CSE 421 Assignment 01

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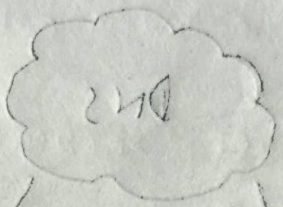
Section: 23

Ans to the ques no-1

i) Presentation layer

ii) Transport layer

iii) Network layer

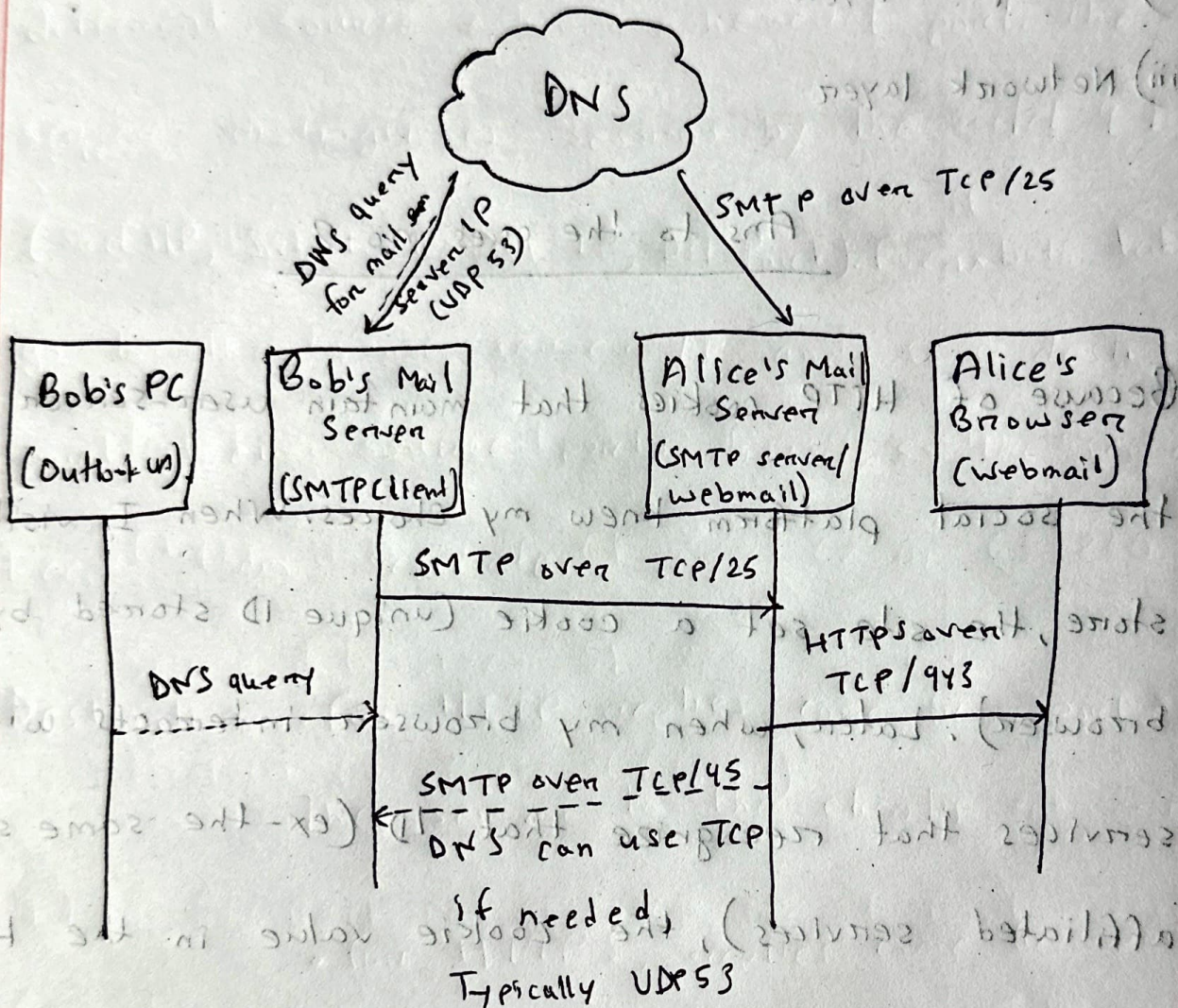


Ans to the ques no-2

Because of HTTP cookies that maintain user-server state the social platform knew my choices. When I visited the store, the site set a cookie (unique ID stored by my browser). Later, when my browser interacts with sites/services that recognize that ID (ex- the same site or affiliated services), the cookie value in the HTTP request lets back-end systems associate you with prior product views and show recommendations/ads for those items. Cookies are explicitly used for shopping carts, recommendations and session state; servers generate a unique ID and keep it in a

backend DB tied to your activity.

Ans to the ques no 3



Ans to the ques no-4

- A record for the web host www.gamingforall.com
  IN A 200.10.20.7
- MX for the domain pointing to a mail host name (not an IP) gamingforall.com IN MX 10 mail.gamingforall.com
- A record for the mail host mail.gamingforall.com IN A 200.10.20.7
- (Optional but common) make bare domain map to www via CNAME gamingforall.com IN CNAME www.gamingforall.com
- Authoritative name server for your zone gamingforall.com IN NS dns1.gamingforall.com, dns1.gamingforall.com IN A <Your-DNS-server-IP>

Ans to the ques no-5

Each tab opens its own TCP connection using a different source ~~ephemno~~ ephemeral port. The server distinguishes sessions by the socket-4 tuple (Src IP, Src Port, Dst IP, Dst Port). Even if both tabs go to the same server IP and same destination port, their source ports differ, so the server keeps them seperate.

Destination- • For HTTP, replies come from port 80 on the server to the client's ephemeral port

• for HTTPS, replies come from port 443 on the server to the client's ephemeral port

Ans to the ques no-6

i) Total RTT = 12ms + (18 X 15ms) = 282 ms

ii) Total size = 18 X 12 MB = 216 MB X 8 = 1728 Mb

~~Convert to~~ Link rate = 42 Mb/s

Total file transmission time = $\frac{1728 \text{ Mb}}{42 \text{ Mb/s}}$

= 41142.857 ms

Ans to the ques no-7

i) Dept. proxy hit (50%) = 35 ms

Bracu proxy hit (25%) = 35 + 50 = 85 ms

Origin (25%) = 35 + 50 + 300 + 200 = 585 ms

Average response time = 0.5 x 35 + 0.25 x 0.85 +

0.125 x 585

= 17.5 + 21.25 + 146.25

= 185 ms

ii) Just visited means it is now cached in the department proxy, so time is Dept LAN only = 35ms

Ans to the ques no-8

Given,

Client ISN = 1955

Server ISN = 2010

Initial rwnd; client 8000 B, server 1000 B

Client data sizes: C1 = 320, C2 = 111, C3 = 260

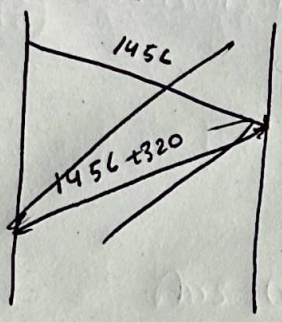
Server data sizes: S1 = 220, S2 = 421

Protocol: Go-Back-N (GBN)

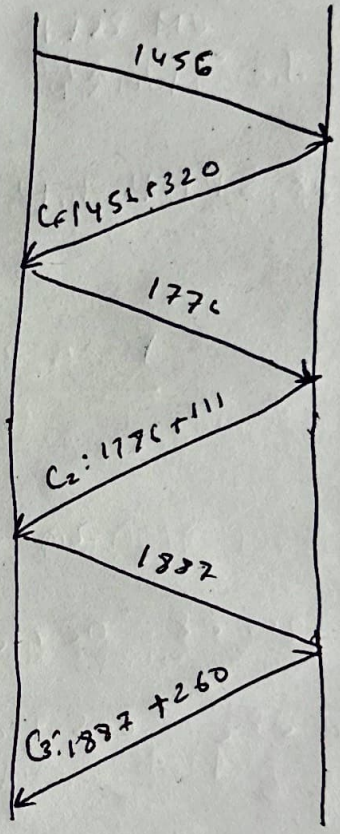
i) In Go-Back-N, if ACK for S1 isn't received (loss/corruption or timeout), the server retransmits S1 (retransmission after timeout or duplicate-ACK condition).

If C1 had already gotten S1 earlier, the resent S1 is a duplicate and is discarded (receiver only accepts in-order data). It accepts the retransmitted S1 and advances ACK accordingly.

ii) C1 : ~~seq = 1456~~



∴ ~~seq = 1456~~ ,



ACK field in C3 acknowledge server data received in order. With Go-Back-N and the stated resend of S1, the client is expecting the first server data byte is 2011. So, C3 carries:

Seq = 1887 , Ack = 2011

Ans

iii) C1 + C2 + C3 = 320 + 111 + 260 = 691 bytes.

Initial rwnd (server) = 10000.

new rwnd = 10000 − 691 = 9309 bytes.