

CS & IT ENGINEERING

COMPUTER NETWORKS

Application layer protocol

Lecture No-01



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A stylized laptop icon with a blue frame and an orange base. The screen is white and displays the text 'TOPICS TO BE COVERED'.

TOPICS TO BE
COVERED

A diagram showing a yellow rectangular box with a dashed orange line forming a path around a blue rounded rectangle. The path starts from the left, goes up, right, and down, with arrows indicating the direction. A dotted line with an arrow points from the laptop screen to the start of the path.

**Application layer
Protocols Part-1**



APPLICATION LAYER PROTOCOL

SMTP , DNS , FTP , HTTP , POP

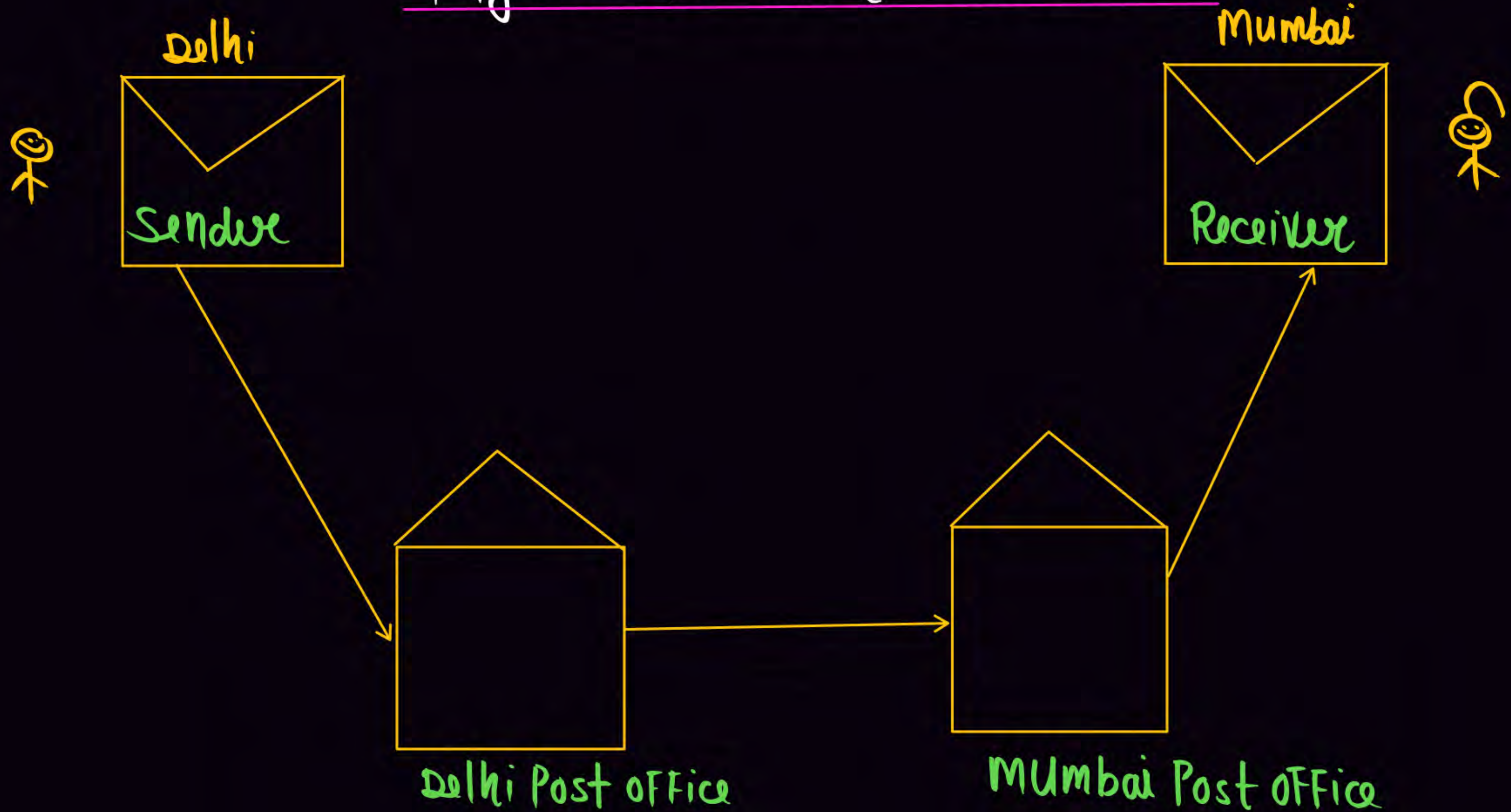
↓ ↓ ↓ ↓ ↓

email Domain Name to IP Address, File Transfer Web Services downloading the email



E-MAIL ,SMTP,POP,IMAP

Physical mail From Delhi to Mumbai



E-mail



Email[Electronic Mail]



Push(SMTP)

Sender Mail
Server



Gmail

Push(SMTP)



Receiver Mail
Server



Yahoo

Pull (POP-3
or
download IMAP-4)

SMTP transfer the mail from sender's mail server to receiver's mail server.

While sending the mail, SMTP is used two times-.

- I. Between the sender and sender's mail server
- II. Between the sender's mail server and receiver's mail server

To receive or download the email

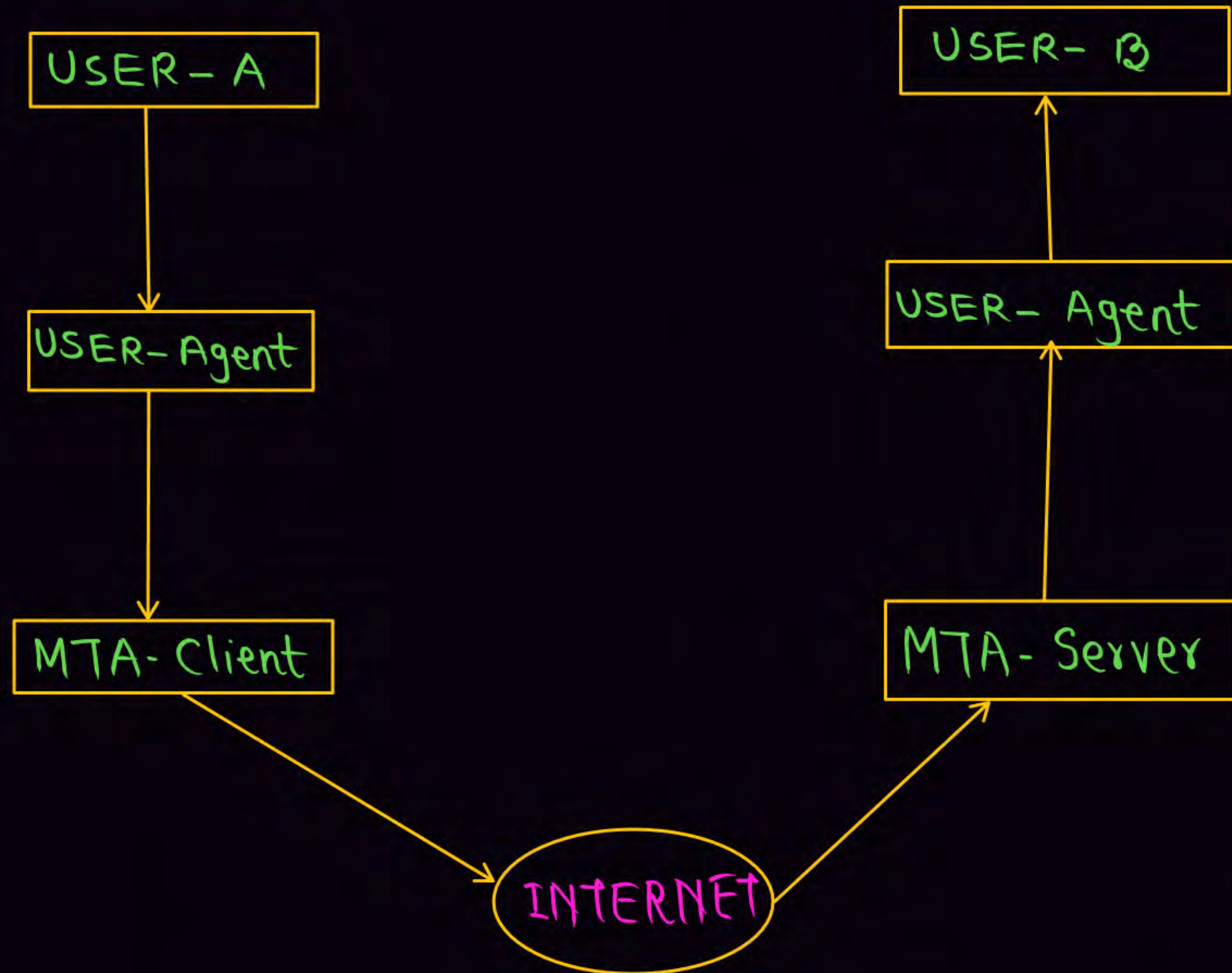
Another protocol is needed between the receiver mail server and receiver.

The most commonly used protocols are POP3 and IMAP4.

SMTP(Simple mail transfer protocol)



1. The objective of SMTP is to transfer the email reliably and efficiently.
2. It uses port number-25 at TCP.
3. In SMTP there are two components:
 - (i) User Agent (UA)
 - (ii) Mail transfer Agent (MTA)
4. User Agent prepares the message, creates the envelope and put the message in the envelope.
5. Mail transfer Agent transfer the mail across the internet i.e. Actual mail transfer is done through MTA.
6. To send mail, system must have a client MTA and to receive the mail, it must have a server MTA.
7. SMTP is text based protocol.
8. With the help of SMTP & POP we can send only text messages.
9. SMTP can only handle the message containing 7 bit ASCII text.



10. SMTP cannot transfer other types of data like images, video, audio, etc.
11. SMTP cannot transfer binary files or executable files.
12. SMTP cannot transfer the text data for the language other than English (such as French, Japanese, and Chinese etc.).
13. Only SMTP is not sufficient to send binary files or to send videos or audio so we require MIME (Multipurpose Internet mail extension).
14. MIME is a supplementary protocol that allows non-ASCII data to send through SMTP.
15. MIME is a set of software function that transforms non-ASCII data to ASCII data or vice versa.
16. MIME is used to convert non text data to text data and text data to non text data.



**THANK
YOU!**

