



SNS COLLEGE OF ENGINEERING

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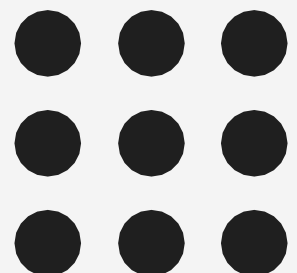
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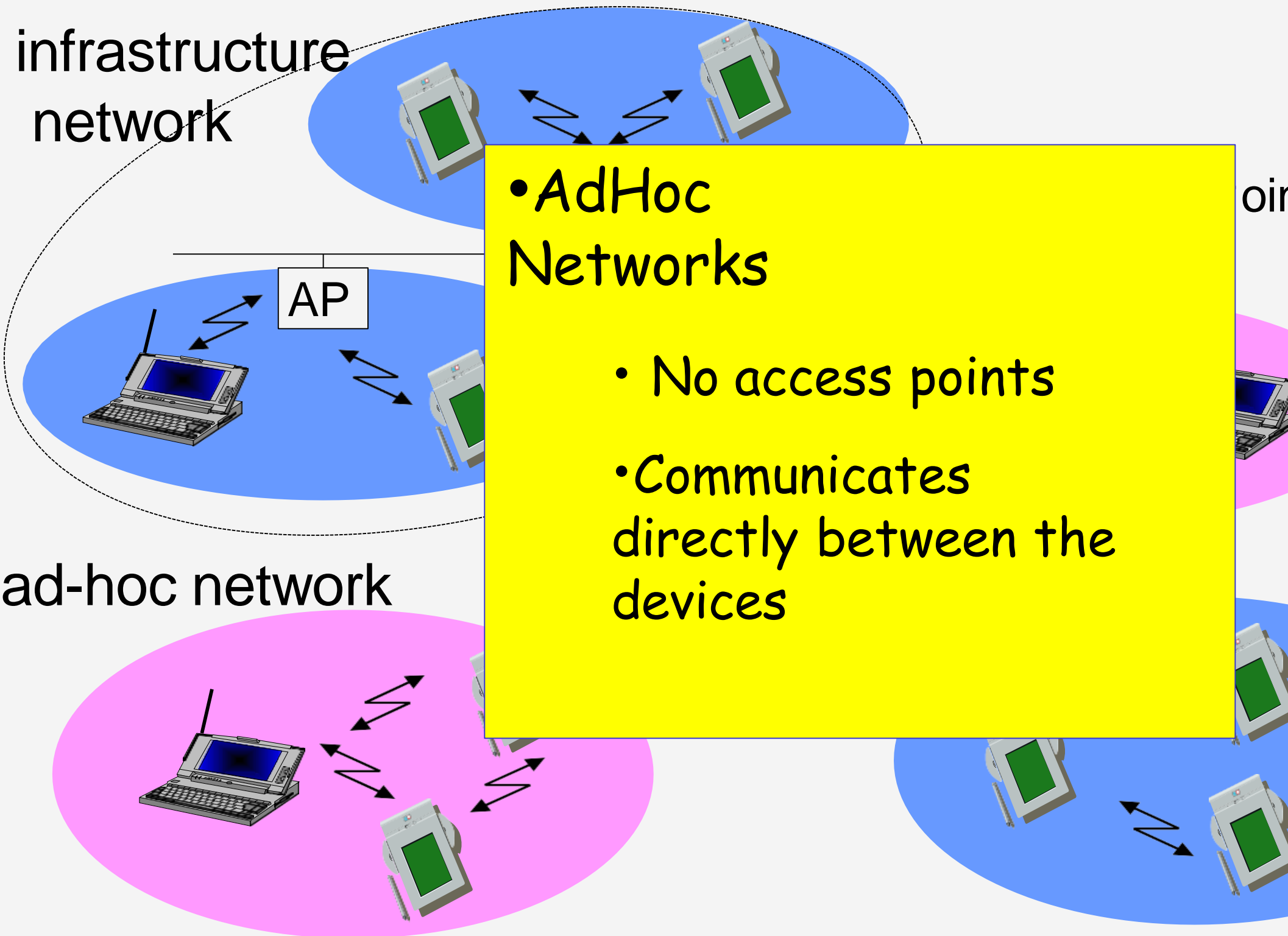
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19EC701 - ADHOC NETWORKS

Unit -1 – ADHOC FUNDAMENTALS



Introduction



- Infrastructure Networks
 - Fixed, wired backbone
 - Mobile communicates directly with access points
 - Suitable for locations where access points can be placed
 - Cellular networks

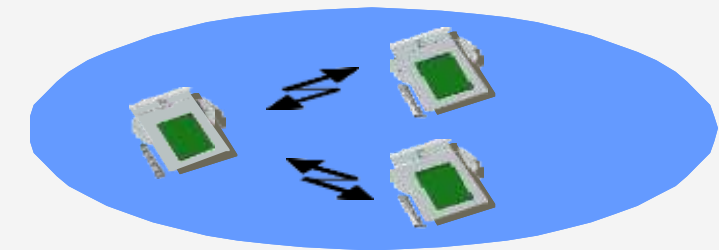
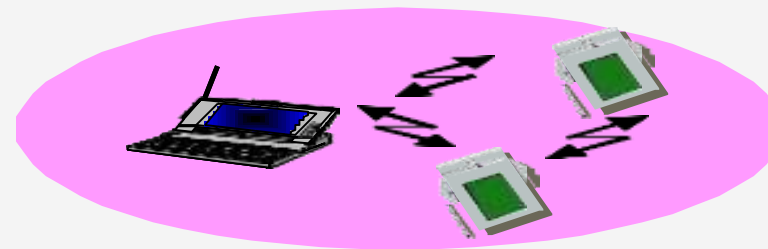
What is an Ad hoc Network?

- 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:

- Heterogeneous

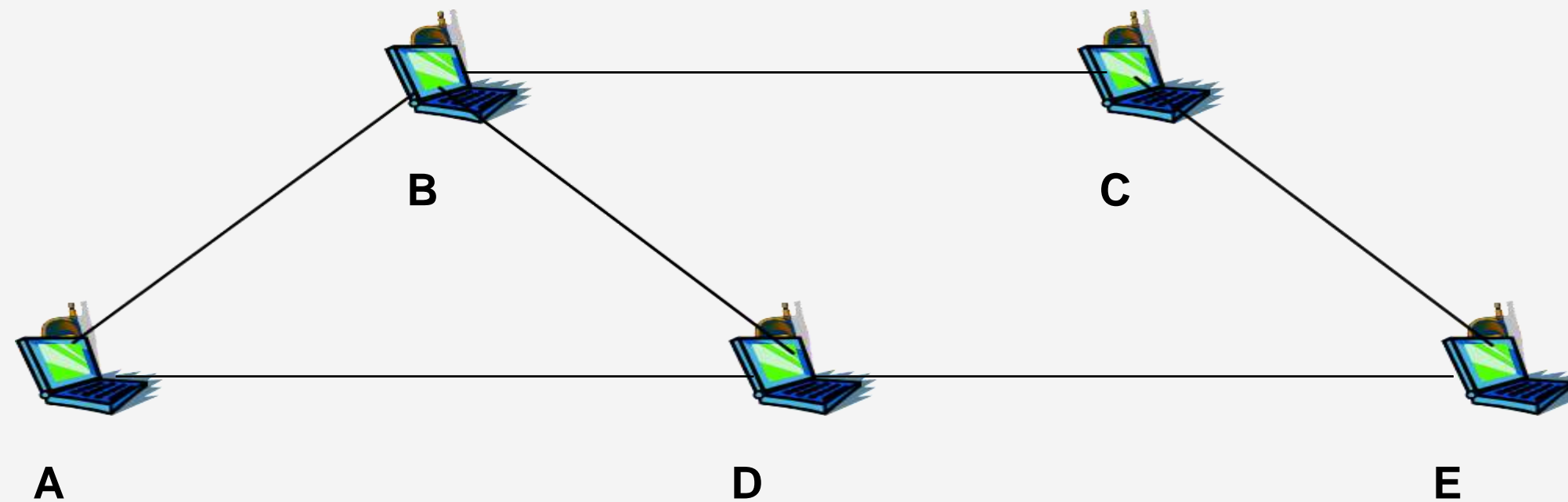
Differences in capabilities



- Homogeneous or fully symmetric

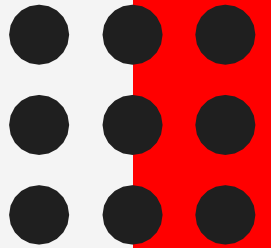
all nodes have identical capabilities and responsibilities

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, or D & 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