

Ans. to the Q. No-1

a) Disagree.

If a HTTP request was made by another client earlier, then this info will be stored in the proxy server. In this way proxy server can give HTTP response without making a HTTP request to the origin server.

This is how a proxy server minimizes the access link load to the internet.

The repeated requests are served from the saved info of the proxy server, instead of the origin server.

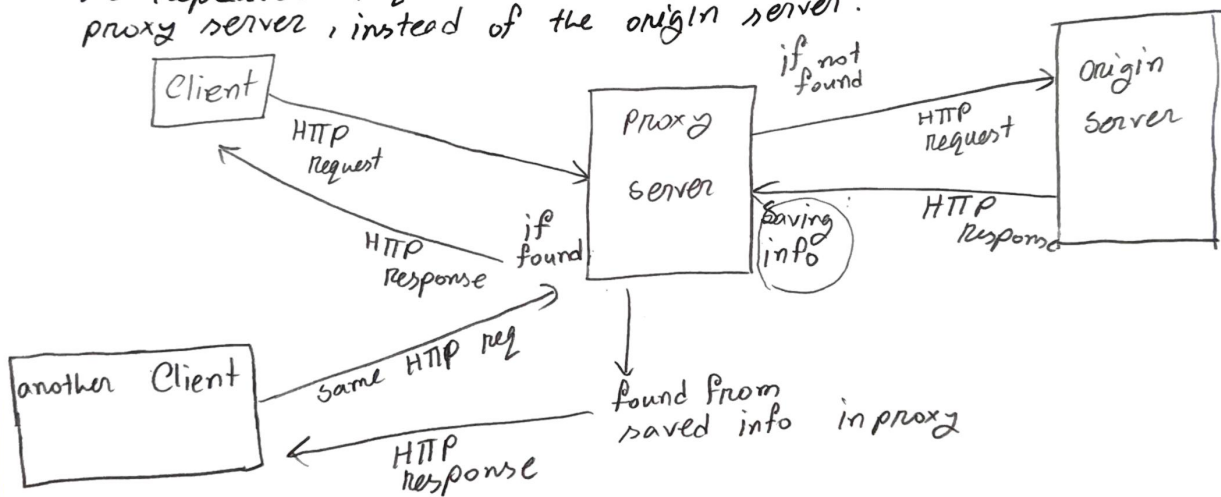


Fig: How proxy server minimizes the access link load to the internet

b)

i. An organization's web server and mail server may have the same alias for a hostname. This is called mail server aliasing.

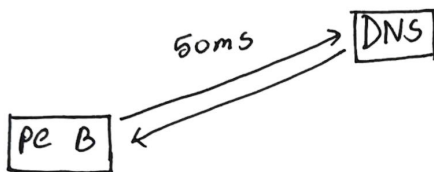
As they operate on different protocols and ports, so the service remains distinguishable.

- ii. Alpha will get her first chunk based on nearest first on speed based selection.

2)

i.

ON July 11th, the total RTT for PC B to fetch the IP address is 50 ms



ii.

Given,

12 obj including the base HTML.

$$\begin{aligned}\therefore \text{Total RTT required} &= \cancel{(2 \times \text{RTT})} + (2 \times 12 \times \text{RTT}) \\ &= \cancel{(2 \times 50)} + 2 \times 12 \times 50 \\ &= 1200 \text{ ms}\end{aligned}$$

Here,
to be sent
needs 25 ms
 $\therefore 1 \text{ RTT} = 50 \text{ ms}$

$$\begin{aligned}\text{III. Total time} &= 1200 + (12 \times 85) + 50 \\ &= 2270\end{aligned}$$

Ans. to the Q. No-2

- a) Rifat's device is the source port, that means it will be dynamic.
Receiver port will always be either well known or registered port. In this case, it will be well known.

b)

i.

In connection less demultiplexing, the operating system uses,

- ① destination IP address
- ② destination Port Number

From the incoming segment to deliver it to the correct socket.

ii

$$HLEN = 1010$$

$$\text{Now, } (1010)_2 = (10)_{10}$$

$$\therefore \text{Header length} = 10 \times 4 = 40 \text{ bytes}$$

$$\text{②) i. Sequence number (of Data segment 1)} = 5550$$

$$\text{Acknowledgement number} = 10236$$

ii. After it received 4th segment,

$$\begin{aligned} \text{Client's sequence number} &= 9666 + 1 + 569 = 10236 \\ &(\text{HTTP request 1}) \end{aligned}$$

$$\begin{aligned} \text{Client's sequence number} &= 10236 + 999 \\ &(\text{HTTP request 2}) \\ &= 11235 \end{aligned}$$

$$\therefore \text{Client's sequence number} = 11235$$

Now,

$$\text{initial rwnd} = 8000$$

$$\text{Data segment 3} = 266 \text{ bytes}$$

$$\text{Data segment 4} = 123 \text{ bytes}$$

$$\therefore \text{New rwnd} = 8000 - (266 + 123) = 7611$$

$$\begin{aligned} \text{ISN} &= 9666 \\ \text{HTTP} \\ \text{req 1} &= 569 \\ \text{HTTP} \\ \text{req 2} &= 999 \end{aligned}$$

Ans. to the Q. No-3

a)

I.

1. Physical
2. Transport
3. Presentation
4. Session
5. Application
6. Network
7. Data link

So, the sequence will
be 6, 3, 4, 2, 6, 7, 1

II.

Source & destination IP addresses.