Network

- Domain name mapped to IP

skipper.cs.utexas.edu   128.83.139.82
www.ox.ac.uk   124.67.242.154

IPV4

Domain names

root

.net   .edu   .gov   .com   lvl1

mit   utexas   berkley   google   lvl2

cs   ece   www   lvl3

Network Layer

Application = App
Presentation = OS/library
Session = OS/library

7
6
5

Transport = TCP   4
Network = Routing   3
Data Link = Switching   2
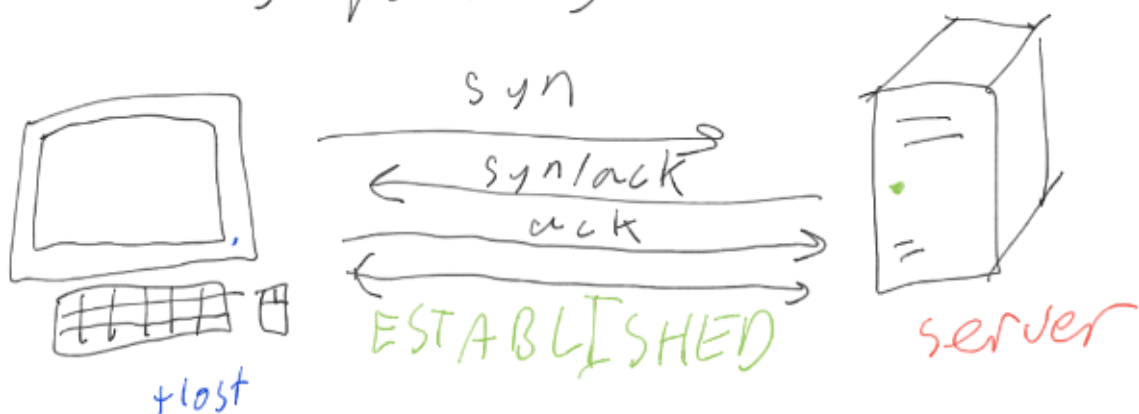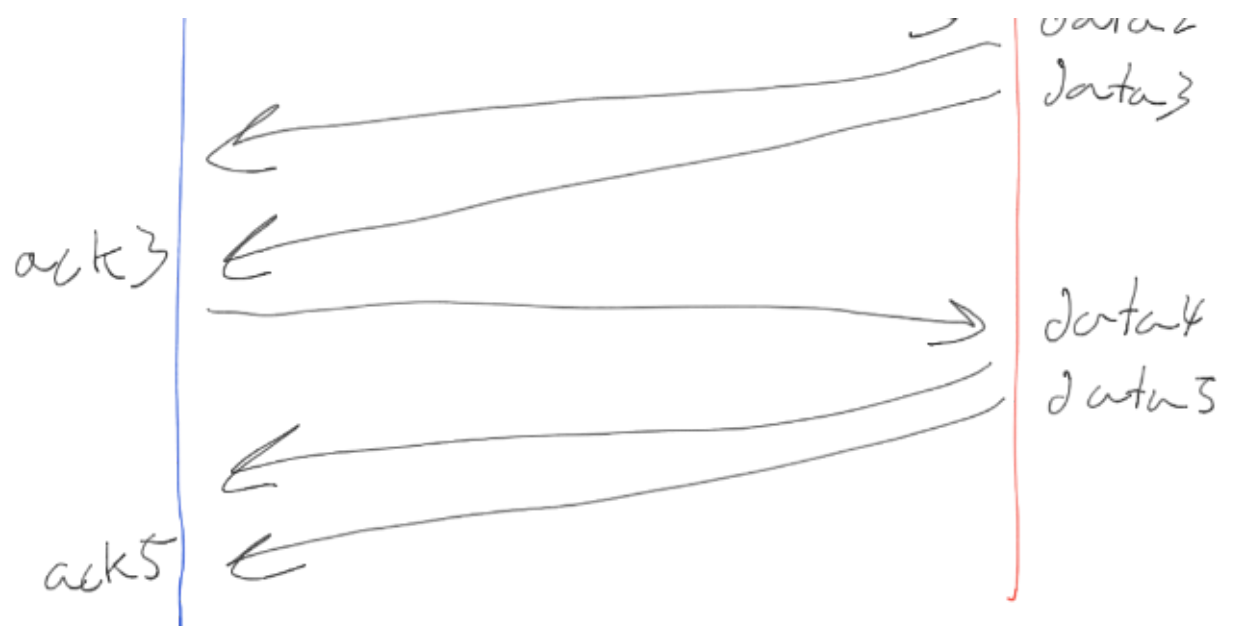Physical = Hardware   1

APST NDP

UDP = old way
 - sends datagrams
 ~ unreliable data sent
 - delay / duplicate / dropped
 - buffering

TCP = new / curr way
 - illusion of reliable pipe
 - masks lost & reordered segments
 - handles congestion
 - sends packets

syn
syn/ack
ack
ESTABLISHED   server
+ lost

ackl   data1

data2

data 3

ack3

data4
data 5

ack5

TCP congestion control

1 additive increase
2 multiplicative decrease
3 time out reaction
4 round trip varience
5 exponential timer back off

① grows 1 seg size/time
② after loss, seg size /=2
  - grows 1 seg size/time
  - starts growing exponentially until
    1st loss occurs
③ treats loss differently
  - 3 dup acks
    ②, ①
  - timeout
    - congestion window = 1 seg size

- slow start until it reaches threshold

④ set time out to $4 \times \text{mean}(RTT)$

⑤ stability