

* Computer Network and Security (CNS) - Assignments Number - 5

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* Explain in detail E-mail architecture and services?

→ The E-mail or electronic mail is the type of service or a system provided by various companies such as Google, Microsoft, etc in which distribution of message by electronic means from one user to other user/users' recipients occurs via a network.

The main components of e-mail system that facilitate sending and receiving of e-mail on internet are:

- An e-mail client
- An e-mail server
- Some protocols like SMTP (Simple Mail Transfer Protocol), POP (Post Office Protocol) IMAP (Internet Message Access Protocol).

Working:-

For transferring an e-mail from one user to another first the message/mail goes to user agent (UA) which provides services to make the process of sending and receiving the e-mail easy on both ends then the message/mail is composed and sent to message transfer agent (MTA), it follows some

protocols for travelling from one server to other over internet which are SMTP (Simple Mail Transfer Protocol), POP (Post Office Protocol), IMAP (Internet Message Access Protocol) and then the message/mail is received at another terminal by Message Access Agent (MAA) then the e-mail is further goes to User Agent (UA) which receives it and provides it to end user.

★ Discuss the role of SMTP and POP protocol in Email message transfer?

→ Simple Mail Transfer Protocol (SMTP) -

- SMTP is application layer protocol of TCP/IP model.
- SMTP transfers message from sender's mail servers to recipient mail servers.
- SMTP interacts with the local mail system and not the user.
- SMTP uses TCP sockets on port 25 to transfer e-mail reliably from client to server.
- E-mail is temporarily stored on the local and eventually transferred directly to receiving server.
- Mail client application interacts with a local SMTP server to initiate the delivery of an e-mail message.
- There is an input queue and an output queue at the interface between the local mail system and the client and the server parts of the SMTP.

Post Office Protocol (POP)-

- Post Office Protocol is used to transfer email messages from a mail server to mail client software.
- POP begins when the user agent opens a TCP connection to the mail server on port 110.
- In authorization phase, user agent sends a user name and a password to authenticate the user downloading the mail.
- In transaction phase, the user agent retrieves messages. In this phase, user agent can also mark messages for deletion, remove deletion marks.
- In update phase, it occurs after the client has issued the quit command, ending the POP session.
- POP has two modes: Delete mode and the keep mode.
- In the delete mode, mail is deleted from the mailbox after each retrieval.
- In the keep mode, the mail remains in the mailbox after retrieval.