Md Fahimul Islam
2017-1-62-022

Generally, When two station transmit data simultaneously and collision occurs then they may retransmit the data immediately after the collision. This may again lead to the collision and again retransmit of data. Station wait for some random back of time and then retransmits.

This waiting time for which the station waits before retransmitting the data is called as back off time. after under going the collision

Transmitting station chooses a random number in the range $[0, 2^n-1]$ of the time packet is undergone collision for the

n^{th} time.

To solve this problem we use binary exponential back off algorithm (BEB).

There the two node have, how much to wait to transmit their data again.

here, $A = \{0, 1, 2, 3, 4, 5, 6, 7\}$

$B = \{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15\}$

There means the number of collision for A in 3 and B in 4.

Now if A and B pick same number

randomly they will collide again,

Then in both A = 3 and
in both B = 4

n = number of collision

So it will be set = {0 .... $2^n - 1$}

So A = {0, 1, 2, 3, 4, 5, 6, 7}

B = {0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15}

If they pick same number again they will collide. Like it both pick 3 then

3×512 Bit time = 1536 (waiting time)

They will wait and transmit their data again and will collide. But at the same point if they pick

different number, then the collision would not occure.

minimized collision in Wlann

In LAN, all network participats share a transmission medium - a cable, wireless networks don't use cable, but even WLAN, all device involved send and received.

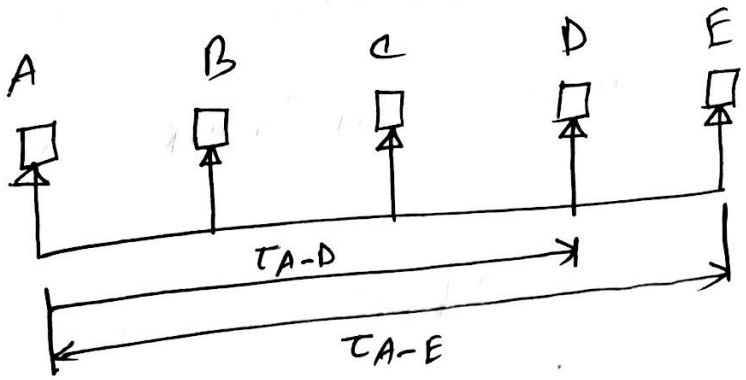
The medium access control (MAC) in the function that arbitrates the access to the channel. In wireless network, the MAC protocols play a key role in maximizing The channel utilization

carrier Sense multiple Accen (CSMA) &
Time division multiple accen (TDMA)
are two knon medium accen mechanism
bor share medium communication systems.

TDMA requires tight time synchronization
among the participating station. Additionally
a prior set-up is required to assign
a time slic to the active station. St
the station nor no data ready to transmit
the channel time is wasted.

There are vantag of TDMA is
that is minimize collision and
may achive high channel efficiency.
and also Leaning - BEB bor any number
of station by reducing collision and
increasing the number of successbull slots.

Ans to the Qv no : 2



By comparing transmitted and receive signal, if there similler then no collision, and also if different the collision.

Here A in a source and D in the Destination.

contention period in the time of frame return to the sender. When it in a collision as a result the propagotion

delay to send from A-D in τ_{A-D}

So Detection time $= (\tau - \epsilon) + (\tau - \epsilon)$

$= 2\tau_{A-D}$ (2x propagation Delay)

So contention period 2τ

Now A is sending to D packet data then A to D will also get the data. E will not get it, because D will receive it before that A and E are the farthest host at this medium. So in called worst case

And also there A to E propagation Delay in τ, the contention period

in $2\tau_{A-E}$.

It can be same here. A to E

in the Farthest hart and propagation

delay ~~the every~~ ϕ then

every others less than A to E.