# SNS COLLEGE OF ENGINEERING
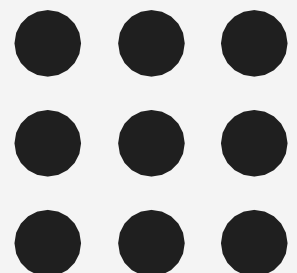
Kurumbapalayam(Po), Coimbatore – 641 107

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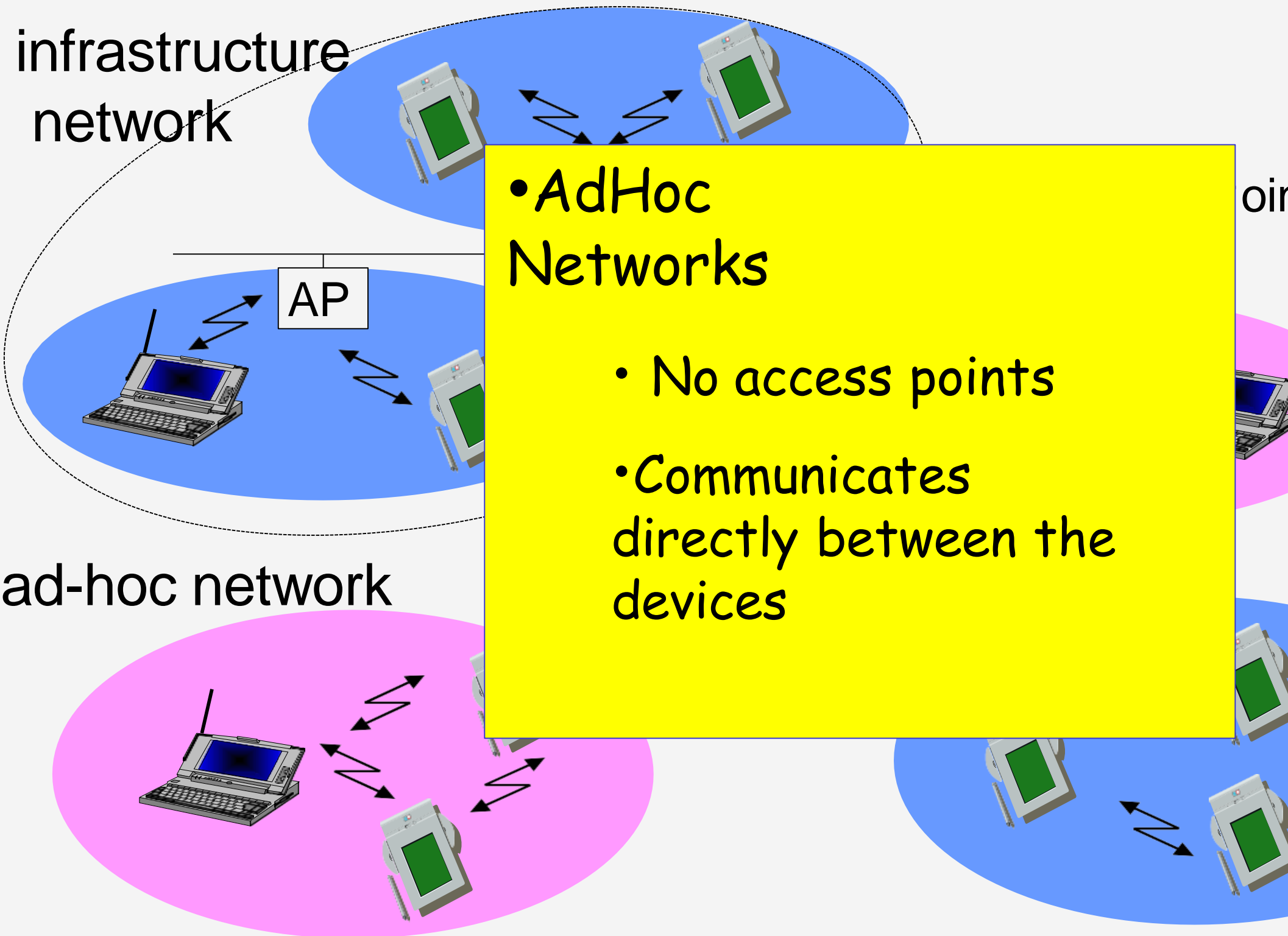
# 19EC701 - ADHOC NETWORKS

# Unit -1 – ADHOC FUNDAMENTALS

# Introduction

infrastructure
network

AP

ad-hoc network

**•AdHoc Networks**

• No access points

•Communicates directly between the devices

**•Infrastructure Networks**

• Fixed, wired backbone

•Mobile communicates directly with access points

•Suitable for locations where access points can be placed
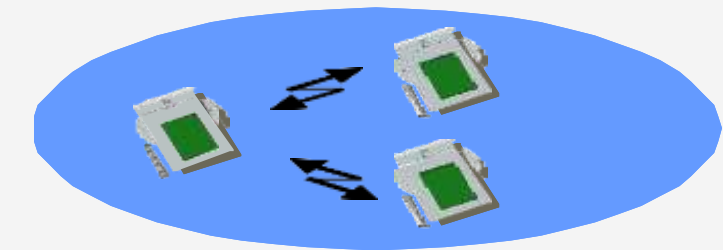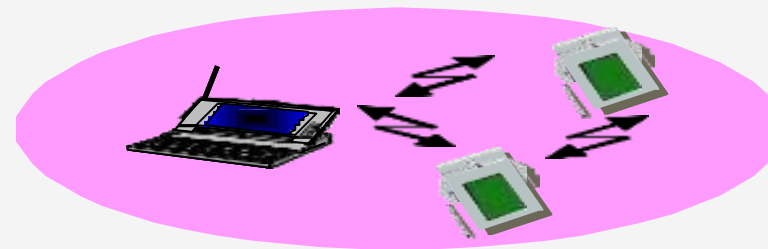
• Cellular networks

# What is an Ad hoc Network?

- A network without any base stations "infrastructure-less" or multi-hop

- A collection of two or more devices equipped with wireless communications and networking capability

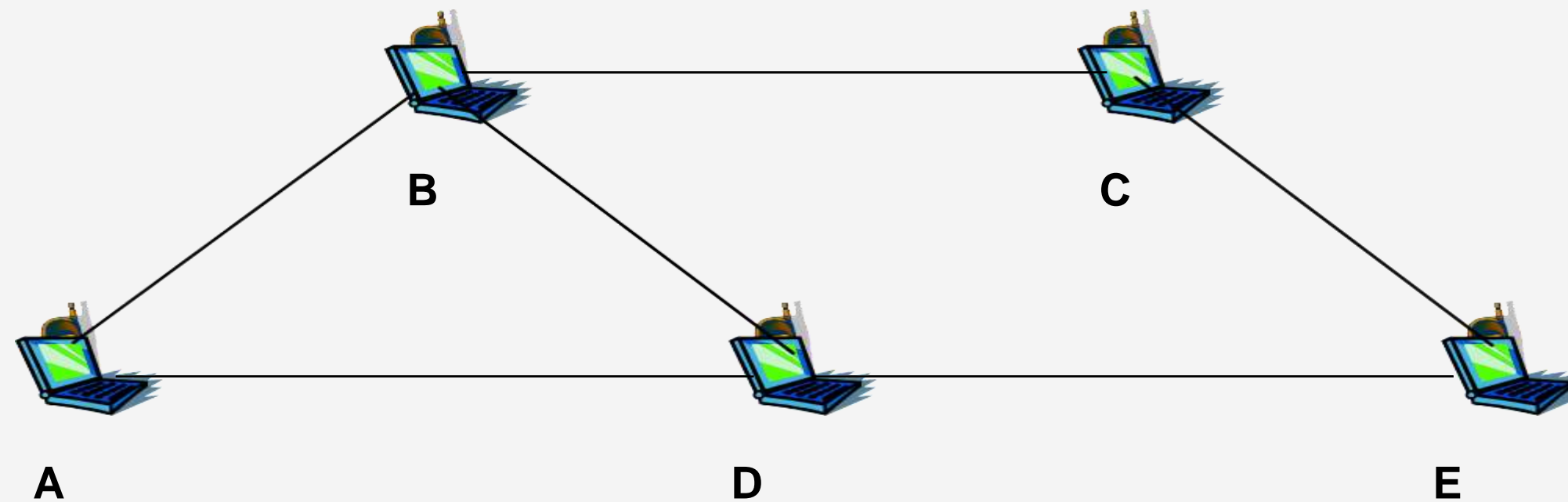- Supports anytime and anywhere computing

Two topologies:

o Heterogeneous

    Differences in capabilities
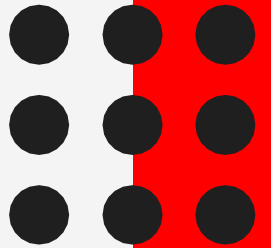
o Homogeneous or fully symmetric

    all nodes have identical capabilities and responsibilities

# Ad Hoc Networks – Operating Principle



Example of an Ad Hoc Network

- ❏ Fig. depicts a peer-to-peer multihop ad hoc network
- ❏ Mobile node A communicates directly with B (single hop) when a channel is available
- ❏ If Channel is not available, then multi-hop communication is necessary e.g. A->D->B
- ❏ For multi-hop communication to work, the intermediate nodes should route the packet i.e. they should act as a  router
- ❏ Example: For communication between A-C, B, orD & E, should act as routers
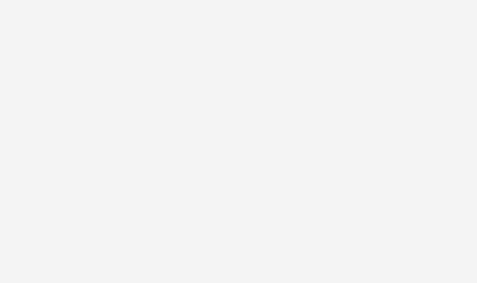
# Characteristics Features

- Collection of mobile nodes forming a temporary network.
- Dynamic topologies
    Network topology may change dynamically as the nodes are free to move
- No Centralized administration or standard support service
- Host will also function as Router

# Assessment

## Difference between Infra- structured and Ad hoc networks?

| Infrastructure networks | Ad-hoc wireless networks |
|---|---|
| Fixed infrastructure | No infrastructure |
| Single-hop wireless links | Multi-hop wireless links |
| High cost and time of deployment | Very quick and cost-effective |
| Reuse of frequency via channel reuse | Dynamic frequency sharing |
| Nowadays applications: civilian, commercial | Nowadays applications: military, rescue |
| High cost of network maintenance | Maintenance operations are built-in |
| Low complexity of mobile devices | Intelligent mobile devices are required |
| Widely deployed, evolves | Still under development in commercial sector |

**THANK YOU**