

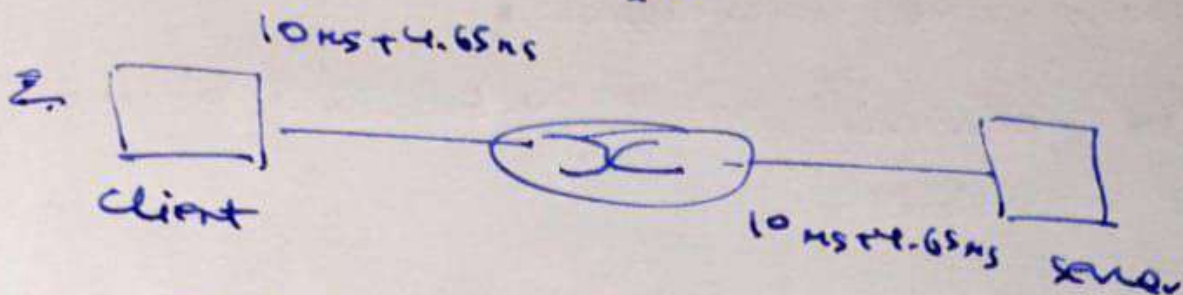
QUIZ - 1

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- Q7.) Web caching reduces the delay for all objects as for objects that are cached, the get returned as the response spontaneously, whereas for other objects, as the traffic is reduced at the original server due to presence of a proxy server.
- Q6.) The port no. is an indication of a particular process running on a Host. Hence, it has to be consulted.
- Q5.) POST request of HTTP is used to send information to the server.
- Q3.) DNS is hierarchical in nature, with a not centralized, so as to have ~~not~~ scalability, lower time taken to give every response.

Q2.) Bandwidth = 1 Gbps
 $= 2^{30} \text{ /sec}$

\therefore Time for transmitting 5000 bits
 $= \frac{5000 \times 10^6}{2^{30}} = 4.65$



2) Total Time $\approx 30 \text{ ns}$ (microseconds)

Q4.) 5 TCP connections will be established.
 4 for images, 1 for web page.

~~Time take to transfer 50KB~~

$t_{\text{total}} = t_{\text{transmission}} + t_{\text{prop.}}$

$\Rightarrow t_{\text{trans}} = \frac{8 \times 0.05}{5} + \frac{4 \times 0.3 \times 8}{5}$

~~2 RTTs for handshake + file transfer time~~
 $= 2.00$ (150KB file + 4 300KB files)

$t_{\text{prop}} = 4(20 \times 5) \text{ ns}$ (Since connect is made via Handshake)
 $= 0.40$

1.2 ≈ 10 RTT

Q1.) Packets are sent as follows:

1 packet \rightarrow 2 packets \rightarrow 4 packet \rightarrow ...

$$\therefore 1 + 2 + 4 + \dots$$

$$\Rightarrow 2^{k+1} - 1 > 1500$$

$\Rightarrow k = 10 \rightarrow$ this process will go on for 10 steps

\therefore 10 RTTs wait ~~$t = 10/2 \text{ RTT}$~~

\Rightarrow 10 RTTs