

Application Layer protocols

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① HTTP (Hyper Text Transfer Protocol)

- It uses port number - 80
- Itself not reliable but use TCP to achieve reliability
- Inband Protocol: → Commands and data both pass through only one port
- Stateless: - It does not store any metadata because millions of requests are send so it is not possible.
Some websites use cookies to store metadata.
- HTTP 1.0 Non-Persistent: - it does not restore the work that done if application closes. Ex → IRCTC
- HTTP 1.1 persistent: - It restore the work that done if application closes. Ex → Gmail.
- Commands: -
 - * Head → Metadata along data
 - * Get → to access webpage
 - * Post → To fill form to send data to server
 - * put → to upload
 - * delete → to delete
 - * Connect → to create connection with server

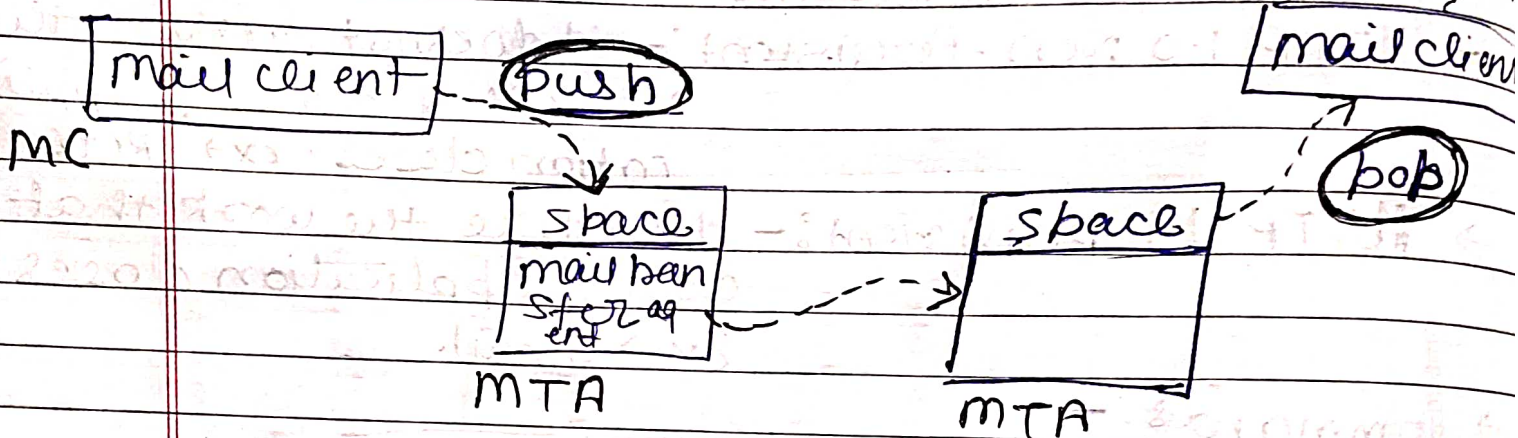
② FTP (File Transfer Protocol)

- Port no. 20 (DATA) & 21 (Control)
- Data Connecⁿ is non persistent
- Control connecⁿ is persistent.
- Not Inband
- Reliable
- Stateful: metadata is stored

③ SMTP & POP

Simple mail Transfer Protocol and post office protocol

- FTP is Synchronous :- if A sends a file to B then both have to active.
- SMTP and POP is both Synchronous & asynchronous (both machines need not be active)
- SMTP uses port 25 - for pushing mail.
- POP uses for popping mail.



- By default, the POP3 protocol works on two ports. Port 110 → this is POP3 non encrypted port.
- Port 995 → This is the port you need to use if you want to connect using POP3 securely.
- MIME { Multipurpose Internet Mail Extensions }

Persistent Vs Non persistent HTTP

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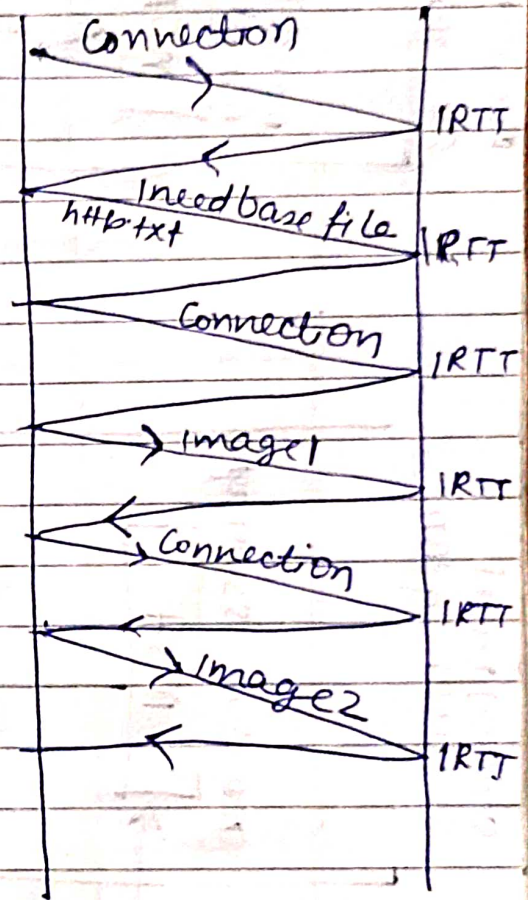
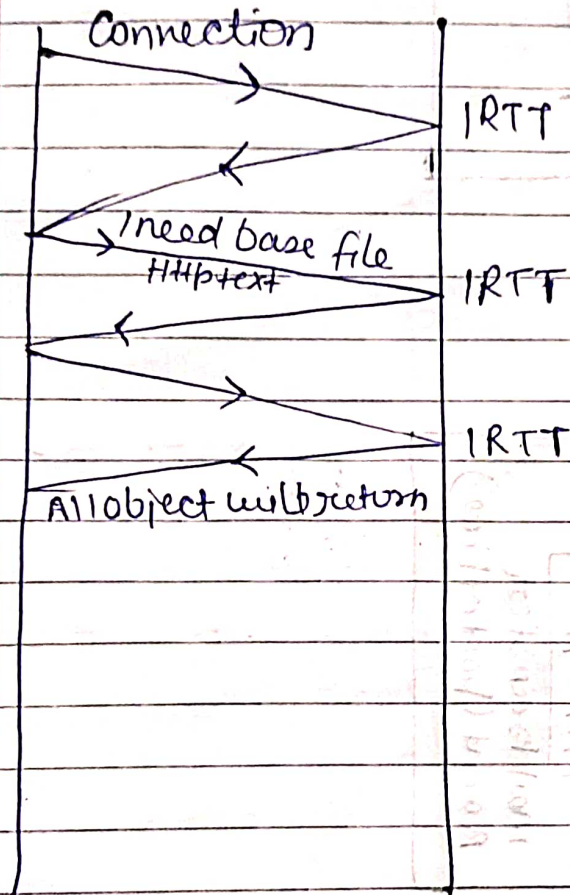
Persistent HTTP 1.1

Nonpersistent HTTP 1.0

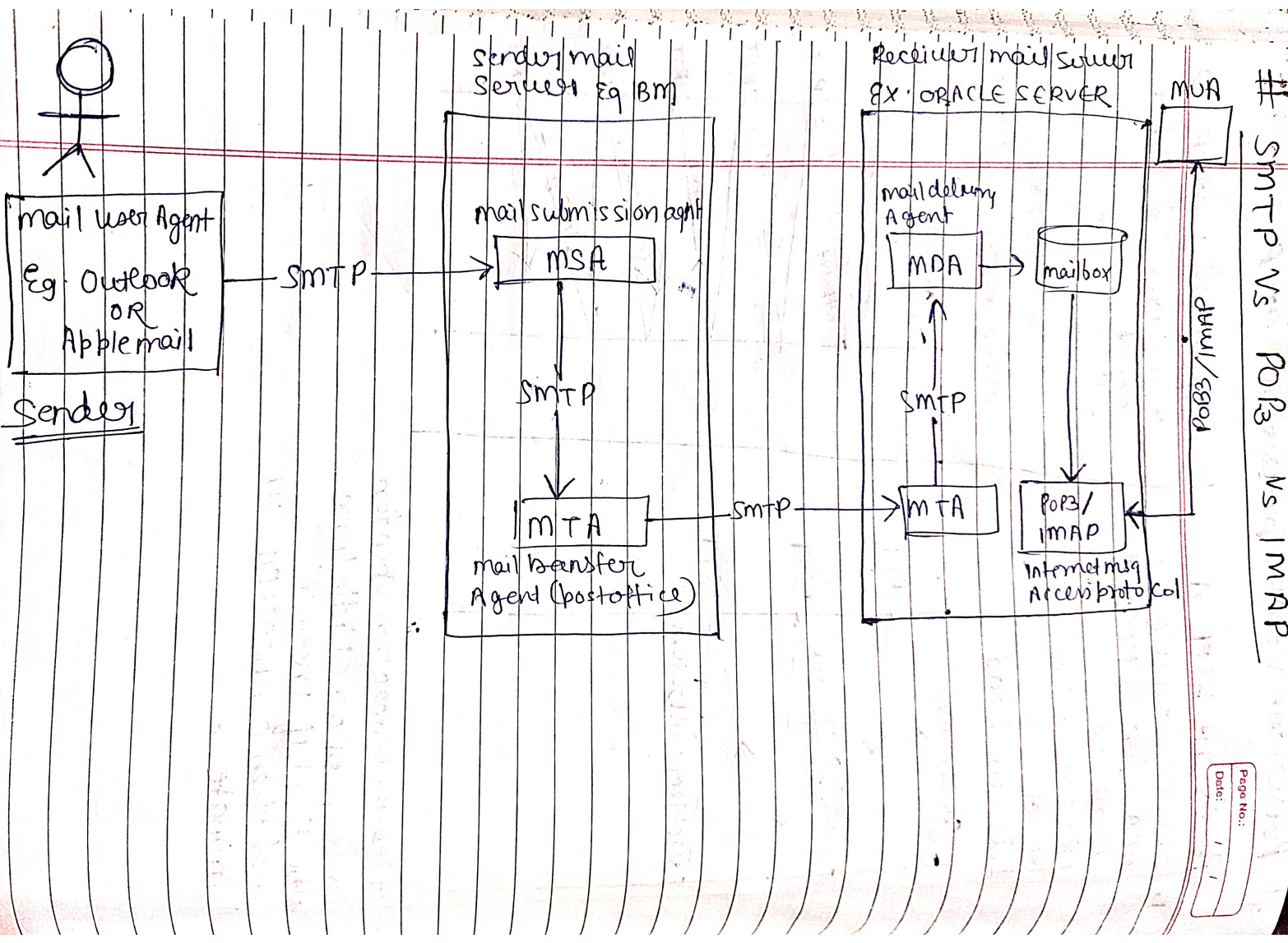
1. Server leaves connection open after sending response.
1 RTT for all referenced object
2. Less overhead

It requires 2 RTT's per object.

more overhead



3. It leaves connection open for some period of idle time after that if channel is ideal then connection will terminate.



SMTP Vs POP3 Vs IMAP

SMTP

→ Simple mail transfer protocol

→ Send mail (push)

→ Port → 25

→ TCP or UDP

POP

→ Post office protocol

→ Retrieve mail (pop)

→ port ⇒ 110 (default)
995 (SSL)

↓
Secure socket layer

→ TCP or UDP

→ it will delete from mailbox after popping the mail from it

IMAP

→ Internet message Access protocol

→ Retrieve mail (pop)

→ port ⇒ 143 default, 993 (SSL)

→ TCP or UDP.

→ it will not delete from mailbox after popping ^{from} the mailbox.