SNS COLLEGE OF ENGINEERING

Kurumbapalayam(Po), Coimbatore – 641 107

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19EC701 - ADHOC NETWORKS

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

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 at 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.

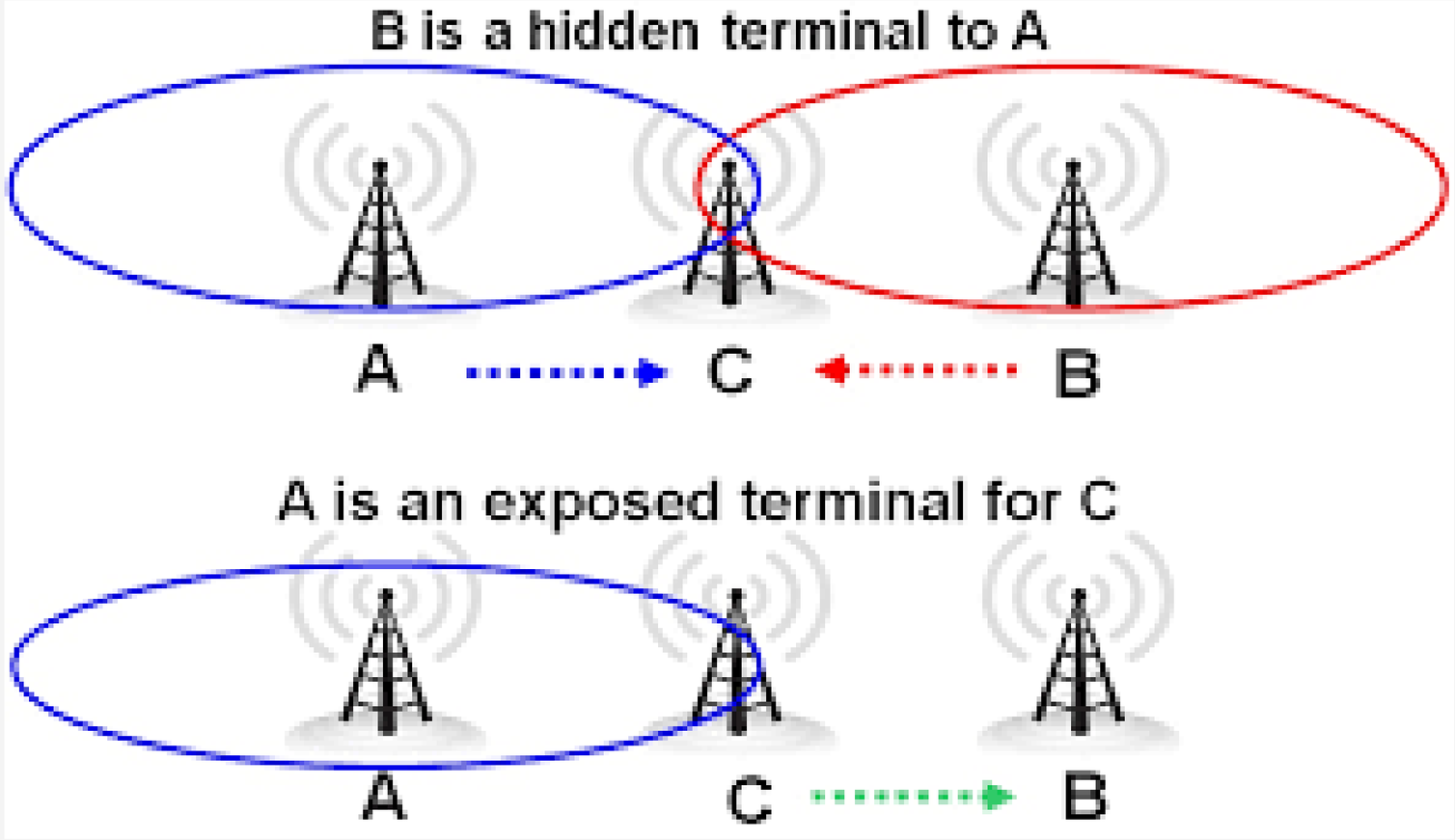
  - **Quality of service** support is essential for time-critical applications. The MAC protocol for ad-hoc networks should consider the constraint of ad-hoc networks.

  - **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