



SNS COLLEGE OF ENGINEERING

Kurumbapalayam(Po), Coimbatore – 641 107

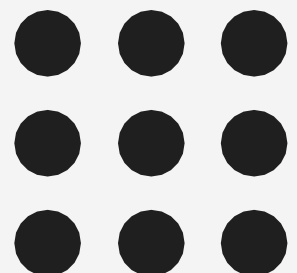
An Autonomous Institution

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19EC701 - ADHOC NETWORKS

Unit -2 – DATALINK LAYER – MAC PROTOCOLS – DESIGN ISSUES

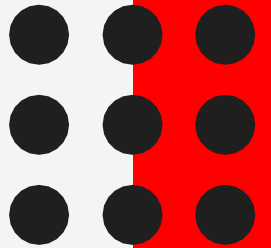


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19EC701 /MAC Protocol - Design Issues / R.Saranya / AP/ ECE / SNSCE



Introduction



- MAC stands for Media Access Control.
- A MAC layer protocol is the protocol that controls access to the physical transmission medium on a LAN.
- It tries to ensure that no two nodes are interfering with each other's transmissions, and deals with the situation when they do.



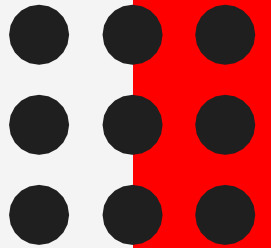
Design Issues in MAC Protocol

■ The main issues need to be addressed while designing a MAC protocol for ad hoc wireless networks:

- **Bandwidth efficiency** is defined as the ratio of the bandwidth used for actual data transmission to the total available bandwidth. The MAC protocol for ad-hoc networks should maximize it.
- **Quality of service** support is essential for time-critical applications. The MAC protocol for ad-hoc networks should consider the constraint of ad-hoc networks.
- **Synchronization** can be achieved by exchange of control packets.

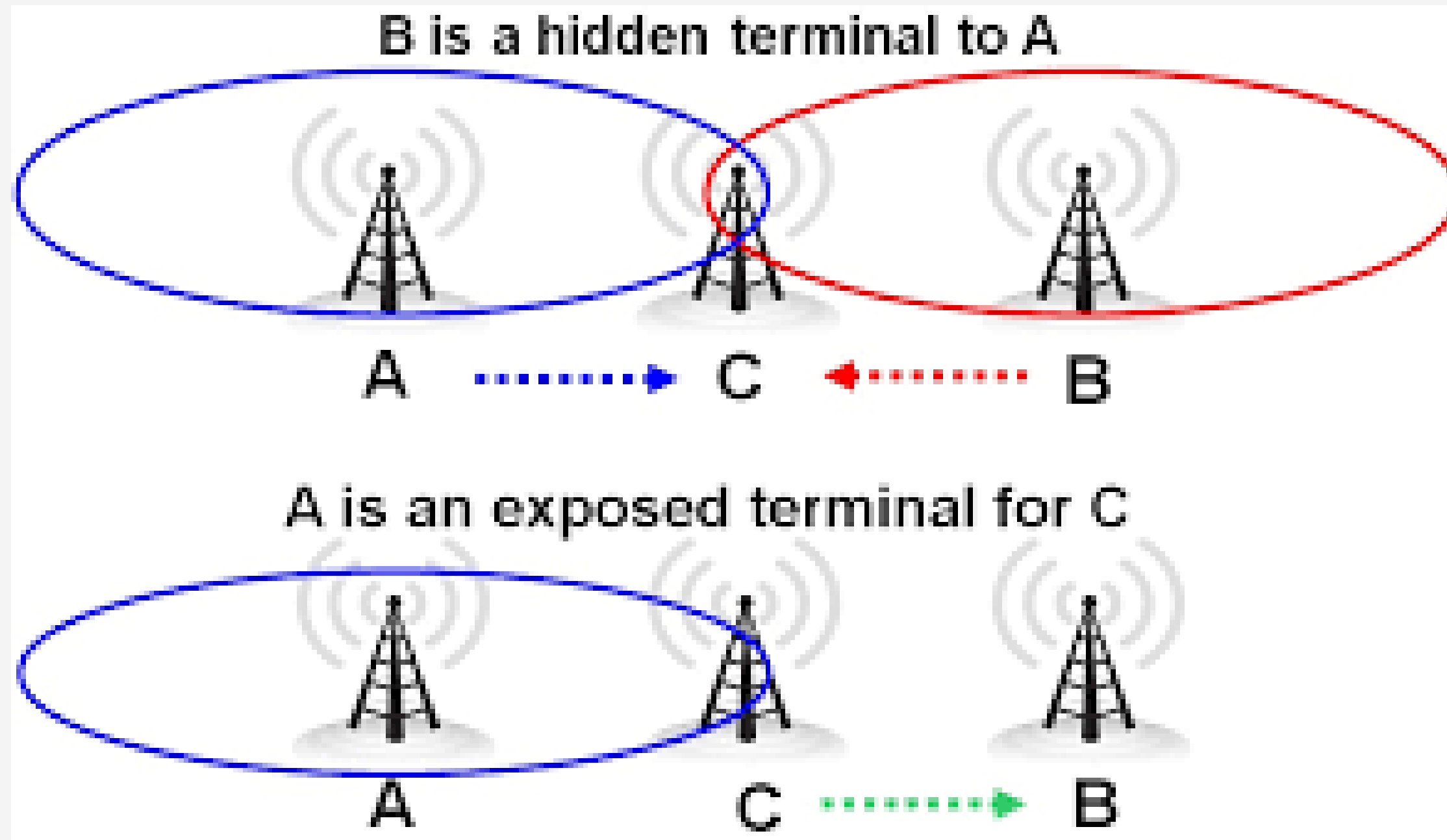
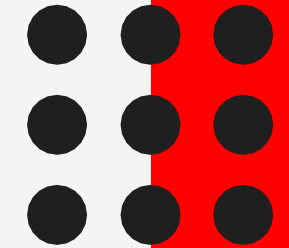


Design Issues in MAC Protocol



- **Hidden and exposed terminal problems:**
 - **Hidden nodes:**
 - **Hidden stations:** Carrier sensing may fail to detect another station. For example, A and D.
 - **Fading:** The strength of radio signals diminished rapidly with the distance from the transmitter. For example, A and C.
 - **Exposed nodes:**
 - **Exposed stations:** B is sending to A. C can detect it. C might want to send to E but conclude it cannot transmit because C hears B.
 - **Collision masking:** The local signal might drown out the remote transmission.
- **Error-Prone Shared Broadcast Channel**
- **Distributed Nature/Lack of Central Coordination**
- **Mobility of Nodes:** Nodes are mobile most of the time.

Design Issues in MAC Protocol





Assessment

List out some of the design issues in MAC Protocol ?





THANK YOU