Email-
This service allows users to create, send and receives mail.

Remote access-
These also called network virtual terminal service which allows a user to login into remote machines.

* TCP/IP Reference Model ⟹

① An internet work it is vast collection of interconnected and diverse network.
② This networks contain different type of networks, different data formats, different addressing mechanism etc.
③ The reason that data communication is possible between them is that day use a common Protocol for communication.

History -
① TCP/IP model was built on the ARPANET model, which was developed by advanced research Project agency (ARPA) of the US Department of Defence (DoD).
② To the late 1960's ARPANet was very successful but unable to connect diverse networks.

③ This led to the developement of a new architecture for internetwork.
④ This model was built before the OSI model.

Goals –

① Connect multiple networks in a seamless way.
② The network should be able to survive the loss of subnet hardware.
③ Flexible Architecture is needed since the application on different networks where diverse.

4. Application
3. Transport
2. Network
1. Host to Network

Fig: TCP/IP Model.

1. Host to network layer –
TCP/IP model does not define any Protocol for low level communication.
these layer correspond to physical and data link layers of the OSI model.
It supports any low level communication Protocol

2. Network (internet layer)

1) The requirement to connect multiple diverse network in a seamless manner led to the choice of packet switching network.
2) this network is based on a connectionless communication layer.
3) This layer is called as internet layer.
4) The job of these layer is to transport data packets (datagrams) from the source machine to the destination.
5) This datagrams travel independently. and hence may arrive in a different order than the are send.

Internet Protocol -

1) In the TCP/IP model is internet Protocol (IP).
2) which takes care of addressing and routing the datagrams through the internetwork.
3) hence it's functionality is similar to the OSI network layer.
4) It is an unrealiable connection less protocol and provide best ~~effort~~ effort delivery.
5) It means that the protocol does not take any responsibility for error free delivery

Network layer Protocol -

1) Internet Protocol, ICMP (Internet control message Protocol), ARP (Address Resolution

B.Ramesh
Page No. :
Date : / /

Protocol), DHCP (Dynamic Host Configuration Protocol).

3. Transport (Host to Host) layer

1) This layer which designed to allow communication between peer entities on the source and destination hosts just as in the OSI transport layer. ~~to end to~~ two end to end Protocols are defined in these layer.

TCP (Transmission control Protocol)

1) This is a reliable connection oriented Protocol
2) it ensure end to end error free delivery.
3) it also handels reassembly of Packets at the receivier and flow control.
4) To ensure that a fast sender does not flood a slow receiver.
5) It breaks data into small units called segments.
6) which are encapsulated within IP Packets & transmitted.
7) The receiving TCP reassembles this into a single stream and given them to the application layer.

UDP (User Datagram Protocol)

1) This is an unreliable connection less Protocol.
2) it is mainly used in client server request

reply application.

3) where prompt delivery is more important than accurate delivery. because it is connection less UDP requireless ~~application~~ overhead as compared to TCP

4. Application Layer

1) These model does not have or session or Presentation layer.

2) The application layer contain all higher layer protocols:

For commonly required users. Service like email (SMTP) File transfer (FTP), remote terminal Access (Telnet). Domain name System (DNS) for mapping hostnames to network address access to the world wide web (HTTP)

TCP/IP model Protocol stack -

Application Layer.	SMTP		TELNET		FTP		DNS
Host to Host Layer	TCP			UDP			
Internet layer	ICMP		IP		ARP		
Host to network layer	Lowest level Protocols						