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## Protocols.

1. Protocols :- A protocols is a set of rules & guidelines for communicating data. Rules are defined for each step of process during communication between two or more computers. Network have to follow this rules to successfully transmit data.

Various types of protocols :-

- i) HTTP
- ii) FTP
- iii) SMTP
- iv) TELNET

1. HTTP :- Hypertext Transfer Protocol.  
*(Application layer protocol)*

→ It is a process protocol can be used to transfer the data on the world wide web. data can be audio, video, image etc. In other words we can say that it is a communication protocol that defines the mechanism for communication between browser & the web server.

## Features of HTTP

- Port no 80
- Itself not reliable but uses features of TCP to achieve reliability.
- Inband Protocol
- Stateless Protocol
- HTTP 1.0 Non Persistent
- HTTP 1.1 Persistent
- Command (Head, Get, Post, put, Delete, Connect)
- HTTP is Media Independent Protocol
- It is based on client server architecture.
- HTTP uses the Concept of URL

eg. https://www.google.com | | | |  
method host port path of file.

Inband Protocol :- Command & Data both emerge from same port. In other word we can say that both data & Command travel from same port.

Command } 80  
Data }

Stateless Protocol :- http is a stateless protocol, it doesn't save the information. The reason behind that is there are million, billion requests & all the request are going through HTTP. So if it keep saving all the request, all the information. Big delay will occur.

But there are many companies Amazon, flipkart etc. These companies used the concept of Cookies. Which store information about user or history of users on the client side.

history of users means :- user name, password, address, etc what did you access earlier, the webpage you went on etc. Each & every information is what they saved in Cookies.

By default HTTP is stateless but many companies try to make it stateful on their end.

HTTP 1.0 Non-Persistent :- Non persistent means connection for eg. Suppose you open any web page like IRCTC

↳ you saw page of reservation. You filled some information about reservation then you checked payment option, you checked about information of train.  
So whenever you open any amount of connection in IRCTC.

For each new connection, for each new webpage same amount of connection are created at backend. Number of webpage that you open internally same numbers of links open & as you closed IRCTC from top. As it closes the connection is immediately lost & when you open IRCTC open for the next time you need to fill username, password again.

Same thing will happen with HDFC, Online Banking etc too.

HTTP 1.1 persistent :- When we talk about persistent is that simple eg is gmail. Let's say you filled username & password ~~now~~ without logout if you closed & now if you open after one month or one year your mail will open directly you don't have to fill username, password again.

Commands (Head, Get, Post, put, Delete, Connect)

Head :- Head <sup>store</sup> is a metadata me hold.

Head :- It <sup>store</sup> information about data of web page i-e metadata (data about data), means when a webpage is being accessed.

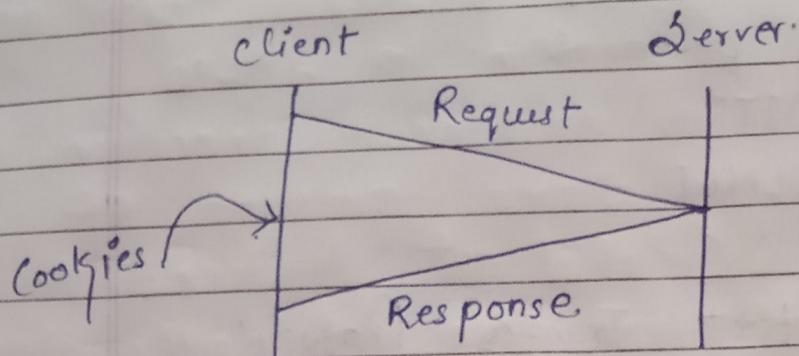
get :- It is widely used command. By using this Command Complete web page can access.

Post :- If you want to post some information or fill any form or upload ~~some~~ thing on ~~the~~ webpage then we used this Command.

Put :- This method is used to upload some information on the webpage.

Connect :- It work with Secured Socket Layer. if we want to make Connection with Server This made through this command.

## Working



An HTTP client sends a request message to an HTTP server. The server in turn, returns the response message.

HTTP request Comprises of line which contain

- Request line - It specifies the request method i-e Get Or Post
- Header field - It indicates the domain name of server from where information is retrieved.
- Message body.

## FTP (File transfer Protocol)

→ If we want to send file on remote side then we have to use FTP protocol.

Real life Application :- Filezilla, techfia

→ i.e. we can transfer our file on remote side from anywhere.

→ Port no { 20 (DATA) & 21 (Control) }

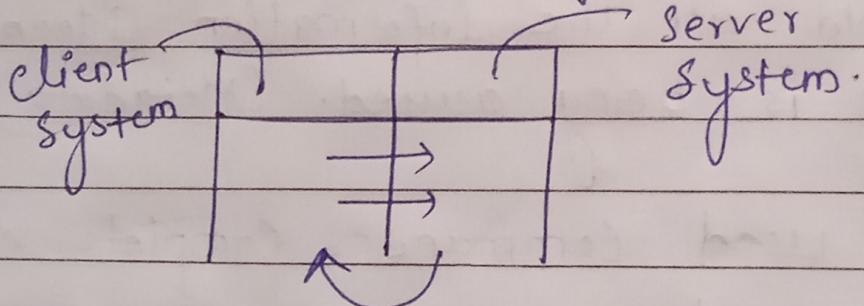
→ Data connection is not-persistent (for search purpose)

→ Control connection is persistent

→ To transfer file

we first use 21 number

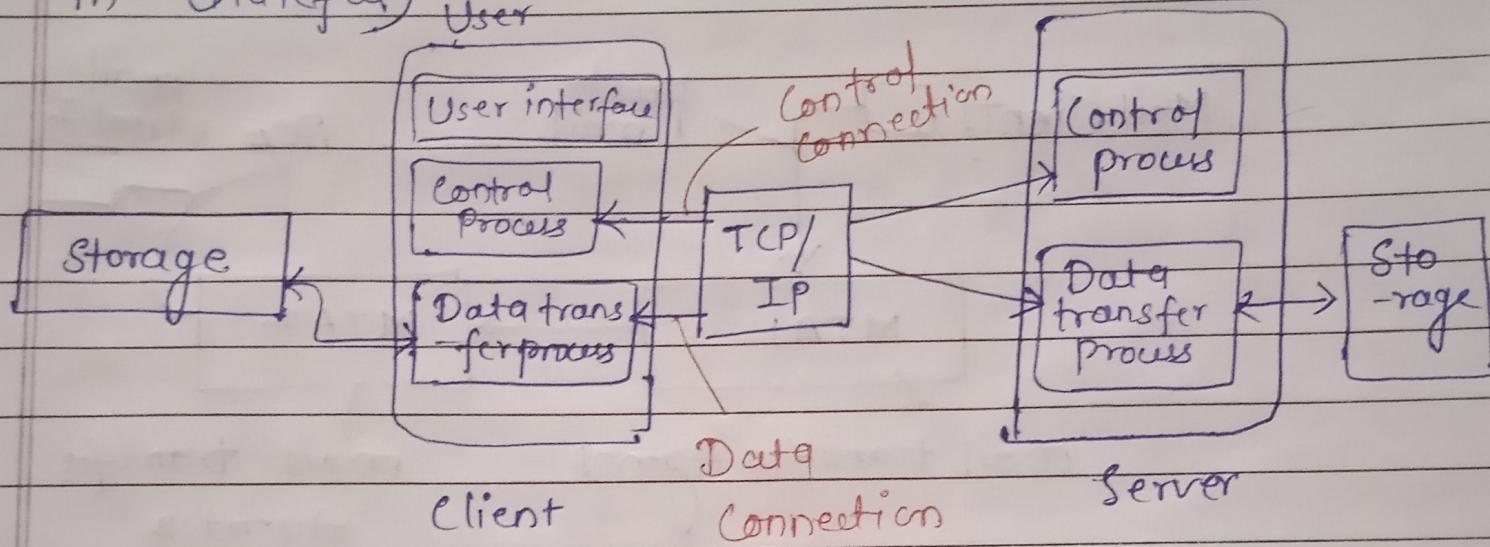
port not to send the information control command. & after that 20 port number is used for sending data.



→ Not inband :- It uses two port <sup>NO</sup> ~~not~~ parallelly one for data & second for control command so control & data can be used parallelly in FTP.

- Reliable :- It also use TCP to achieve the Reliability.
- Stateful:- It is a stateful means if two users are transferring files between them, we transferred file on Remote login so which file, when transferred, what was the size each & every information is saved on its end.

(Information is saved like history in Stateful)



FTP protocol.