protocol acceptance. IPv4 and IPv6.
- Power Source for Mobile Devices.
- Size and Design.
- Cost.

Types of Network

- **Wired Networks**

- high bandwidth
- low bandwidth variability
- can listen on wire
- high power machines
- high resource machines
- low delay
- connected operation

-No Mobility.

- **Mobile Networks**

- low bandwidth
- high bandwidth variability
- hidden terminal problem
- low power machines
- low resource machines
- higher delay
- disconnected operation

Mobility.

The End

