



POORNIMA FOUNDATION

DETAILED LECTURE NOTES

Campus: Course:

Class/Section:

Date:

Name of Faculty:

Name of Subject:

Code:

Application layer protocols

HTTP

~~Comm~~

- Port No 80

- Itself not reliable but use TCP to achieve reliability

- In band protocol

Commands } same
Data } port No.

By default

- Stateless (It does not save information who is accessing what?)

- Some uses cookies (stateful by own end by org.)

Banking
railway

HTTP 1.0 Non Persistent

Two types

gmail

HTTP 1.1 Persistent

- Commands (Head, Get, Post, Put, Delete, Connect)

Get → Req. a document from the server

Head → Req. information about a document but not the document itself.

Post → Sends some information from the client to the server

PUT → sends a document from server to the client

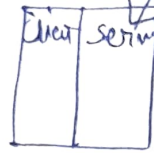
TRACE - Echoes the incoming request

Connect → Reserved

option → ~~that~~ inquires about available options

FTP (Filezilla)

- Port no 20 (DATA) & 21 (control)
- Data connection is non persistent
- Control connection is persistent
- Not inband
- Reliable
- stateful.



SMTP & POP

- FTP is synchronous but SMTP & POP is both synchronous & asynchronous.

- SMTP port No. 25 for pushing the mail.

Gmail $\rightarrow \frac{156B}{256B}$

- By default the POP3 protocol works in 2 ports

1) Port 110 \rightarrow default (POP3 non-encrypted port)

2) Port 995 - POP3 securely (with encryption)

- MIME (Multipurpose Internet mail Extensions)

(Multi-media data send)

Mail client \rightarrow MTA
(Gmail) Main Transfer agent

Mail client
(Yahoo)

MTA

POP (Post office protocol)

Mail client push mail in Inbox



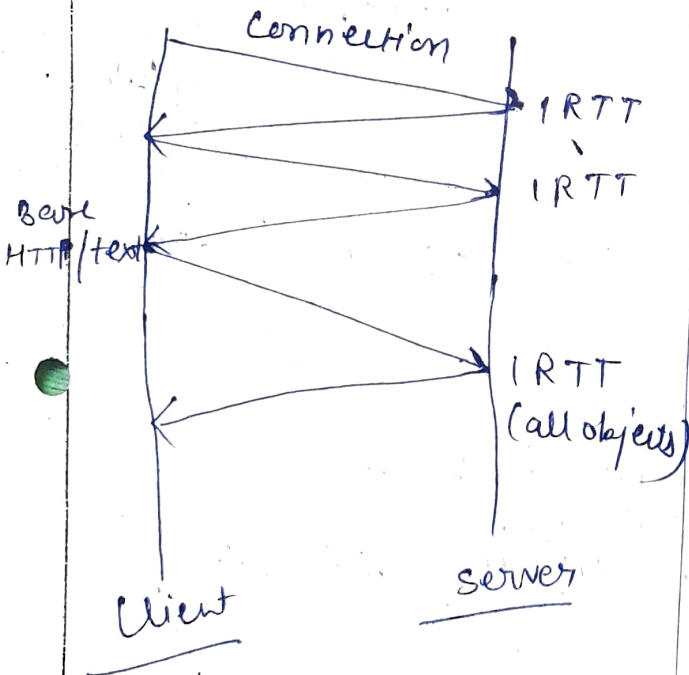
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HTTP uses TCP (9+ needs reliability) PAGE NO.

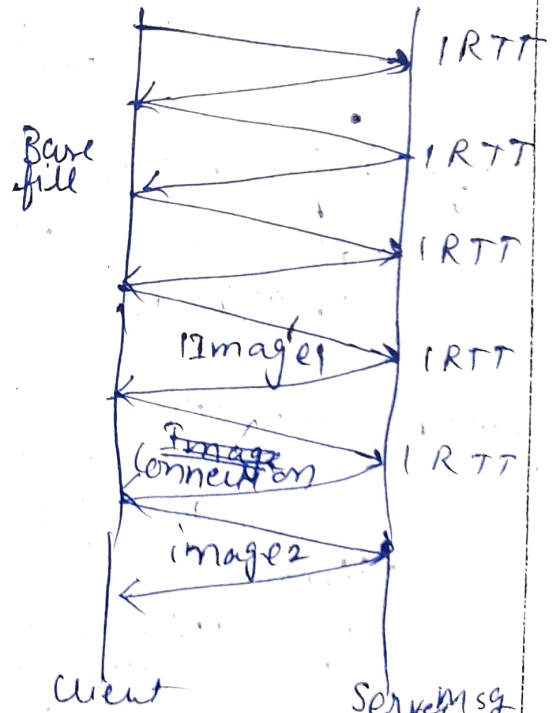
Persistent HTTP connection (HTTP/1.1)

- 1) server leaves connection open after sending response.
- 1 Round trip time (RTT) for all referenced object.
- 2) Less overhead



Non-Persistent HTTP (HTTP/1.0)

- 1) 9+ requires 2 RTTs per object.
- 2) More overhead.



Client
Transmission time = $\frac{\text{Server size}}{\text{bandwidth}}$

HTTPS (HyperText Transfer protocol secure. ...)

HTTPS is a protocol, which is used for commⁿ b/w web browser and web server.

HTTPS is secure version of HTTP.

Purpose

- provides confidentiality
- Integrity (data b/w the users computer and website)
- HTTPS encrypt URL, username, password, sensitive information of user. (PAN card, credit/debit)

working

HTTP + SSL = HTTPS

user $\xleftarrow{\text{encrypted connection.}}$ Secure HTTPS

(SSL certificate is a code configure with server)

Default port No. - 443

gs ~~search~~ search engine uses HTTP or HTTPS.

HTTPS

HTTPS Connection

- Connection initiation
- Data transfer
- Connection Termination

Client

Server

