

# CS & IT ENGINEERING

COMPUTER NETWORKS

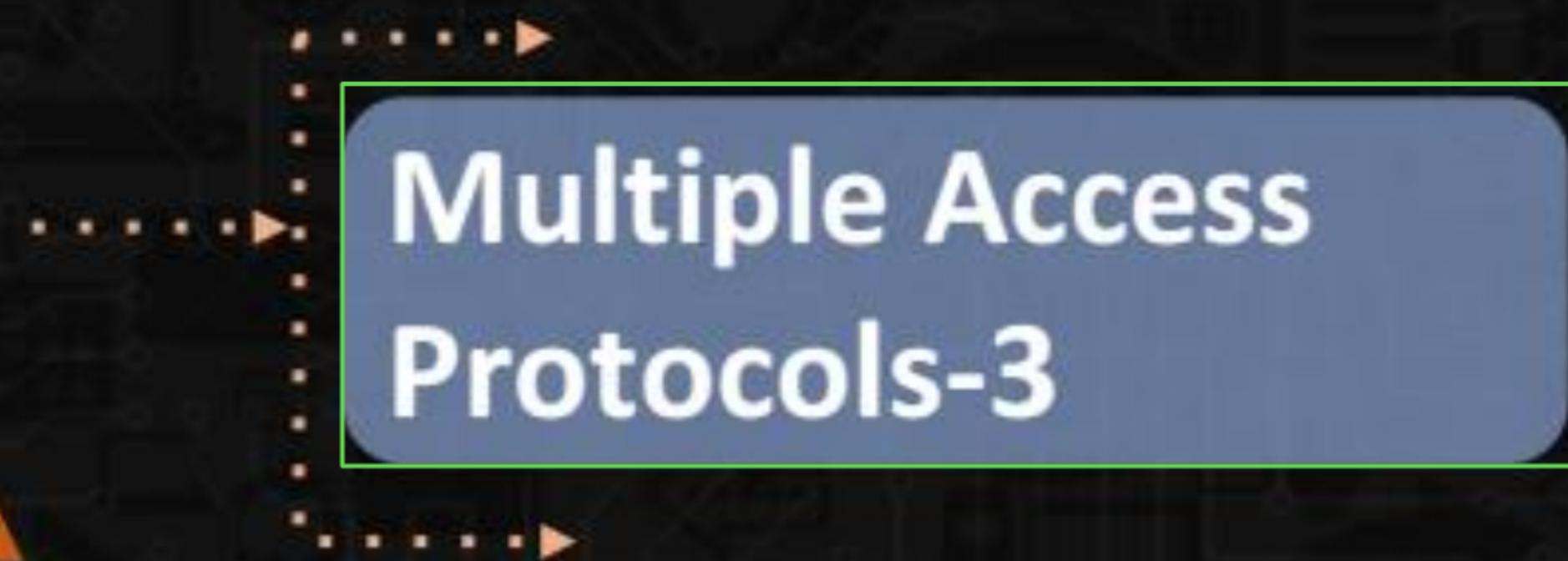
Medium Access Control

Lecture No-03



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TOPICS TO  
BE  
COVERED



Multiple Access  
Protocols-3

# Random Access Protocols



- ✓ 1. Pure Aloha
- ✓ 2. slotted Aloha
- 3. CSMA
- \* 4. CSMA/CD
- 5. CSMA/CA



# CARRIER SENSE MULTIPLE ACCESS

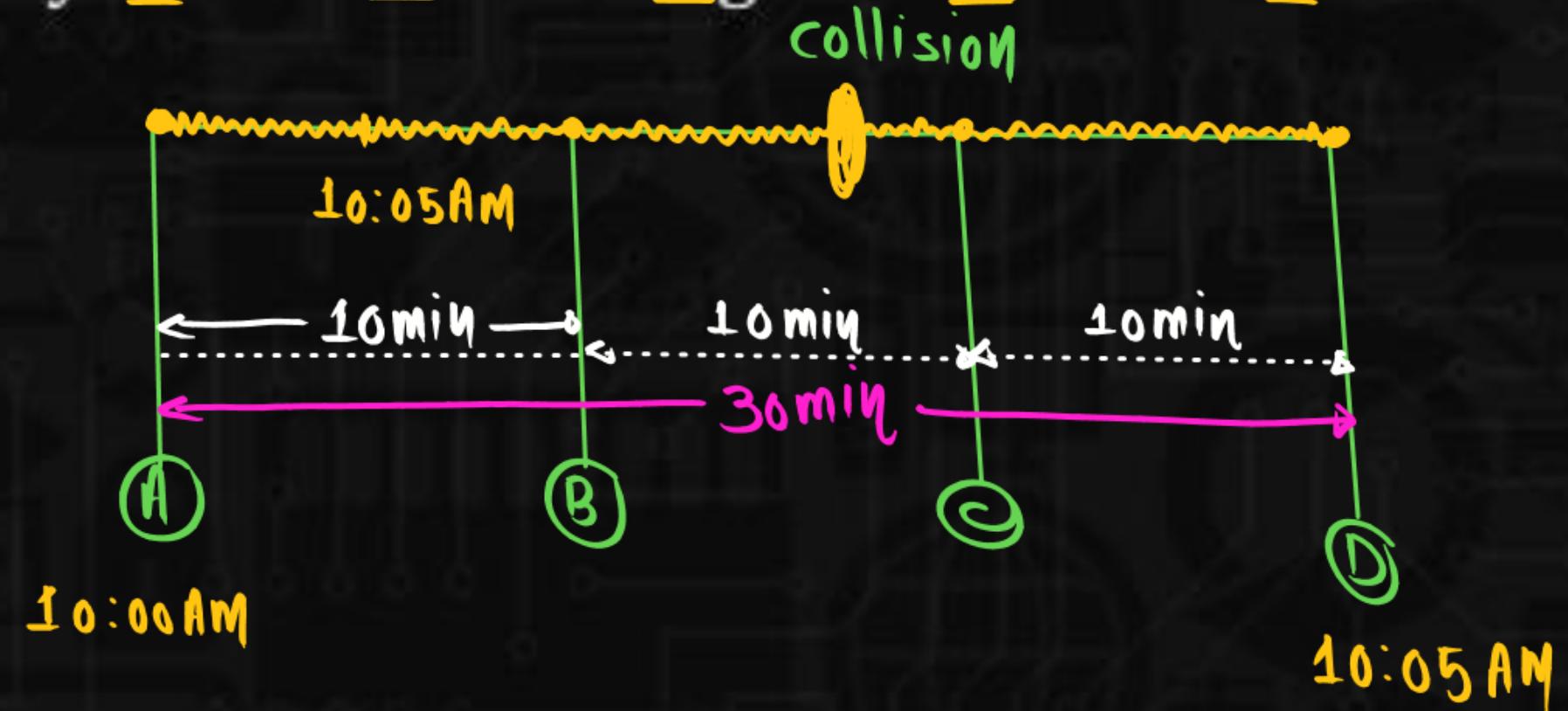
# CSMA (Carrier Sense Multiple Access)

- To minimize the chances of collision CSMA method was developed.
- Chances of collision can be reduced if station sense the medium or carrier before trying to use it.
- CSMA requires that each station , first sense the the carrier before transmit the data

# HOW?



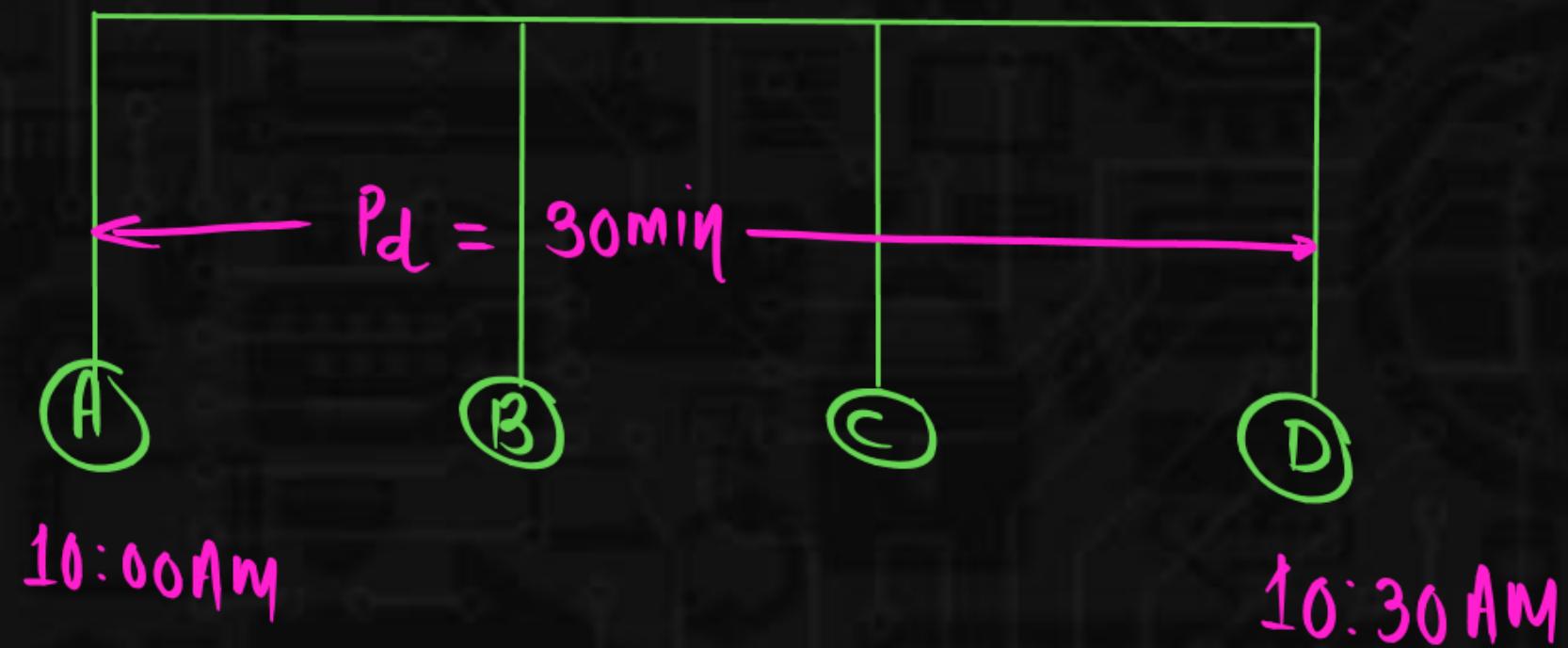
- Each station can sense the carrier only at its point of contact with carrier.
- It is not possible for any station to sense the entire carrier.
- Thus, there is a huge possibility that a station might sense the carrier free when it is actually not.



- The possibility of collision still exists because of propagation delay.
- When a station send a Frame, it still takes small amount of time for the 1<sup>st</sup> bit to reach every station so the station may sense the medium and find it idle.

# Vulnerable time in CSMA

- Vulnerable time for CSMA = Propagation time



- When a station send a frame and any other station try to send a frame during this time, a collision will result.
- But if the first bit of frame reaches the end of medium, every station will already have heard the bit then stations will understand that medium is busy.

