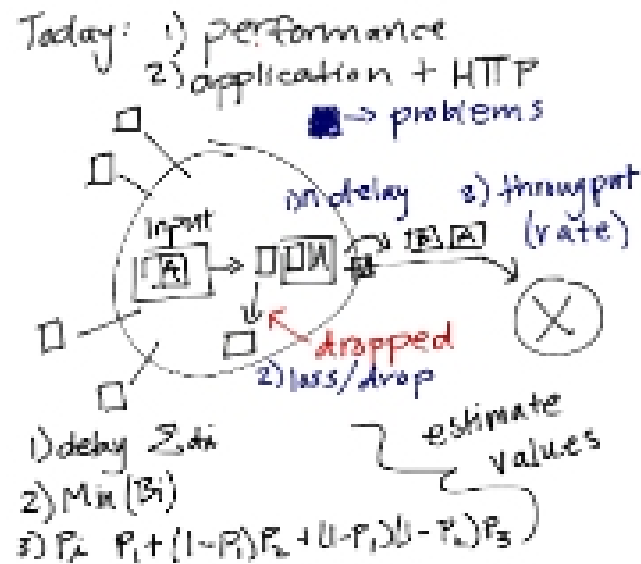


Thursday March 31



$$N + Q + T + P \leftarrow \text{speed}$$

? ? ? depends

Ex: one hop delay
Queueing: 2pkts

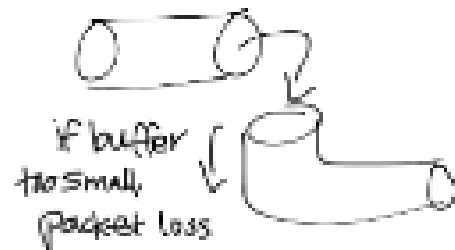
transmission: $\frac{1000 \text{ kbits}}{1000000 \text{ bits/sec}} = 1 \text{ msec}$
 propagation: $\frac{100,000 \text{ m}}{2 \times 10^8 \text{ m/s}} = 5 \text{ msec}$
 = $1 \text{ ms} \cdot 2 + 1 \text{ ms} + 5 \text{ ms} = 3.5 \text{ ms}$

Store and forward

$$\frac{L}{R} + \frac{L}{R} + \frac{L}{R} = \frac{1+2L}{R}$$

conport

transmission delay -
determines position of last bit



Application

- 1) how to deliver to APP
- 2) how to use Transport layer
- 3) how to choose

Sockets

connect() → sender/client
accept() → receiver/host

HTTP: stateless

applications have states

BAD (logins in websites)

1RTT for TCP, 1RTT for HTTP

total = 2RTT + transmission time

1) # connections?

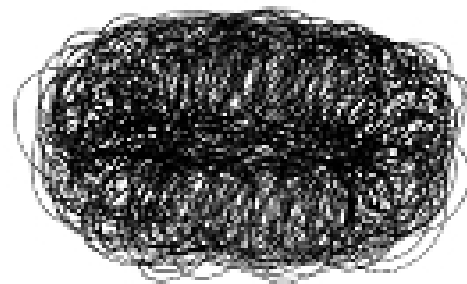
Delay in RTT?

- non-persistent
- persistent

2) For browser,

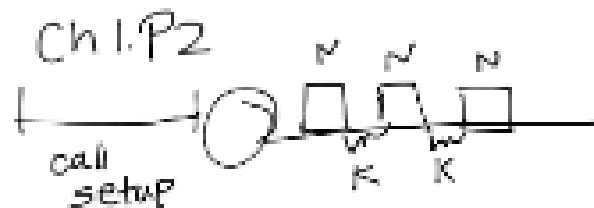
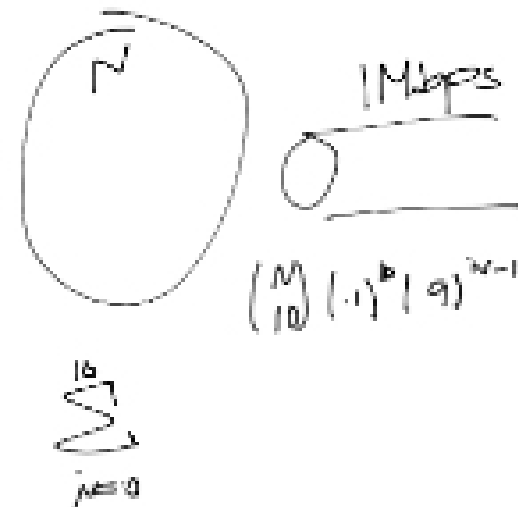
max # of connections?

Friday
April 1



cs.ucla.edu

1 ~ ppch eng



CH 1 P 24

$$\frac{7.5 \times 10^6 \text{ bits}}{1.5 \text{ Mbps}} \cdot 3 = 15 \text{ s}$$

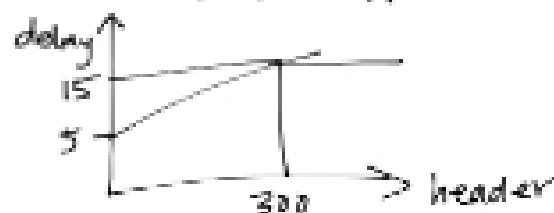
b)

$$4999 \times \frac{1}{R} + 3 \times \frac{1}{R} = 5.002 \text{ s}$$

headers

a) $\frac{L+h}{R} \cdot 3$

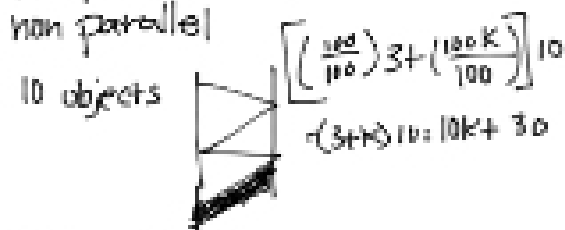
b) $4999 \left(\frac{1500+h}{R}\right) + \left(\frac{1500+h}{R}\right) \times 3$



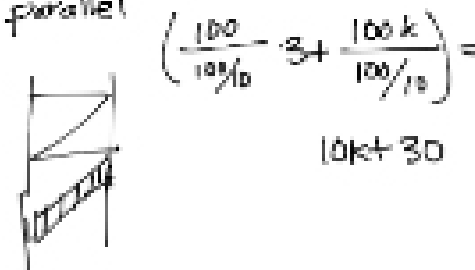
Ch 2 P 10

i) do we need parallel?

a) non-persistent non-parallel



b) non-persistent parallel



c) persistent
no pipeline



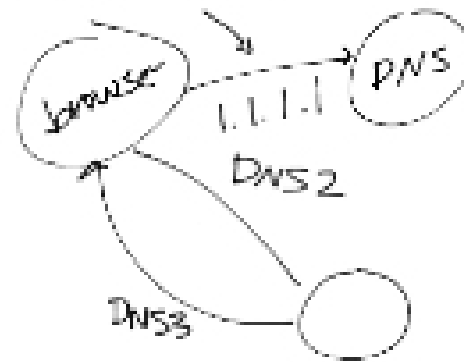
$$\left(1 + \frac{100k}{100}\right) \times 100$$

d) persistent
pipeline

same

HW

3) www.cnn.com



Tuesday

FTP not on tests

client starts data transfer

P2P -

machines are both client/servers

IP address → address to your "door"

TCP - notify when we need to transfer

socket - like power socket in wall,
but dynamically created.

↳ channel that data can go in/out

Resolvers translate into IP address

ports are random

socket #s - assigned certain #s for
specific tasks

25 → email 80 → web servers

source/destination port &
socket #

all 4 are unique to each person
on the internet

(this is how web servers know how
to send data back to client)

HTTP response

1st line "200" is the status code

"OK" for humans to understand

blank line separates header with body
␣

CDN - content distribution network

Akamai / Lime light

How are certain browsers faster
than others?

Servers hold info from old cookies,
so can people who have your
other cookie steal your info?

Can my computer be a proxy server?

Pg 21: Is that why downloading slows
down internet? (B/c the wires
cant handle all the data transfer?)

Are the cache saved on a drive as data?

MY QUESTIONS!