rounding service)

Internet to provide services to end user

TCPITP makes it mor flexible to do so

If protocol is added at alayer it should be designed in a very to use protocols from lower levels.

Dr protocol is removed it should be taken care that higher levels don't use it

Application Layer - do not provide service to one other layer

Standard Application rayer Protocoly

Standardised and documented by internet anthonity.

Each Standard Protocol B a pair of computer programs

that interact with user and transport layer to give

Specific service

if two programs that provide service to user by interesting with transport layer then it is non standard protocol. Any programmes can create their own protocol and doesn't require approved if privately used.

Application Layer Paradigms

i) (lient server

ii) Peer to peer paradigm

Client server
Service provide - server process

server waits for client to make connection

server schooled be running always client only when required

froblem
load on server so if there is heavy traffix it should

be powerful

Service provider -illing to hear ost of powerful compute

ex: UTTPs

Peer to peerAcompater connected to internet can provide service at one time
and received at another or at same time
Problem-

security
applicability-many users not ready too be involved.

ex. Bit torrent

Mixed
Mixture of two

For emple light load server which connects one user to address of other that can offer the service,

* Client Server Paradigm
communication at application layer between two running
application is called processes

Client is running prorum program Mutinitalizes the communication by sending a request a server with For request from client

Server program should be stourted before client program

Application (rogramming Interface
we need a process to be able to communicate with
another process, we need set of instructions to tell
lowest four layers of TCPITP suite to open connection
send and receive duta and close connection. This is
called as an API

i) socket interface ii) Transport layer interface iii) STREAM

socket interface of a set of instruction that provide communication between application layer and os

re can we socket as lage

For two way communication we need address of sender and receiver

Find address

server

remote socket address - give by 0) - It address
remote socket address - This comes from client in packet received

Urent

Local socket eddress -

IP + Port number where program is listening

Using service of Transport Layer
i) TCP
ii) Upp

iii) SCTP

Provides connectionless a datagram service.

Upp 13 message oriented.

Upp 15 best effort

It checks if data is corrupted but doesn't ask to resend the lost or corrupted datagram.

used where speed a priority

	classma	te
0	Date	7
6	rage	

Connection oriented, reliable byte stream

First logical connection a established called handshotting

bytes are numbered go order a maintained

If bytes are lost receives can request for those

It is connection oriented reliable service combination of TCP and upp. It is message oriented It provide multi-stream

* PEER 2 PEER PARADINA

Internet user ready to share resources become peer and join the network

Those peers who have the file make it available for others to download

Lentralised

hybrid 128 network. Information of peer is store on

central directory byt the actual information sharing happens
bet P24. Central server are vulnerable to affaits

The

P2F i) u

fin

a ii) H

Nou

Pit Ax

Set

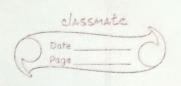
Bit iher swar

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The Peers arranged into overlay network

P2P classified by the structure of overlay networks

i) Unstructured network- nodes are linked randomly. To

find a file a query is sent to all the nodes causing

a lot of traffic

ii) It to Structured - It has predefined rules to link

nodes so that aquery is efficiently resolved

Most common technique - Distrubuted hash table

As peer in which has completed file - seed

A peer which needs file - leech

Set of geers which take part is swarm

Bit Torrent with tracker

ihere is entity called tractor it tracks the operation of swarm

New pers gets metable which contains information of pieces and address of tracker that handles that towent. It joins towent and gets address of neighbours. Now it can upload or download the file

To avoid overloading each peer run have 4 concurrent connection

A peer flag neighbour as choked unablicated interest or not interested unabouted-list peers the current a connected to choked - not connected

Every 10 secs a choked peer in Interested grap is tried for better data rate. If its better it becomes winch oked

every rosec a random peer is promoted from choked to unchoked. This is called optimistic unchoking

It also follows rerest first

Irackerless bittorrent

If bretker hils her box cannot join and updating is
interrapted

In this job of tracking is distributed among nodes

OHT can be used

If he use high function of metadeta extry and

hesh function of lipst of process peers in swarm as

value

ner peer joins and settle they of meta data to

peer if they matches -> file present

The responsible gode sends volve, i.e. actually list

of peers in corresponding torent then peer can

join