



# Computer Networks CSE306

## Lecture 0



# Course details

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- LTP – 3 0 0 [Three lectures & /week]

## Text Book

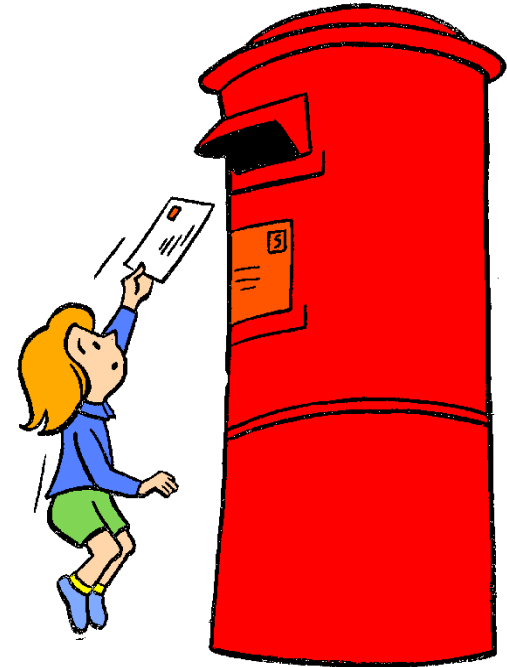
- DATA COMMUNICATION AND NETWORKING  
BY BEHROUZ FOROUZAN, MCGRAW HILL EDUCATION

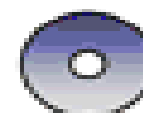
# Course Assessment Model

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- **Marks break up\***

|                                    |            |
|------------------------------------|------------|
| • Attendance                       | 5          |
| • CA (Two best out of three tasks) | 25         |
| • MTE                              | 20         |
| • ETE                              | 50         |
|                                    | <hr/>      |
| • <b>Total</b>                     | <b>100</b> |





DVD



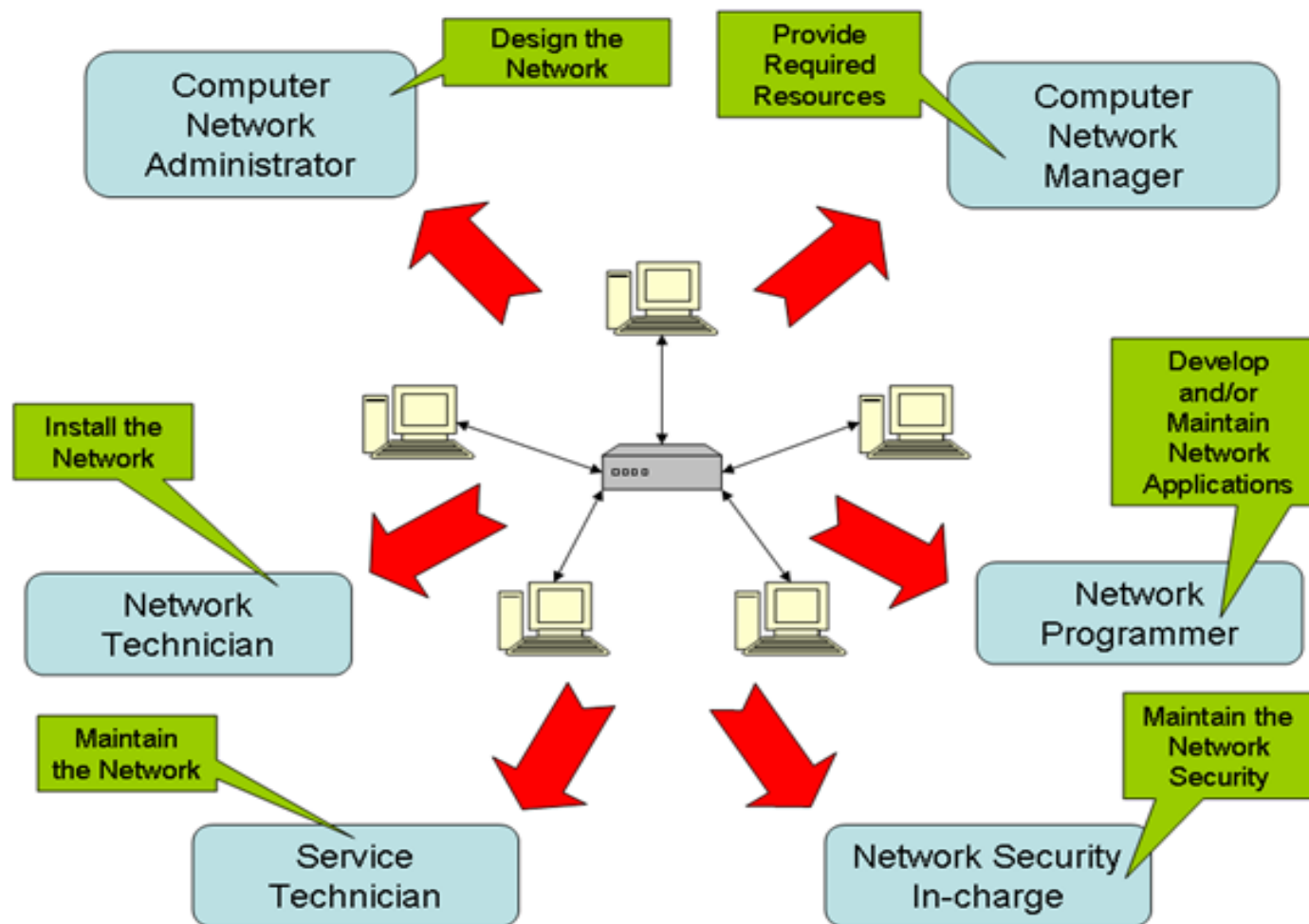
SATELLITE/CABLE/IP



OVER THE AIR



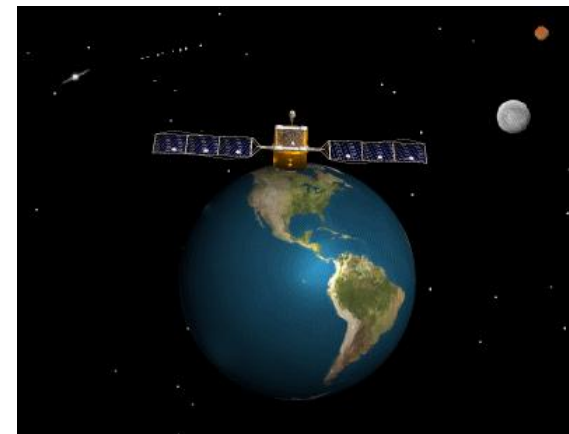
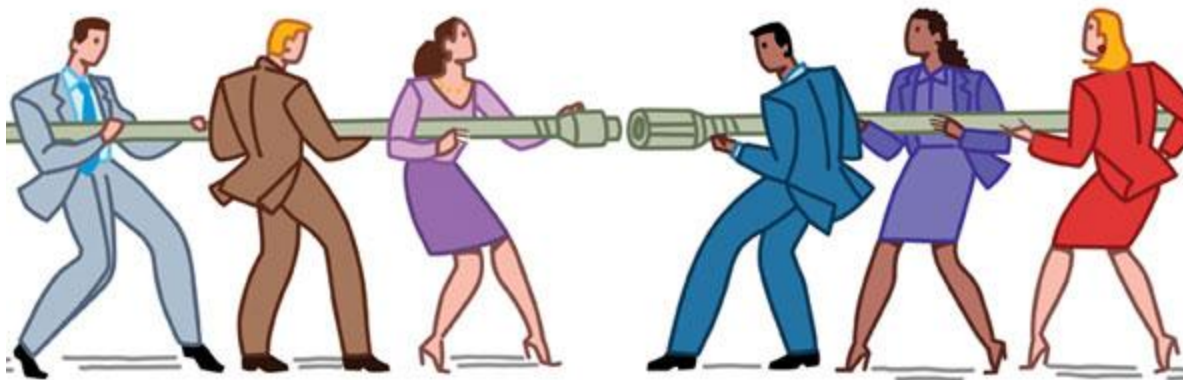
# Why Study ?



(Career Avenues in Computer Networking)

# Objective of Computer Networks

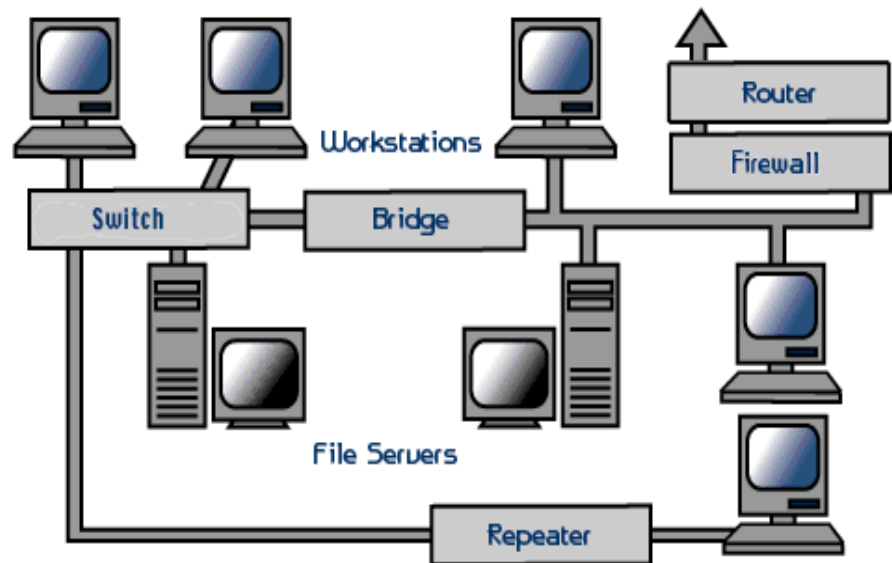
- Networking has revolutionized the way in which we work, connect and communicate to the world.



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

# What Is Networking

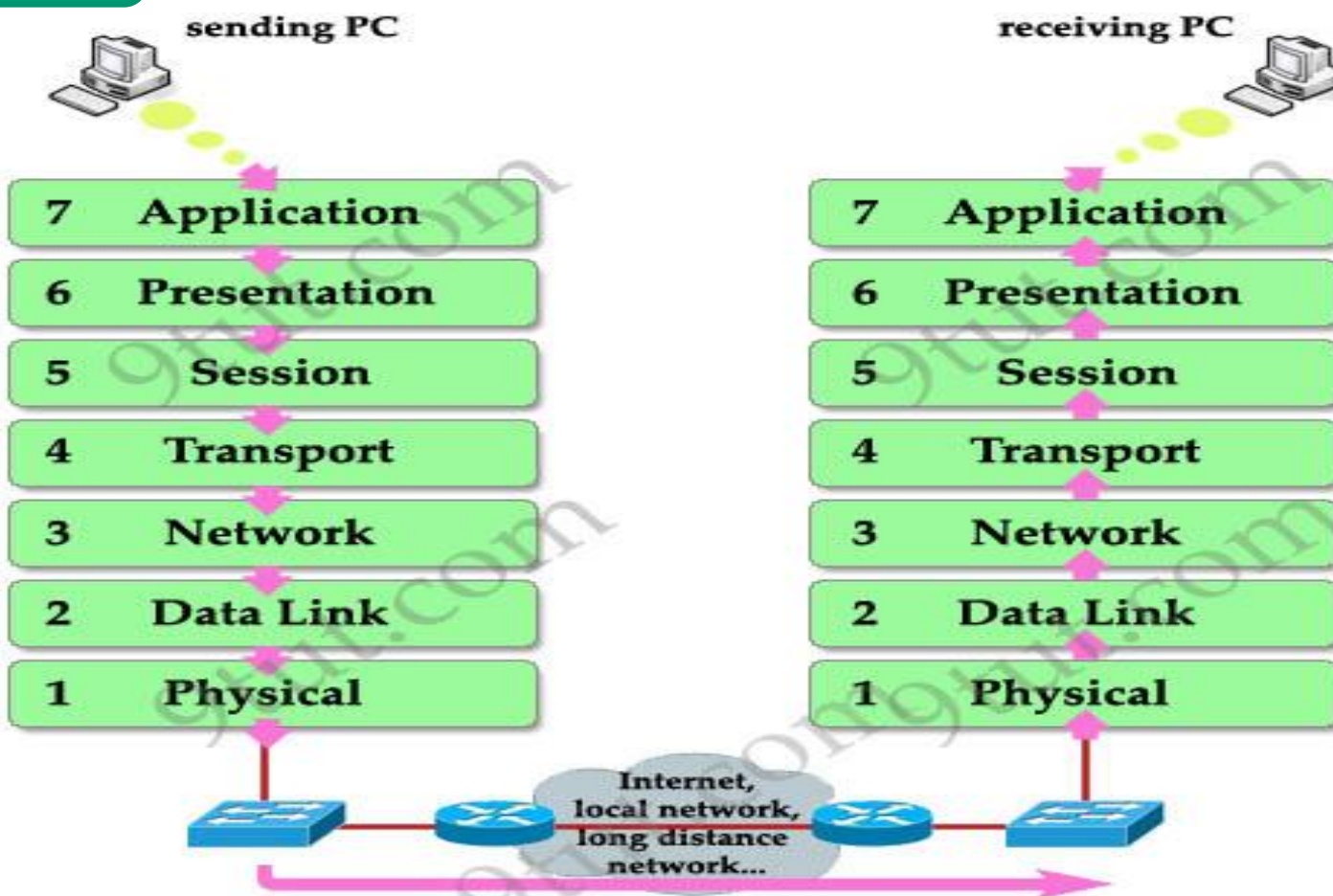
A computer **network** or data **network** is a telecommunications **network** that allows computers to exchange data.





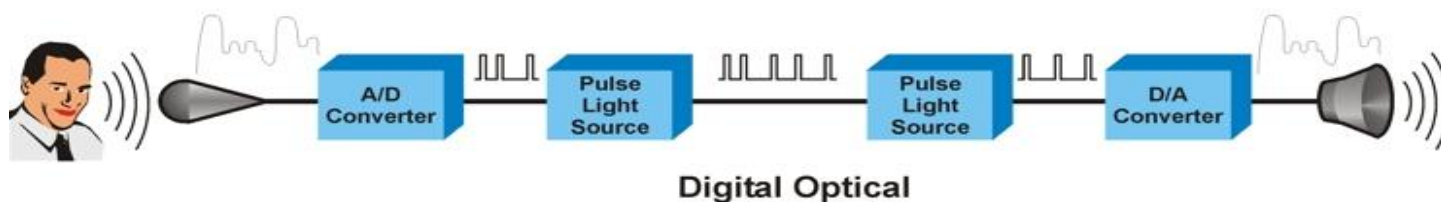
# OSI and TCP Model

## Unit 1



# PHYSICAL LAYER: Signal & Media

## Unit 2





# DATA LINK LAYER

## Unit 3

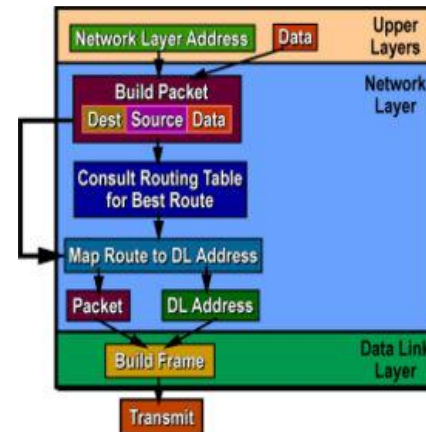
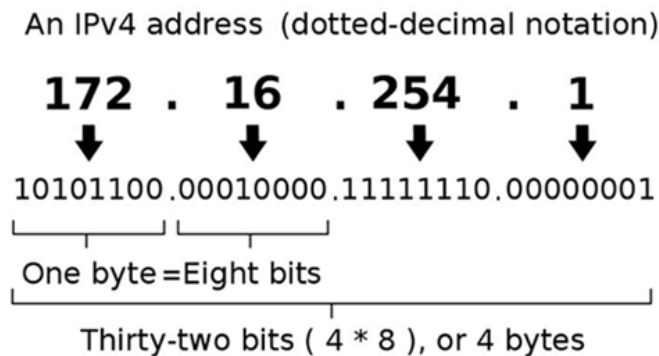
Physical Addressing

Framing

Flow Control

Error Control

## Unit 4



# Routing and Congestion Control

## Unit 5

Routing Algorithms

Shortest Path

Metric

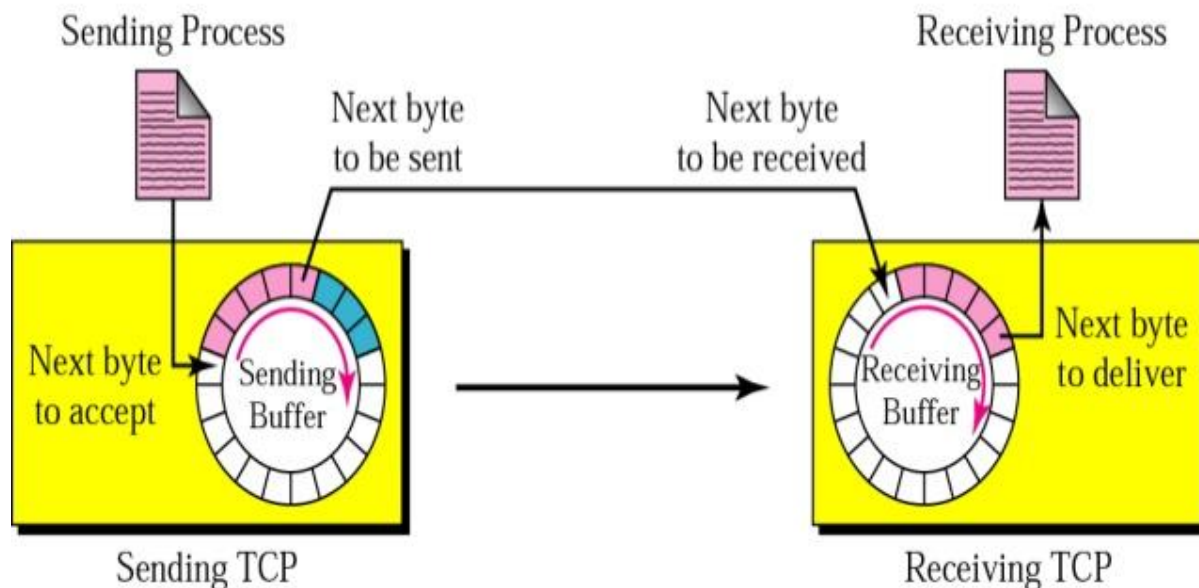
Congestion Control Algorithms

# TRANSPORT LAYER

## Unit 6

### 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

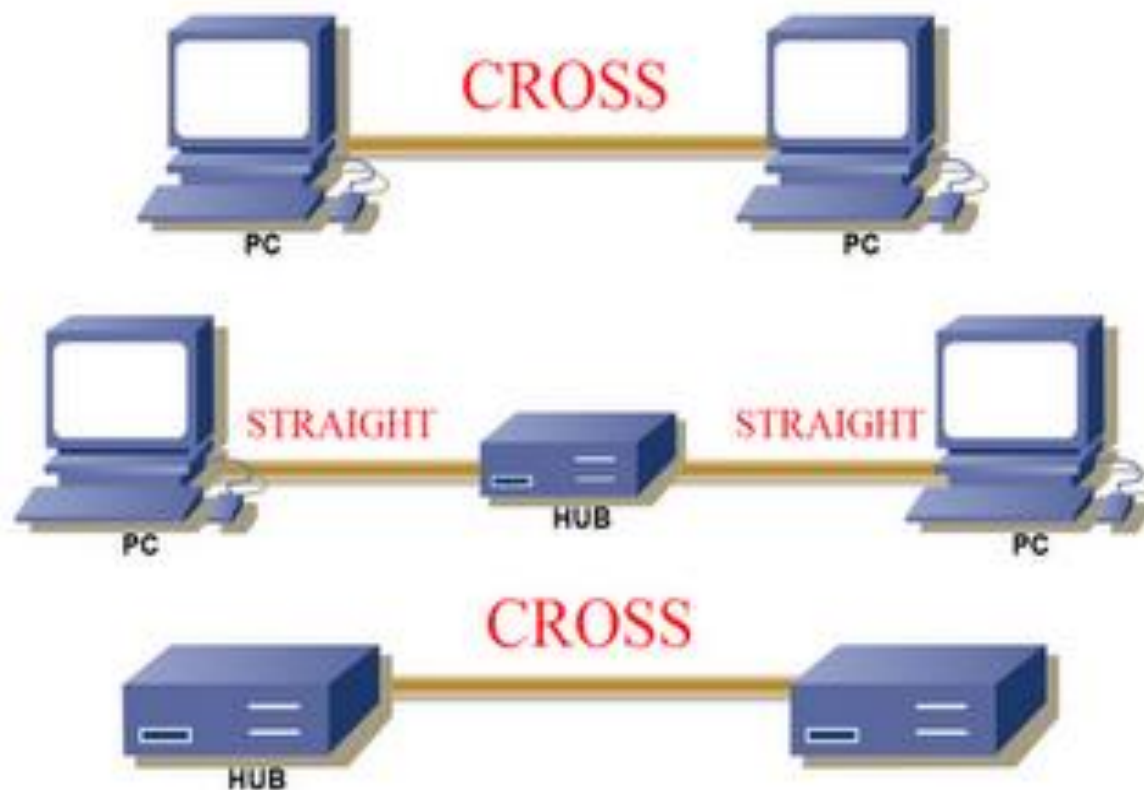
## Unit 6



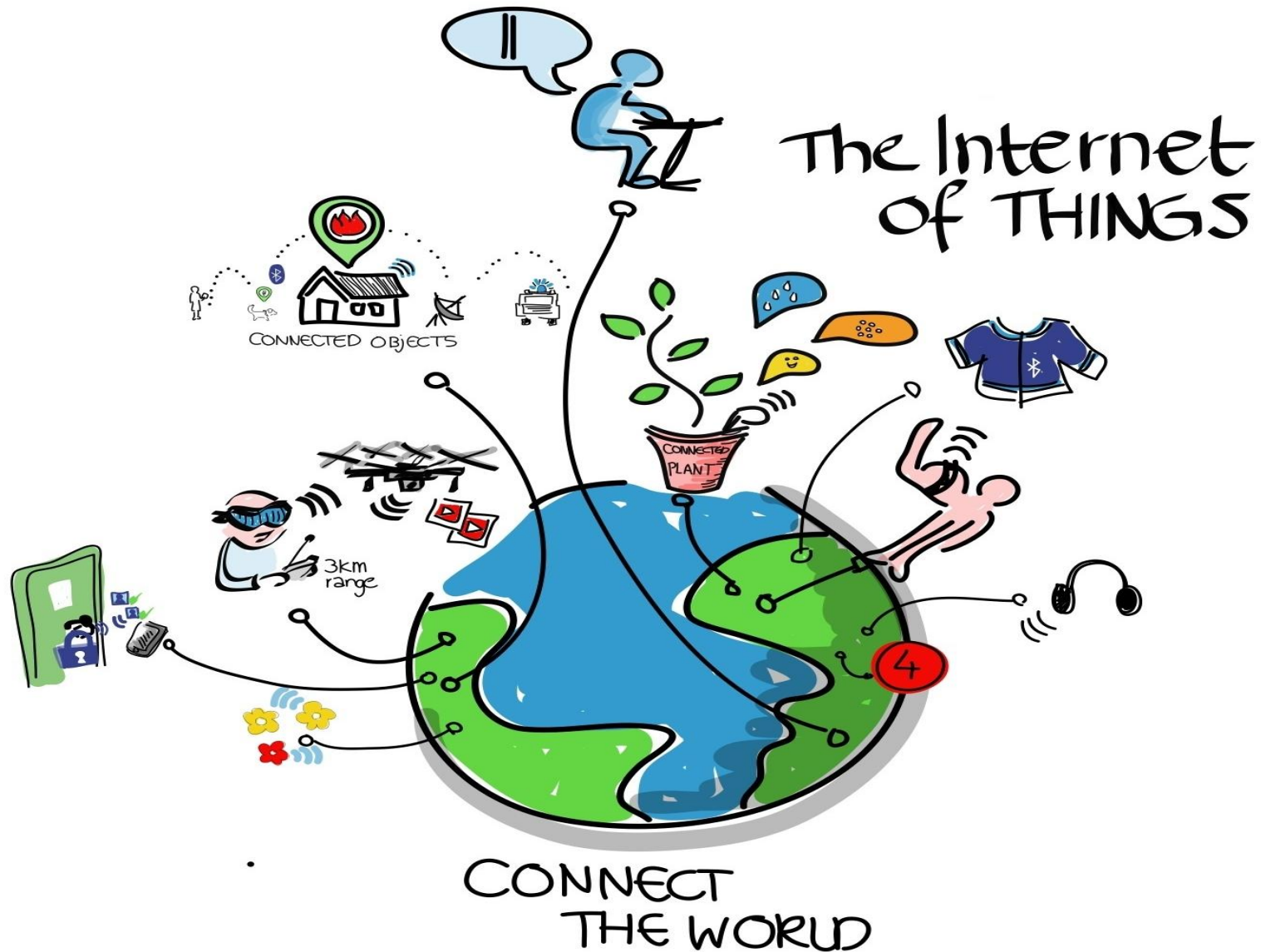


# Types of Devices

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







# 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



