Computer Networks CSE306

Lecture 0

Course details

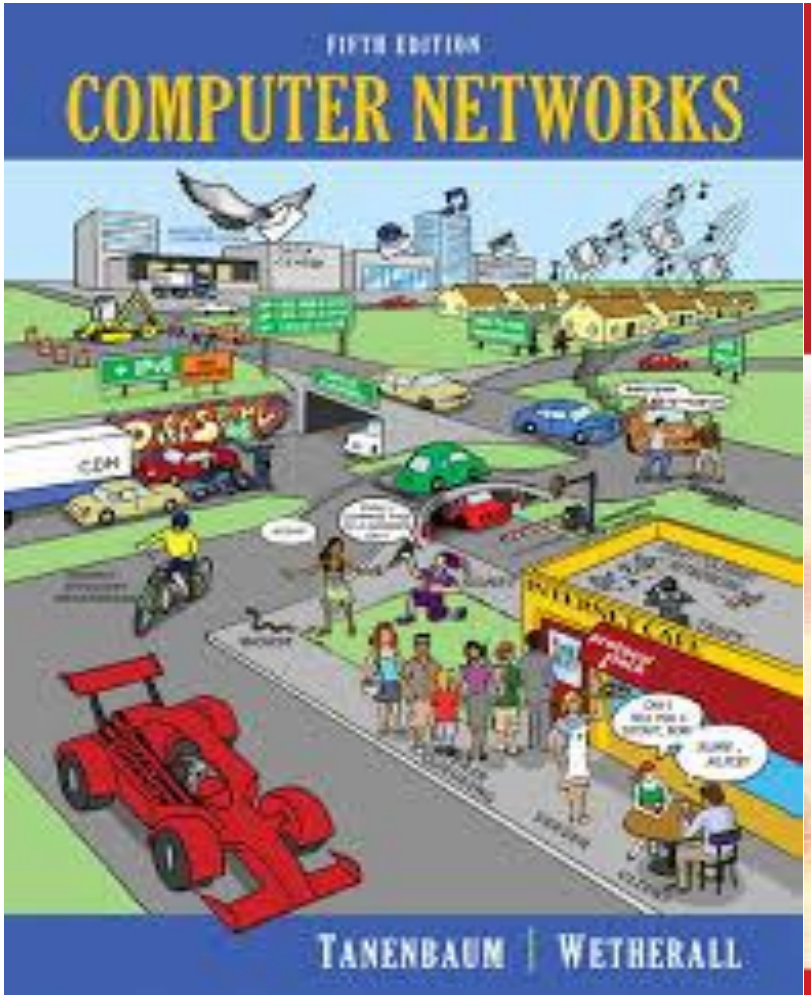
- LTP – 3 0 0 [Three lectures & /week]
- **Course Mapping**
- **This is mapped with CompTIA Network + certification completely and those who will clear the same, the score is mapped with the grade as per the LPU examination system.**
- **Text Book**
- DATA COMMUNICATION AND NETWORKING

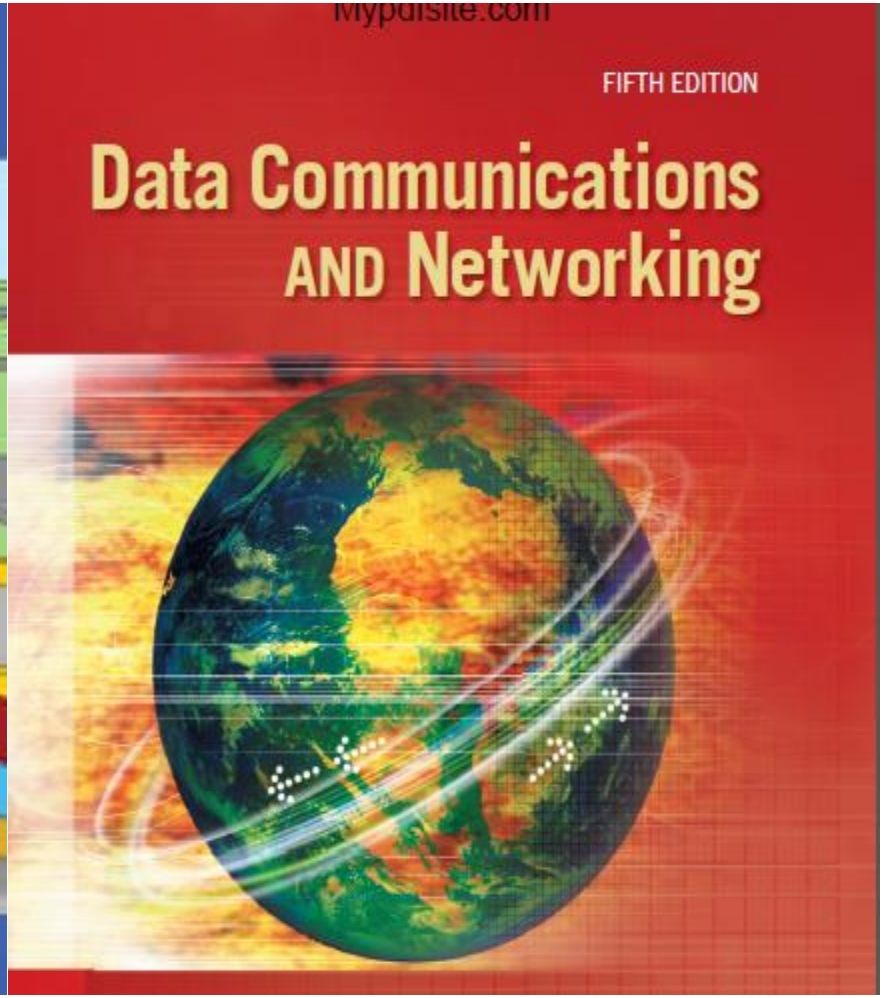
BY BEHROUZ FOROUZAN, MCGRAW HILL EDUCATION

Course Assessment Model

- **Marks break up***

Attendance	5
CA (Two best out of three tasks)	25
MTE	20
ETE	50
Total	**100**

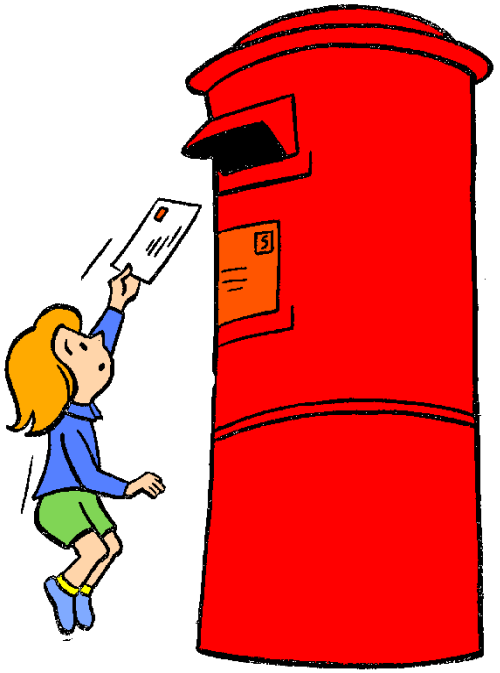




Reference Book 1
Ed 5

Text Book

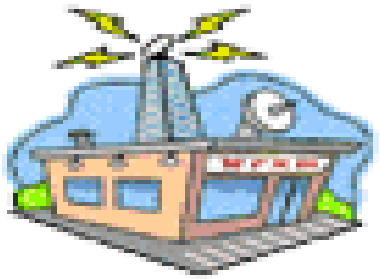
cdr.network@gmail.com




EMAIL

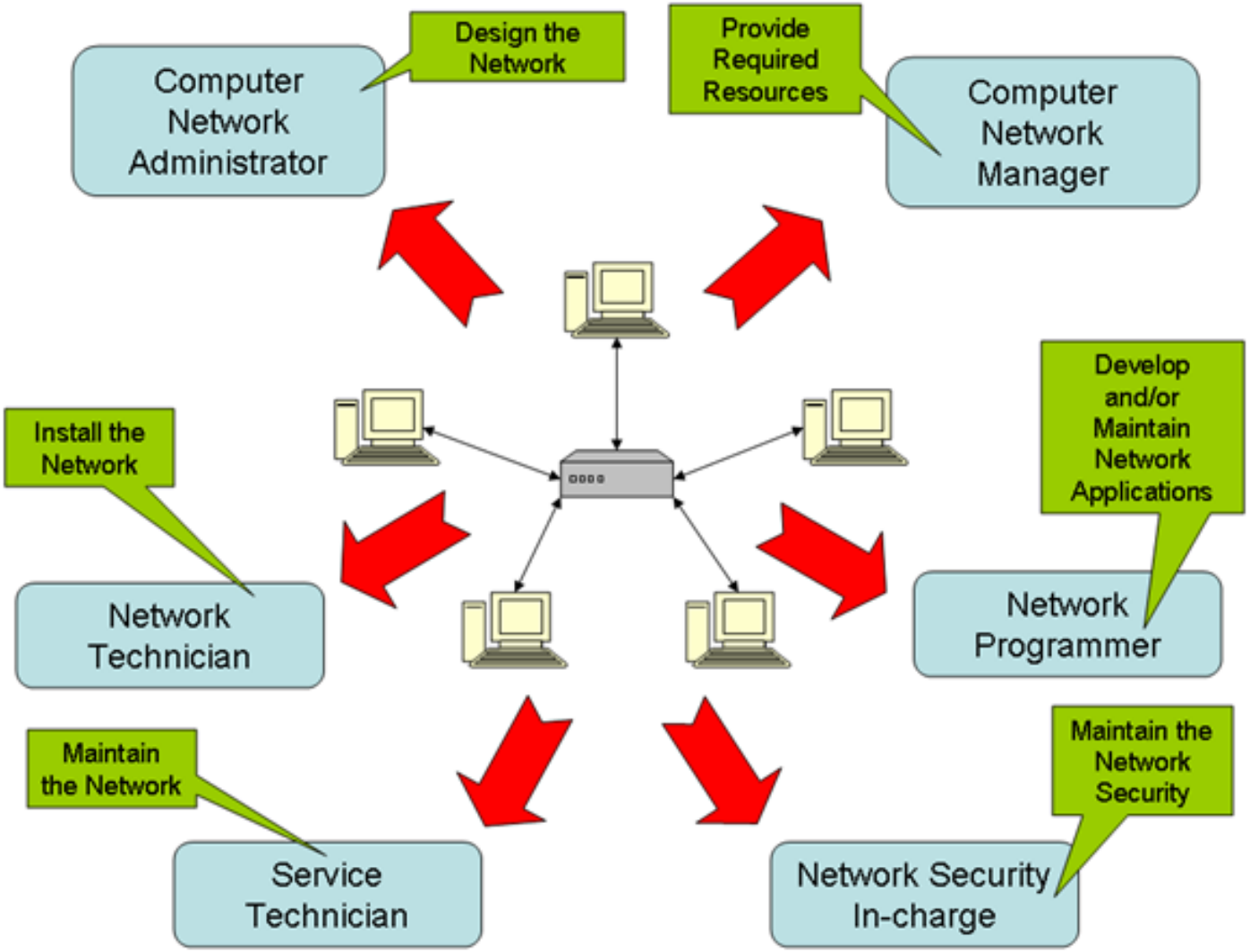
DVD

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."

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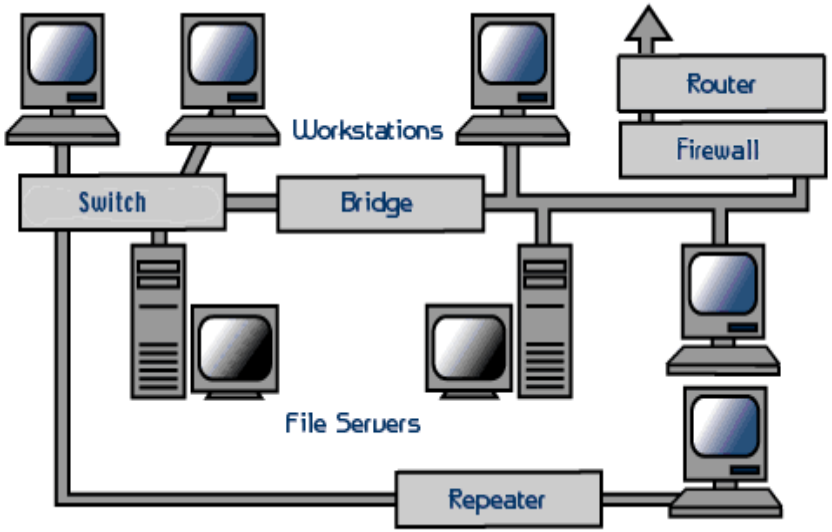
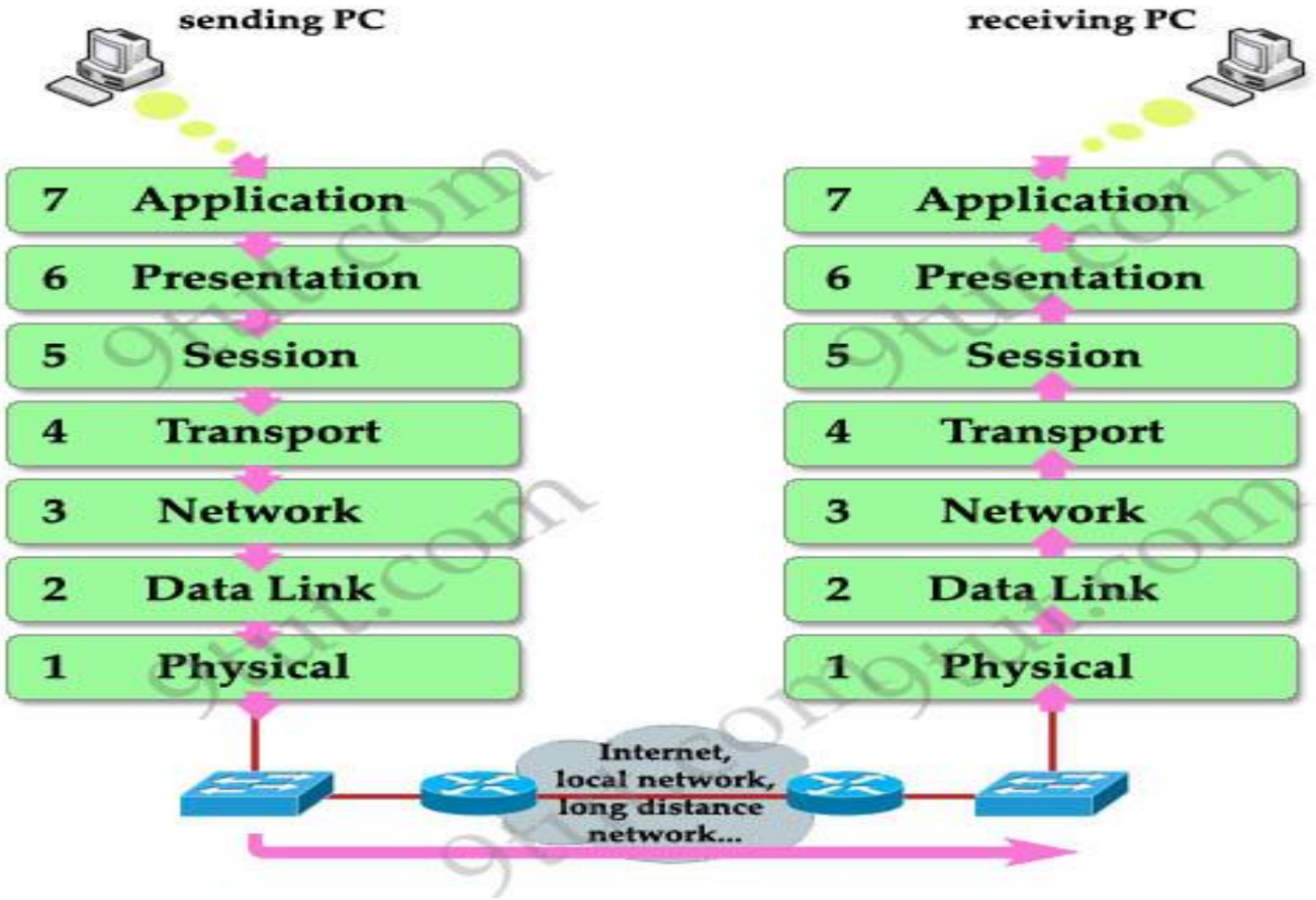
What Is Networking

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



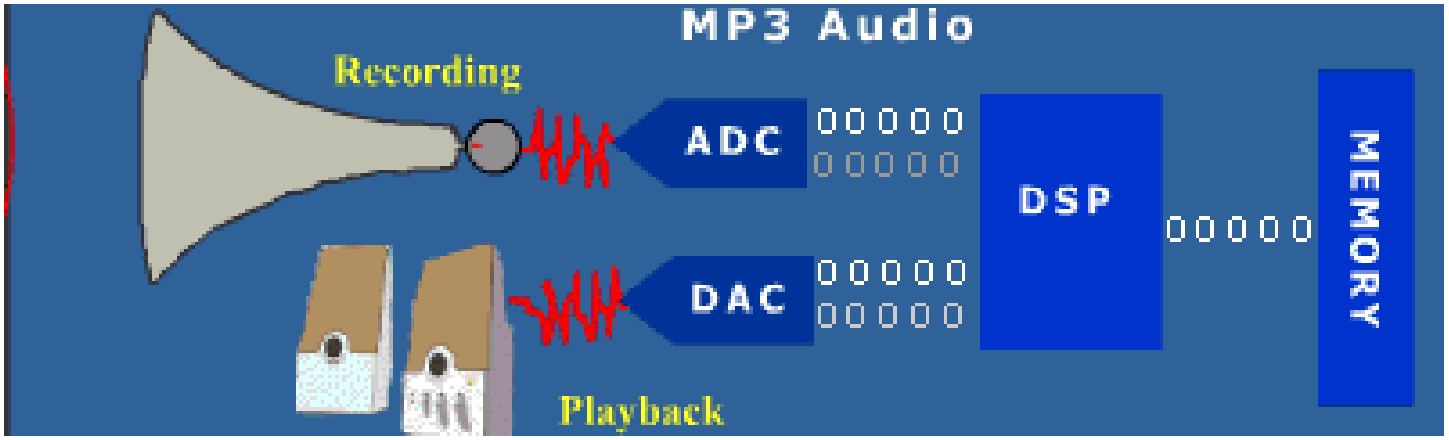
OSI and TCP Model

Unit 1

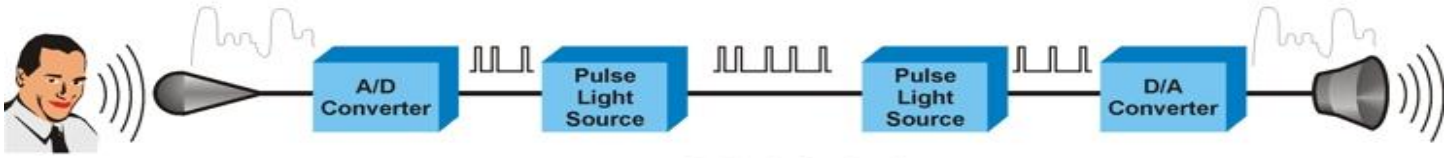


PHYSICAL LAYER: Signal & Media

Unit 2



Analog Optical



Digital Optical

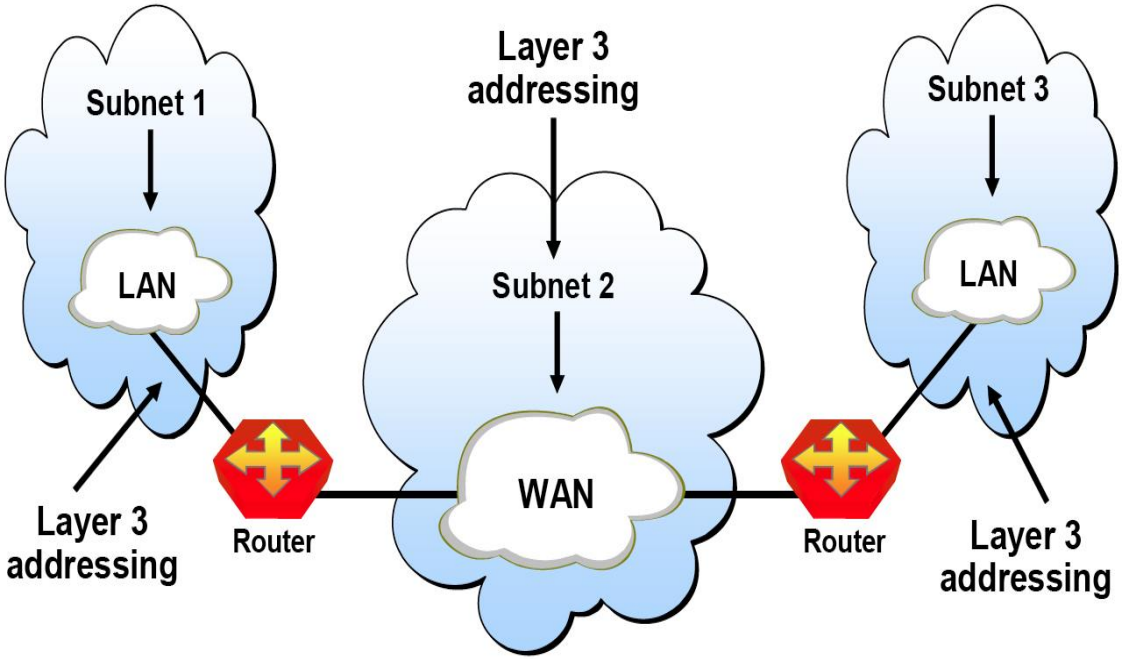
DATA LINK LAYER

Unit 3

Physical Addressing
Framing
Flow Control
Error Control

NETWORK LAYER: IP Addressing

Unit 4



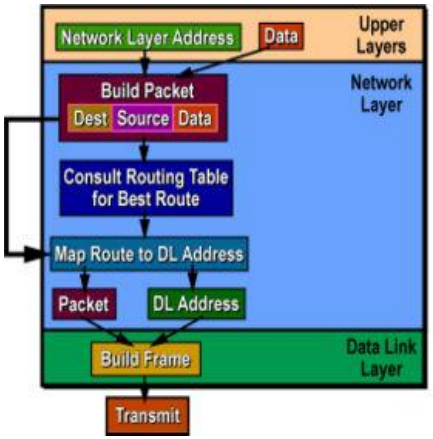
An IPv4 address (dotted-decimal notation)

172 . 16 . 254 . 1

10101100.00010000.11111110.00000001

One byte = Eight bits

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

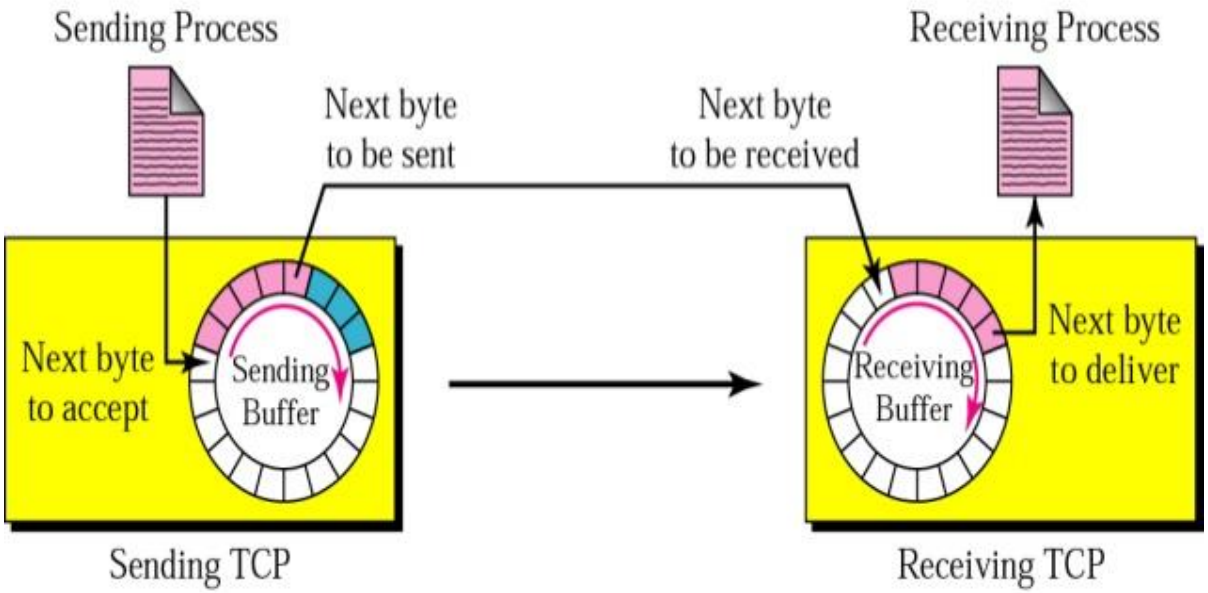


TRANSPORT LAYER

Unit 5

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

Sending & Receiving Window

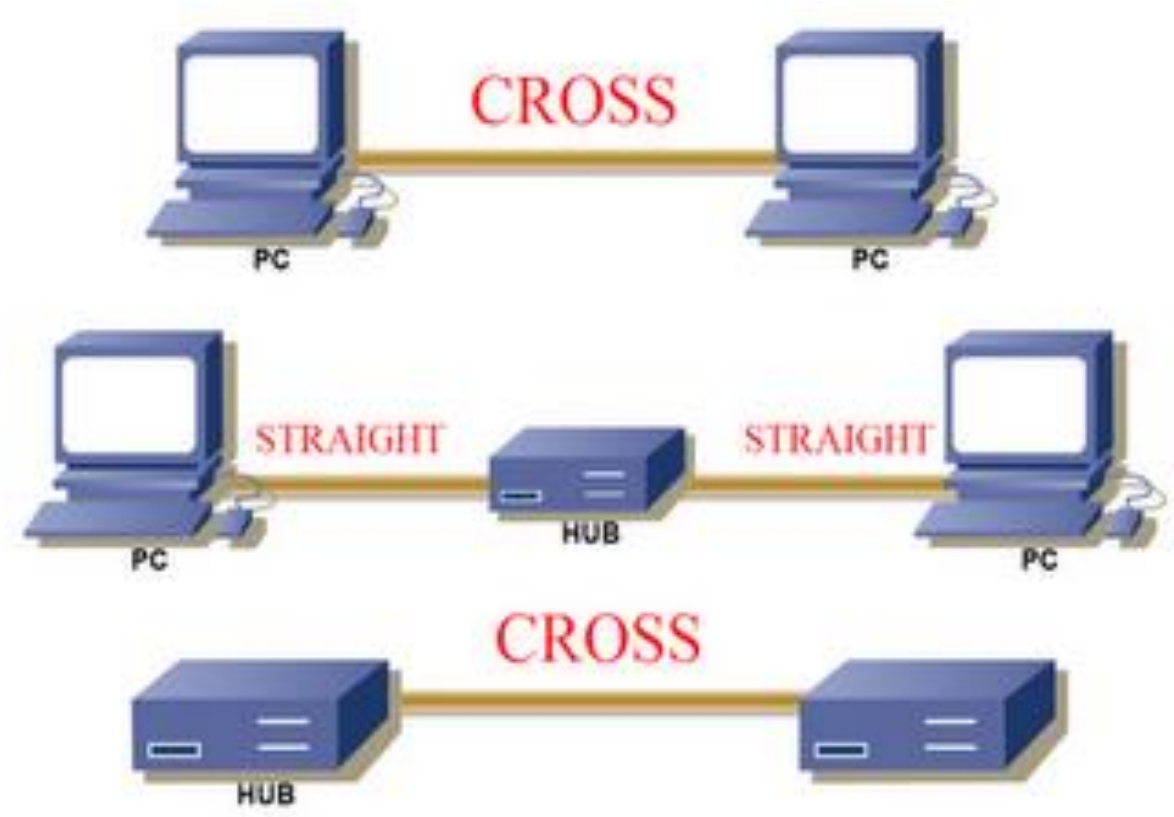


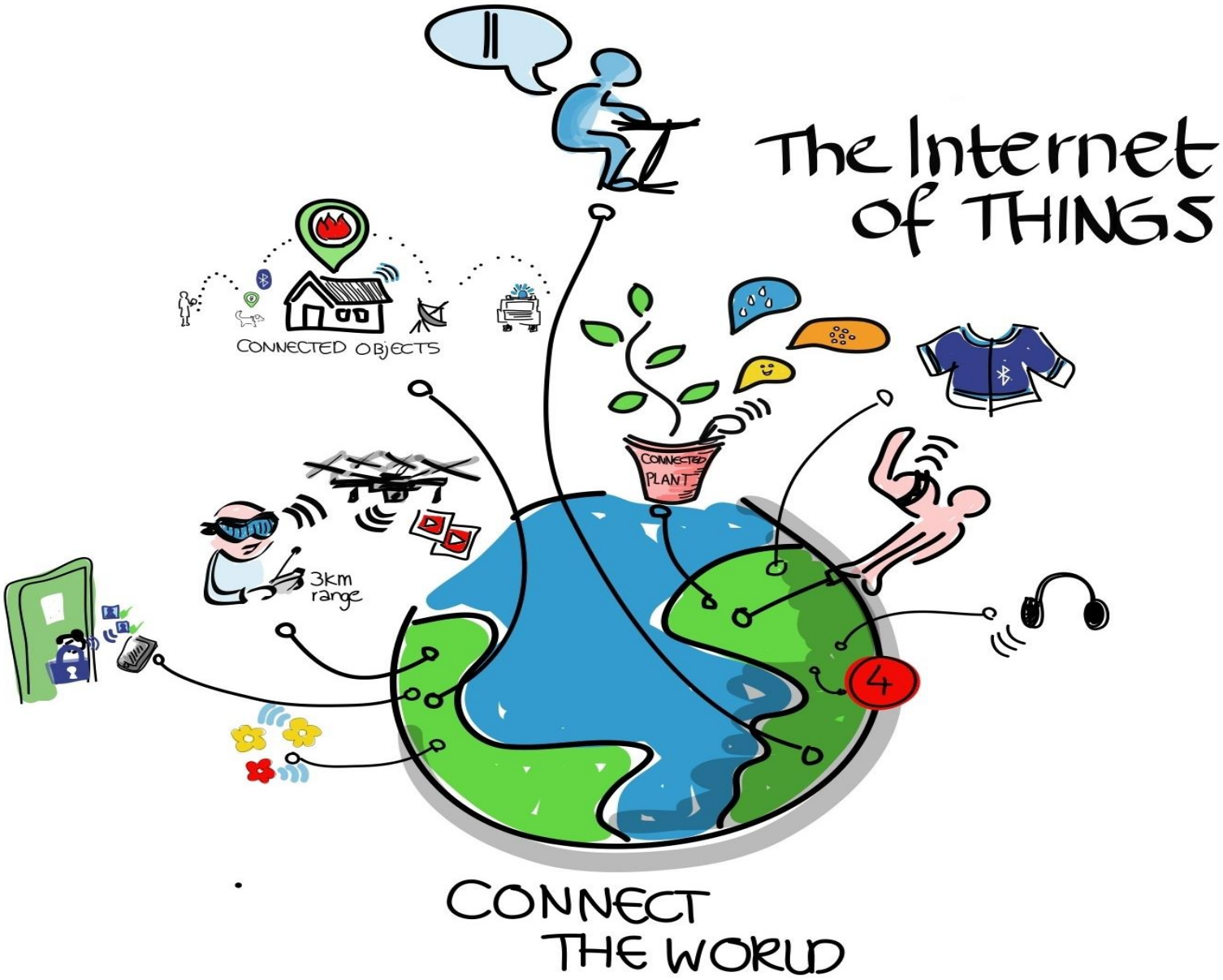
APPLICATION LAYER

Unit 6

Types of Devices

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




The Internet of THINGS
CONNECTED OBJECTS
CONNECTED PLANT
3km range
4
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