Notes internet

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1 Introduction

The reason why we have a protocol stack like the ISO/OSI is in order to have a chain of subesequent improvements. The layer N takes the service offered by N-1, it improves it and then it offers it to the layer above.

Physical:

+ bit transmission
- tx/rx errors
- channel sharing

DataLink:

+ detect error: CRC
+ correct error
+ multiple access: MAC address (CSMA/TDMA/...)
+ FRAME delimitation: markers
+ multiplexing/demultiplexing of L3 protocols

Network:

+ routing
+ addressing
+ management
+ billing
+ multiplexing/demultiplexing of L4 protocols

Internet protocol stack

1. Physical
2. Datalink layer
3. IP
4. TCP/UDP
5. Application

IP Header

- **src addr/dest addr:** addressing, routing, we need src and dst because the dst can reply to the src
- **crc:** only detects errors on the header (IP doesn't trust data link layer)
- **lenght:** solves the problem of unreliable L2 protocols framing
- **tos:** QoS support
- **fragment:** solves the problem related to different MTUs
- **version/hlen:** flexibiltity for future verions, adding additional informations to the herder
- **ttl:** detect loops
- **prot:** describes the above protocol it must send the payload to

ARP When using the ARP protocol