Date: 6/3/23

Mulliple Access
- Random Access
- Controlled Access
- Channelization Access

Random Access

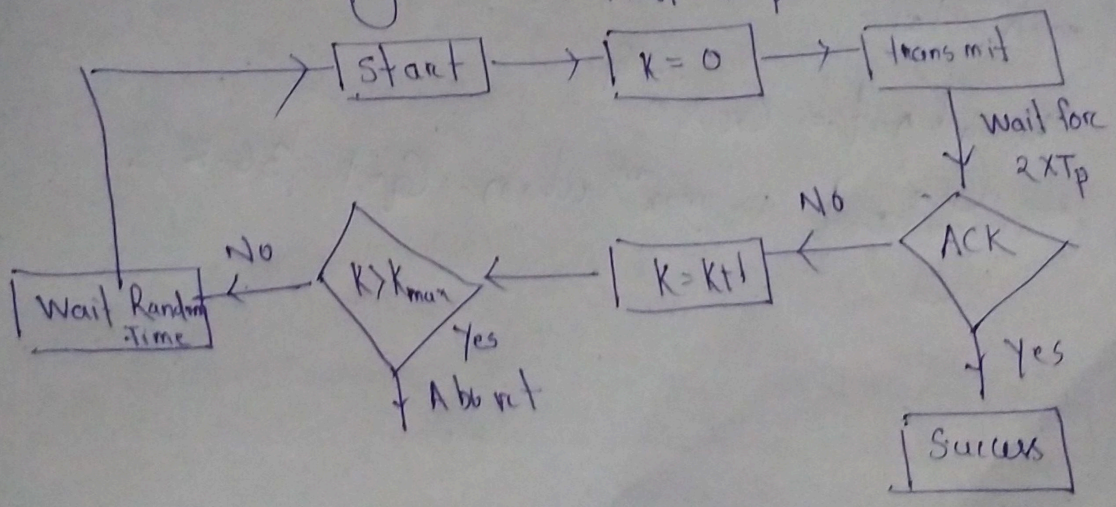
Coexistence of single bit from two diffl frame causes collision & destroys both frame.

Pure Aloha

If acknowledgement from the receiver doesn't arrive in time, sender retransmits.

After the lapse of Time-out period, each sender has to wait a random amount of time called T_B, Back-off time

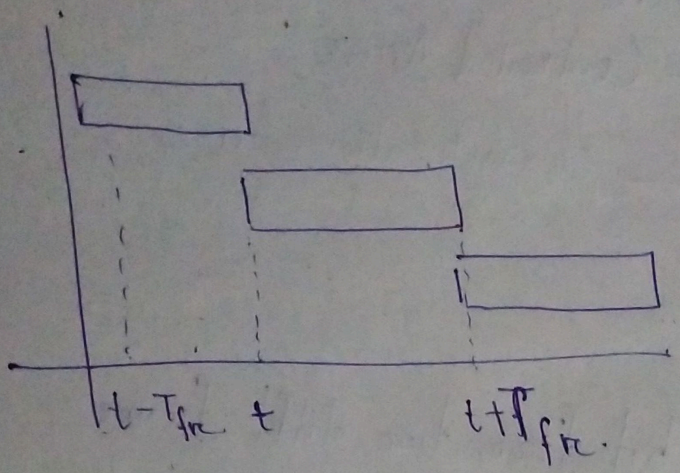
K_{max} - It is the max. no # of unsuccessful attempts, after which the sender gives up & tries later.



T_B is calculated commonly using Binary Exponential Backoff

Vulnerable time:-

T_{fr} = Avg. transm. time of a frame.



Vulnerable time = $(t + T_{fr}) - (t - T_{fr})$

$= 2T_{fr}$

Slotted-Aloha

The objective is to reduce the vulnerable time to T_{fr}.

In Slotted-Aloha, the time frame is divided into slots of duration T_{fr}.

Stations are allowed only to transmit at the beginning of each slot.

Throughput = $G \times e^{-G}$.

Throughput is max^m when $G = 1$, 36.8%.