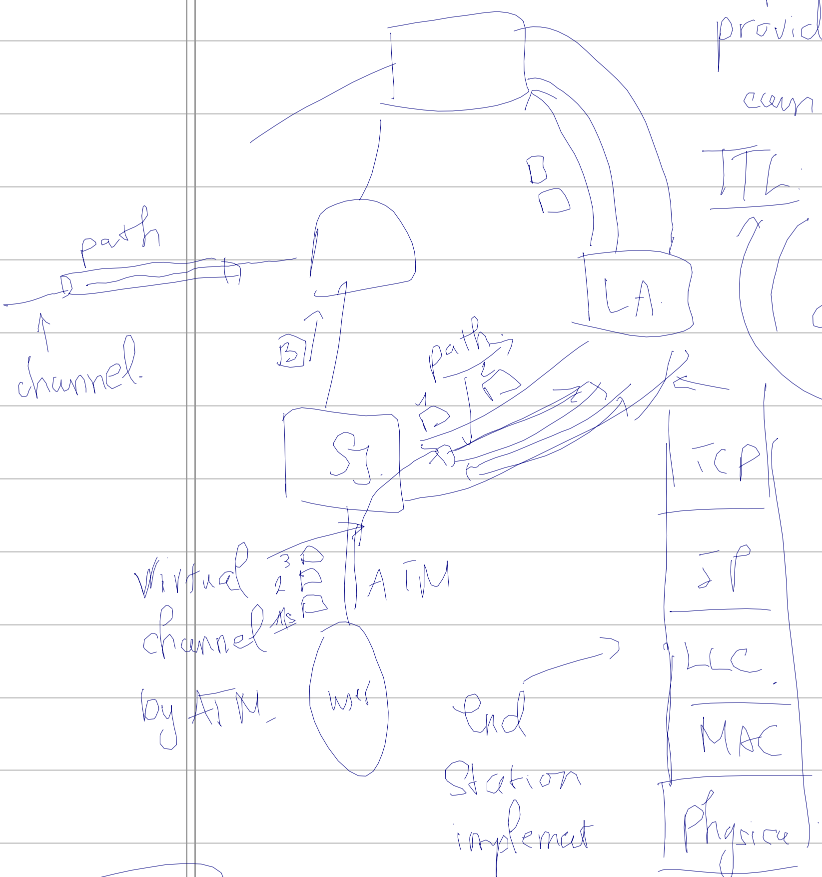
IP Protocol 08/06/15

TCP/IP layer: 1) Why we need IP addr if already have MAC Address?

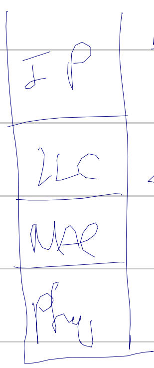
QN

IP is connectionless, provides a one-off bus services.
IP layer provides the fragmentation & reassamble service for data transmission.

↳ for packet reassembling, IP layer should provide sequence no. since packet can come in assorted order.



TTL: time-to-live
applies
↓
datagram = packet = frame
(layer 2?) (layer 1)
field decreased when traversing thru each routers, if it reaches 0 b4 dest, → die out.



← router implementation as it does not care abt the content, only the routing.

FQN
*
Biggest advantage of IP is flexible, ← its not tied to any path (i.e. goes anywhere, does not require to program the path)

"Robust" ← can add another layer (TCP).

IP Routing: for next semester!

No routing is discused.

QN IP datagram life: refer to TTL.

2 ways to reassemble data:

- if do fragmentation at dest → more fragments to deal with, but less cost
- if do ——— router → less fragment, but need more computation & buffer; more cost.

QN IP only uses the 1st one, reassemble at dest.

Fragmentation: original IP datagram is split into multiple fraugments, each has the dest address, the offset (position of the fragment in the original datagram).

1 octet = 8 bit. 208 in octet (8 bit).

208 → 64 ↓ 26 in 64 bit.

26

* Error & flow control.

flow control packet → include the timing that it's not free in ~~x~~ secs (mins)

→ this reset the waiting time.

IPv4 defined in RFC 791 (Request For Comment)

No qn about IPv6

IPv4 header: 20 bytes minimum (5×4)

fields: - version: 4 or 6. : 4 bit size, max (15)$_{10}$.

- IHL: IP header link: size of the IP header. 4 bit; max 15$_{10}$

Size of the IP header = 5 × IHL
(or number of rows in IP Header)

* DS: differential service.
* Total Length: 16 bit size, specifies the total length of the packet incl. header
* Empty bit: ECN bit, congestion indication.