

CSE421

Lab 02 Hometask

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1. How would a proxy server check to see if it's data is up to date with the most updated data in the Origin Server?

Answer: The proxy server will go to the origin server and check the header that what is the last time the data got updated.

2. The HTTP protocol is implemented in the Physical layer. Is this statement true or false?

Answer: False. The HTTP protocol is implemented in the Application Layer.

3. Can you receive mail using SMTP, why or why not?

Answer: It is not possible to receive mail using SMTP. SMTP protocol is only use to send the mail and there is POP3 , IMAP etc which are used to receive mail.

4. Briefly explain how SMTP and POP3 protocol works using a scenario.

Answer: Let's assume I want to send an email to my friend Intiaj and for this TCP will establish a connection first from my PC to his PC and then the email will be sent from my end to my email server by using SMTP protocol and then my email server to the email server of Intiaj. After all of these POP3 protocol will go to the mail server of Intiaj and pull the mail to the PC of Intiaj.

5. Why does root DNS servers maintain a hierarchical structure rather than a centralized structure?

Answer: DNS server maintain a hierarchical structure means a decentralized structure rather than a centralized structure to avoid

- a) Single point of failure
 - b) High maintenance cost
 - c) Difficulty in keeping connection with distant centralized database.
 - d) Increase in traffic volume.
6. Suppose, you have a quiz which will take place at bux but your local DNS server does not know the IP address of "bux.bracu.ac.bd". Will you be able to attend your quiz? Please, provide a brief explanation.

Answer: No, I won't be able to attend the quiz. "bux.bracu.ac.bd" is stored in a server and to access it we must first go to our local DNS server and the local DNS server will send the IP address of that particular DNS server where the "bux.bracu.ac.bd" is stored in. By tracking the address in this way we can visit "bux.bracu.ac.bd" .

7. Suppose, you recently changed your ISP and the new ISP forgot to set the DNS server's IP address when configuring your internet connection. Can you now browse the internet properly?

Answer: No, in that case I can not browse properly. Due to not having my IP address the DNS server can not provide any internet facilities. Since it won't know my IP address, all of my browsing request will be rejected.

8. What is the size of an ARP request or reply packet (in bytes)?

Answer: 28 bytes

9. What happens to an ARP request packet when it is received by a host that does not match the target IP address of the request?

Answer: The request got rejected

10. What is the value of the 'operation' field in an ARP reply packet?

Answer: It has source IP and destination IP address as well as the source MAC and destination MAC.

11. What flags are used during a TCP connection establishment and TCP connection termination process.

Answer: For connection establishment: SYN (00000010)

ACK (00010000)

For connection termination: FIN (00000001)

ACK (00010000)

12. A web server sends a TCP packet to a client with sequence number=0 and acknowledgement number =1. Which stage of the 3 way handshake is this and what does the sequence and acknowledgement number mean?

Answer: This is the 2nd stage of 3 way handshake. Sequence number is used to track how much data has been sent and the acknowledgement number is used to inform the sending host that how much data has been received successfully and now from that the new data can be sent.

Sequence number = 0 means no data has been sent yet and acknowledgement number = 1 means, 1 has been received successfully and now from 1 data can be sent.

13. In an outbound PDU packet, what does source port: 80 and destination port: 1027 means?

Answer: Source port 80 means it's an Internet Communication Protocol HTTP and port 1027 means it's a Transmission Control Protocol (TCP)