**NAME: IKANI JOB OJIMA**

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**FILE TRANSFER PROTOCOLS:**

The File Transfer Protocol (FTP) is a standard network protocol used for the transfer of computer files between a client and server on a computer network.

The first FTP client applications were command-line programs developed before operating systems had graphical user interfaces, and are still shipped with most Windows, Unix, and Linux operating systems. Many FTP clients and automation utilities have since been developed for desktops, servers, mobile devices, and hardware, and FTP has been incorporated into productivity applications, such as HTML editors.

FTP is built on a client-server model architecture using separate control and data connections between the client and the server. FTP users may authenticate themselves with a clear-text sign-in protocol, normally in the form of a username and password, but can connect anonymously if the server is configured to allow it. For secure transmission that protects the username and password, and encrypts the content, FTP is often secured with SSL/TLS (FTPS) or replaced with SSH File Transfer Protocol (SFTP).

**SIMPLE MAIL TRANSFER PROTOCOL:**

The SMTP is part of the application layer of the TCP/IP protocol. Using a process called "store and forward," SMTP moves your email on and across networks. It works closely with something called the Mail Transfer Agent (MTA) to send your communication to the right computer and email inbox.

SMTP spells out and directs how your email moves from your computer's MTA to an MTA on another computer, and even several computers. Using that "store and forward" feature mentioned before, the message can move in steps from your computer to its destination. At each step, Simple Mail Transfer Protocol is doing its job. Lucky for us, this all takes place behind the scenes, and we don't need to understand or operate SMTP.

SMTP provides a set of codes that simplify the communication of email messages between email servers (the network computer that handles email coming to you and going out). It's a kind of shorthand that allows a server to break up different parts of a message into categories the other server can understand. When you send a message out, it's turned into strings of text that are separated by the code words (or numbers) that identify the purpose of each section.

SMTP provides those codes, and email server software is designed to understand what they mean. As each message travels towards its destination, it sometimes passes through a number of computers as well as their individual MTAs. As it does, it's briefly stored before it moves on to the next computer in the path. Think of it as a letter going through different hands as it winds its way to the right mailbox.

I**NTERNENT PROTOCOL AND USER DATAGRAM PROTOCOL(U.D.P):**

The Internet Protocol (IP) is the principal communications protocol in the Internet protocol suite for relaying datagrams across network boundaries. Its routing function enables internetworking, and essentially establishes the Internet.

IP has the task of delivering packets from the source host to the destination host solely based on the IP addresses in the packet headers. For this purpose, IP defines packet structures that encapsulate the data to be delivered. It also defines addressing methods that are used to label the datagram with source and destination information.

The Internet Protocol is responsible for addressing host interfaces, encapsulating data into datagrams (including fragmentation and reassembly) and routing datagrams from a source host interface to a destination host interface across one or more IP networks.[1] For these purposes, the Internet Protocol defines the format of packets and provides an addressing system.

User Datagram Protocol (UDP) is a Transport Layer protocol. UDP is a part of Internet Protocol suite, referred as UDP/IP suite. Unlike TCP, it is unreliable and connectionless protocol. So, there is no need to establish connection prior to data transfer.

Though Transmission Control Protocol (TCP) is the dominant transport layer protocol used with most of Internet services; provides assured delivery, reliability and much more but all these services cost us with additional overhead and latency. Here, UDP comes into picture. For the realtime services like computer gaming, voice or video communication, live conferences; we need UDP. Since high performance is needed, UDP permits packets to be dropped instead of processing delayed packets. There is no error checking in UDP, so it also save bandwidth.

User Datagram Protocol (UDP) is more efficient in terms of both latency and bandwidth.