Medium Access Method

→ There are two broad catagories of medium access
1) Random Access 2) Controlled Access

IEEE Standard 802.3 focuses on a random access method.
Design for Bus topology - i.e.

Start: CSMA is an access method used primarily with LAN's configured in a bus topology. and IEEE Standards 802.5 describes a controlled access method for ring topologies called token passing.

Collisions are the condition that arises when two or more data stations attempt to transmit at the same time over a shared channel, or when two data stations attempt to transmit at the same time in a half duplex communication link.

A Contention based channel access (Multiple access) Protocol is a protocol where data packet collisions may occur. Such as,

→ The Aloha Protocol
→ The Carrier Sense Multiple Access (CSMA)
→ Multiple Access with Collision.

Note: In telecom Contention means: Same facility at the same time for different users.

(2)

Based on the type of access, Contention Protocols are categorized as.

1. Random Access / Pure Aloha
2. Scheduled Access / Slotted Aloha
3. Hybrid Access

1. In. Random Access, There is no coordination among the users and messages are transmitted from the users as they arrive at the transmitter.

2.* Alloha → Scheduled Access

In Scheduled access, is based on a coordinate access of users on the channel and the users transmit message with in alloted slots or with in the time intervals.

3. Hybrid Access, is combination of random access and scheduled alloha/access.

Carrier Sense Multiple Access / Protocols (CSMA)

Aloha protocols do not listen to the channel before transmission and do not share information about other users.

By listening to the channel before engaging in transmission, greater efficiency may be

achieved.

CSMA Protocols based on the fact that each terminal on the network is also to monitor the status of channel before transmitting information.

If channel is idle (i.e no carrier is detected) then the user allocated to transmit a Packet based on a particular algorithm which is common to all transmitters on the network.

CSMA/CD : → With Collision Detection

In CSMA/CD, it includes procedures to detect the collisions and deal with them when they occur

CSMA/CD : → With Collision Avoidance

It implement steps to prevent collisions from occuring.

For further detail of chapter 18 from following book.

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