

CS-306 (Computer Networking)

Model Question Papers and Solutions

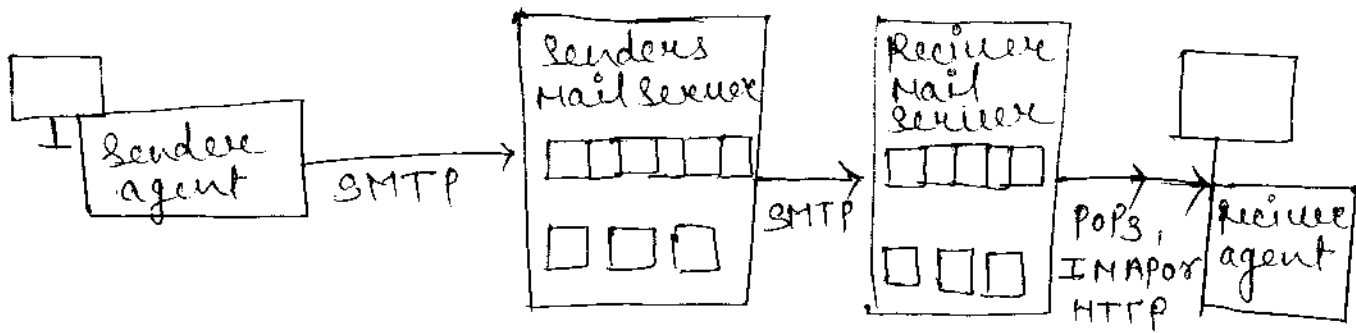
Q-1 What is E-mail. Explain different protocols used for it with diagram.

Ans-1 E-mail:- The full form of Email is Electronic Mail. Email is an asynchronous communication medium means people send and read messages when it is convenient for them, without having to coordinate with other people's schedule. In this method we can send messages from sender to receiver in any part of the world and instantly.

The different protocols used for Email are

- 1) SMTP (Simple Mail Transfer Protocol)
- 2) POP3 (Post Office Protocol version 3)
- 3) IMAP (Internet Mail Access Protocol)

SMTP :- SMTP transfers messages from sender mail server to receiver mail server. It restricts the body of all messages to 7 bit ASCII. But today, in multimedia era it requires binary multimedia data to be encoded to ASCII before being sent over SMTP and it requires binary multimedia data to be decoded back into binary after SMTP transfer.



- Message key user mail inbox
 fig: Email protocols

~~IMAP~~
POP3:- It is a Simple mail Access Protocol. POP3 begins when the User Agent opens a TCP connection to the mail server. It has three phases.

- 1) Authorization - In this phase the user send a user id and password to authenticate the user.
- 2) Transaction - In this phase user agent retrieves messages
- 3) Updation - This phase occurs ~~after~~ after the client has issued the quit command.

IMAP:- The problem with ~~IMAP~~ ^{POP3} is that the messages are downloaded to local machine. that poses a problem for nomadic user, who prefers to maintain a folder hierarchy on a remote server that can be accessed from any computer. Internet mail Access Protocol (IMAP) solves this problem faced by POP3

Q-2 Differentiate between Connection oriented and Connection less services.

Ans-2

Connection oriented services

1. It is a reliable connection oriented service
2. Handshaking takes place in connection oriented services.
3. It takes guarantee that data will reach at destination.
4. Where reliability is important this service is used
5. Data transfer speed is slow due to handshaking
6. TCP is connection oriented service
7. Used for applications such as Email, FTP, Telnet etc.

Connection less services

1. It is unreliable service.
2. No handshaking
3. It does not take guarantee that data will ever reach to destination
4. Where speed is important this service is used
5. Data transfer speed is fast
6. UDP is connection less service.
7. Used for applications such as DNS, video conferencing.

Q-3 Draw the structure of UDP header and explain each field in it.

Ans-3

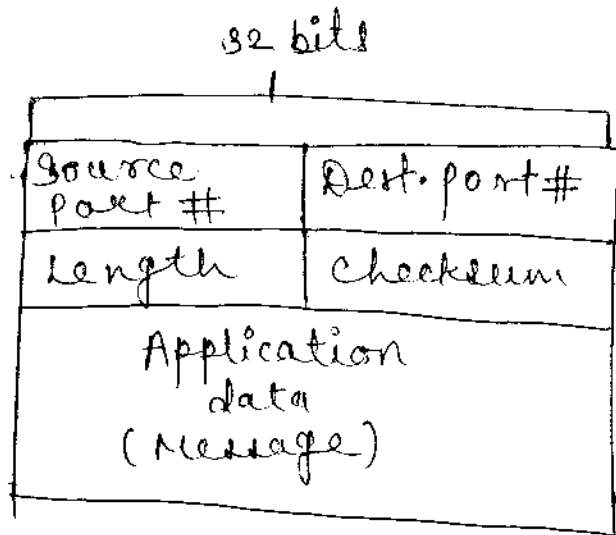


fig:- UDP Segment Structure.

The UDP header has only four fields. Each consisting of 2 bytes. The port numbers allow the destination host to pass the application data to the correct process running on the destination end system.

The length field specifies the number of bytes in the UDP segment. The checksum field is used by the receiving host to check whether errors have been introduced in the segment.

Q-4 Explain the following.

1) FTP

2) DNS.

FTP (File Transfer) - In a FTP session, a user sitting on one host (local host) transfers files to or from a remote host.

In order for the user to access the remote account, the user must provide a user authentication and a password. After providing this authorization information, the user can transfer files from the local file system to the remote file system or vice versa.

When a user starts an FTP session with a remote host, the client side of FTP first initiates a TCP connection with the server side on port 21. That connection is used to send the authorization information. When the server side receives a command for file transfer, it initiates a TCP data connection to the client side and FTP sends exactly one file over the data connection and then closes the data connection.

DNS (The Internet directory service) - Just humans can be identified by many ways such as PAN No, Birth Certificate, Driving License no etc. So too can Internet hosts. Host names such as www.yahoo.com, hotmail.com are mnemonic and therefore liked by humans because they are easy to remember. However host names provide little information about the location within the Internet of the host. The host names consists of variable length alphanumeric characters, they would be difficult to process by routers. For these reasons, hosts are also identified by

IP-Addresses.

The main task of Internet domain name system is to convert hostnames to IP addresses.

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