TCP

- end to end, connection oriented, reliable, secure

It fails when ; congestion, conn destroyed.
↳ fast retransmission / fast recovery.

Slow start algorithm → It will set congestion window = 0
↳ will run at expo rate after the threshold linear rate

S ⟷ data → R

- congestion = 0

S ⟷ → R

increasing window size exponetially

- congestion = 1
  = 2, = 4, = 8   congestion threshold will limit exponential process.

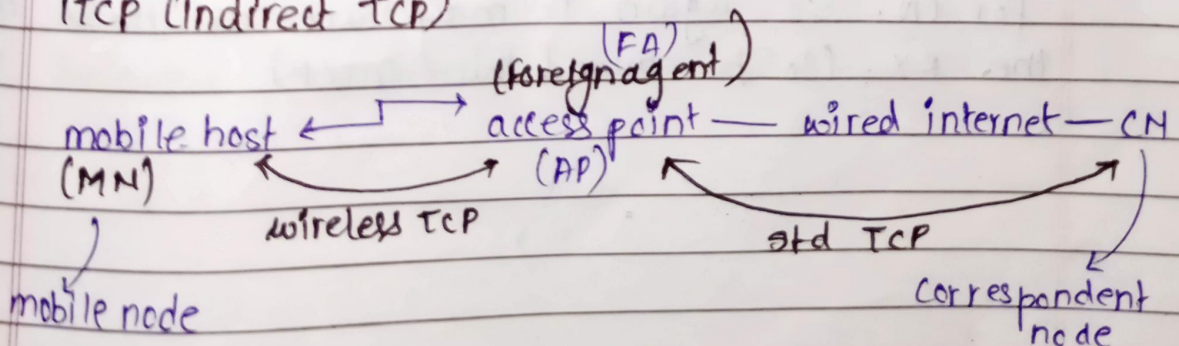After that certain threshold it will increase linearly

- f retransmission : retransmission due to congestion/error ↗transmission
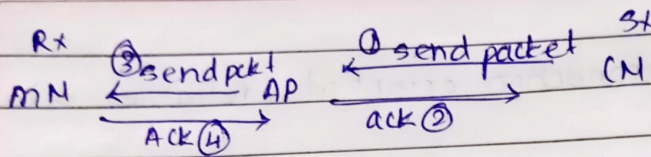 sender can now retransmit the missing packet(s)
  before the timer expired.

- Receipt of ack. confirms no congestion & no need of
  slow start its called fast recovery from packet loss.

* Improvements in classical/traditional TCP.
  ↳ ITCP   ↳ STCP ↳ mTCP

↳ ITCP (Indirect TCP)

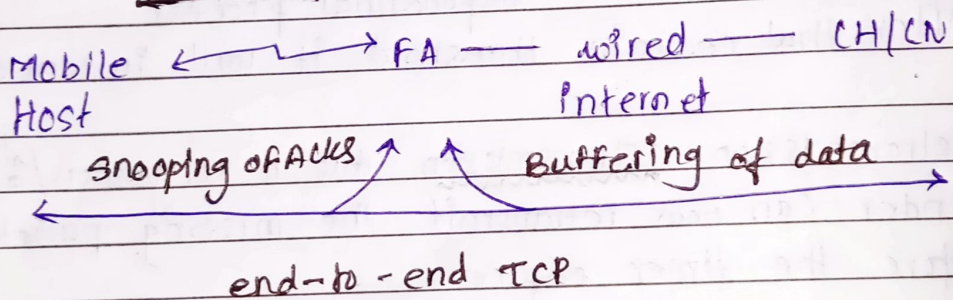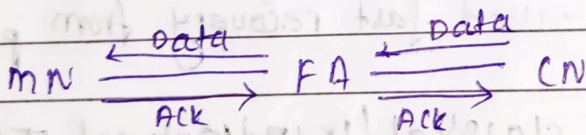(FA)
(foreign agent)

mobile host ← ⌐→ access point ── wired internet ── CN
(MN)   (AP)

wireless TCP   std TCP

mobile node   correspondent node

RX

$\overset{\text{③send pkt}}{\longleftarrow}$ MN ← AP ← $\overset{\text{① send packet}}{\longleftarrow}$ CN

ACK④ →   ack② →

- FA/AP is acting as the RX to CN. It act as a intermediate point but acts as RX. So this is disadvantage
- Next the FA acks as SX & then MN is RX So no direct transmission of data. ∴ It is called as indirect TCP.

* STCP (Snooping TCP)

~~local retransmission~~

Mobile Host ← ⌇ → FA —— wired —— CH/CN

internet

snooping of ACKS ↑   ↑ Buffering of data

←——————————————————→

end-to-end TCP

Here FA buffers the data trasmitted by the CN

MN $\overset{\text{Data}}{\longleftarrow}$ FA $\overset{\text{Data}}{\longleftarrow}$ CN

ACK →   ACK →

Dis: The retransmission still handled by the FA. Here the buffered data (if sent) the ack is not for CN. So again it may act as the SX for the RX. (So to avoid this MTCP)

- go-back n
- selective repeat

• selective transmission.
• Binding warning message

* MTCP

tx

MN ←——————→ SH ←——→ CN

tx   sx

(supervisor host)
- will not ack or buffer | it dosen't manage
- only it will monitor | anything.

If congestion occur we start data rate from 0 again.

• If any congestion happen SH will inform CN to set window size = 0.

• Sender will get aware & stop transmission.

° The retransmission is checked wrt to FA.

Transmission /time-out-freezing.

⌐ MAC layer (medium acess control)
        ↓   • In order to reduce the retransmission.
gives
medium TCP layer   • whenever a new conn is setup it is
& resources   done with the help of MAC.

              • If conn gets lost MAC is informed first, then MAC
will inform to freeze or set the window size.

        • Instead of starting from zero we freeze the
current rate.

        • This will reduce retransmission; once disconneted
the number of packet remaing only will require to
retransmit & the data rate is also freezed so not
to start from start.

Selective Transmission (go back n)