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INTRANET

It is a private computer network that uses internet protocols, network connectivity, and possibly the public telecommunication system to securily share part of the /an organisations information or operation within it's employees.

- It uses the same concepts and technologies of internet (client - server) running on the TCP/IP protocol suite.
- HTTP, SMTP, FTP are very commonly used.
- There is no need to install special software on the client ~~sight~~ side.

ADVANTAGES

(1) INTRANET help employees to quickly locate information & applications relevant to their roles and responsibilities.

(2) They have a standard interface which allows access from anywhere.

(3) It can serve as a powerful tool for communication within an organisation both vertically & horizontally.

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EXTRANET (External shareholders)

An extranet is a private network that uses internet protocols, network connectivity, and possibly the public tele communication system to securely share part of an organisation's information or operations within the suppliers, partners, customers, other businesses.

- It can be viewed as a part of the company's intranet i.e. extended to the user's outside the company.
- It is a private network over the internet.
- It requires security and privacy.
- It requires means of authentication to access the information.

ADVANTAGES

(1) It can improve organisation's productivity

(2) It allows information to viewed at times convenient for the external users (cuts down the meeting times).

(3) Information can be updated instantly

(4) It can improve the relationship with the customers.

	INTER NET	INTRANET
(1)	It is a global system of inter connected computer networks that uses the internet protocol TCP/IP to link devices world wide.	It is a private network that is contained within the enterprise.
(2)	Anyone can access the information lying on the internet	only authentic users of the organisation can have the access to informatio
(3)	It is less secure.	It is more secure.
(4)	It is a global system and has large no. of users.	It is a small network and has a limited no. of users.
(5)	It has more traffic because it's a world wide network has more no. of users.	It is minimum traffic as it has less no. of users.

Classless Inter Domain (CIDR)

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NETWORK ADDRESS TRANSLATION (NAT)

There is a problem with IPV4 address that the no. of addresses we have are very limited and ~~are~~ the most commonly used classes are A, B & C (D & E are reserved for big organisation multicast & reserved → defence category respectively). Hence, the no. of addresses were not enough. So we had to use the classless addressing OR CIDR to combine multiple classes together or to break a single class into multiple subnets.

→ there are no A, B, C, D, & E class

* **CIDR :-** Classless Inter Domain Routing
- Also known as subnetting is a method of assigning internet protocol addresses that improves the efficiency of address distribution and replaces the previous system based on class A, class B and class C networks.
- In blocks (Place host ID)
- The address space is limited as the no. of devices are increasing exponentially, also a large no. of addresses are wasted or remain unutilised (of class D & E)
- n.y.z.w/n → mask of no. of 1's
  200.10.20.40/28 → 28 no. of 1's so ~~block ID = 28~~ Host ID = 4

SOLUTION TO THIS PROBLEM

- Make the addresses reusable leveraging keeping ~~the~~ in mind the fact that not all the users or all the devices will connect to the internet at the same time.

32 bit
↓
$2^4 = 16$ addresses

varsha mam in MSCW
varsha mam in Hansraj } → OK ✓
2 varsha mam in MSCW → Not OK ✗

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* **Reusability :-** Same name in different places is easy to recognize. But same name in same organisation is difficult to recognize. So we need a certain level of uniqness ~~of~~ for every individual.

* **REUSABILITY IN IP ADDRESSES**

- We have certain blocks of IP addresses which are called as private IP addresses that are reserved to be reused
- These private IP addresses can be put inside a particular organisation, and same block of IP addresses can be put somewhere else in another organisation,
- But this leads to a problem of routing a pocket.
- This leads to an ambuigity. We can disambiguate the block based on it's location because every organisation has a location which has unique address globally.
- Hence, we require a notion of publically available name or publically available unique address and then the private address inside that organisation which can be reused in multiple places.

NAT DEVICE

- It divides addresses into reusable (private) and non reusable (public).

- Translate private address to public address & vice versa.

- Hide internal machines from the external devices.

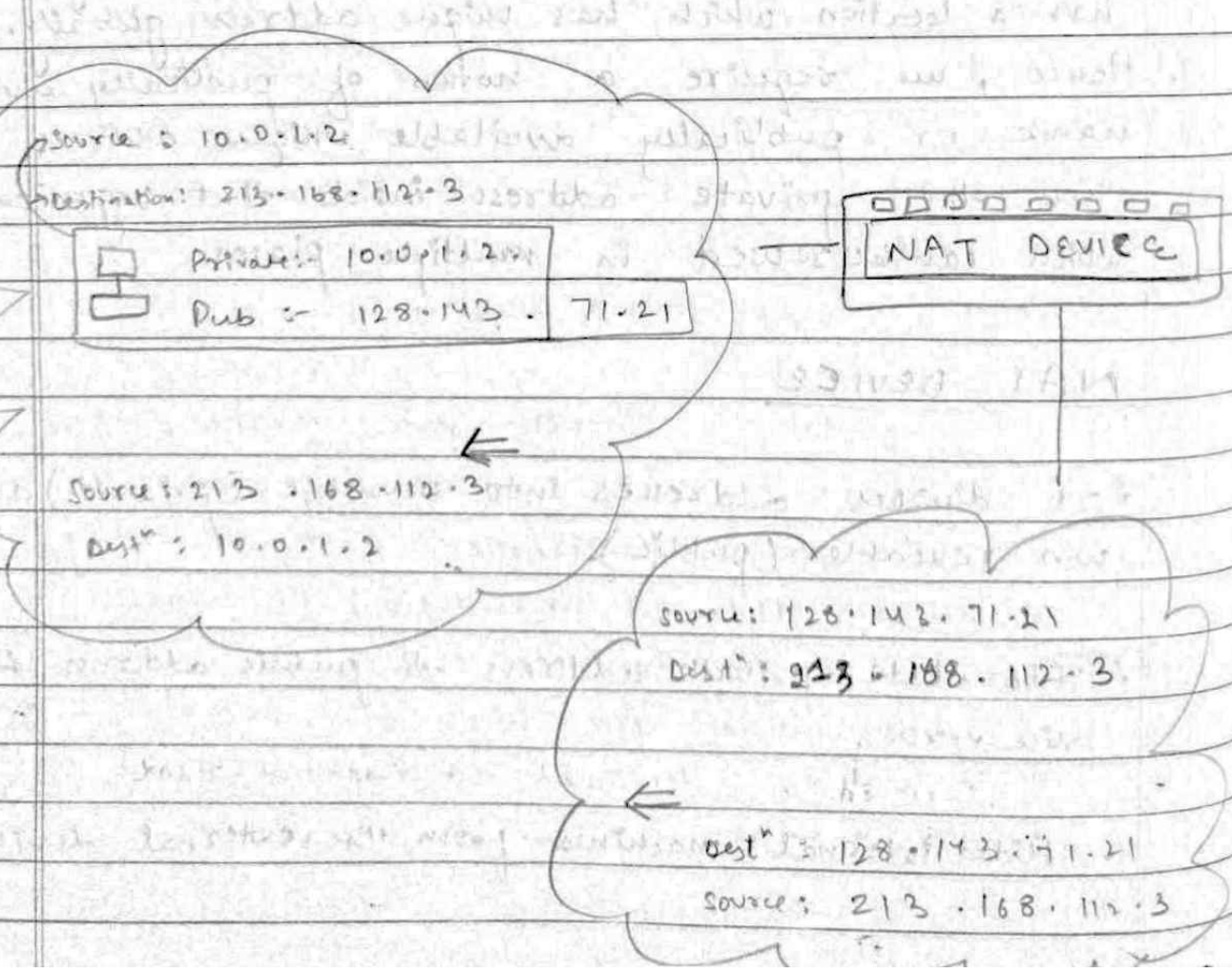
- Allow internet access to large no. of users via ~~pub~~ few public addresses.

RANGE

10.0.0.0 to 10.255.255.255
2^{24} (only class A)

172.16.0.0 to 172.32.255.255
2^{20} (only class B)

192.168.0.0 to 192.168.255.255
2^{16} (only class c)



Guidelines se uthai hai (Link)

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TYPES OF ADDRESSES OF NAT

(1) **INSIDE LOCAL :-** (IL)

- Addresses assigned to inside devices. These addresses aren't advertised to the outside world.

(2) **INSIDE GLOBAL :-** (IG)

- Addresses by which devices are known to the outside world.

(3) **OUTSIDE GLOBAL :-** (OG)

- Addresses assigned to the outside devices these addresses aren't advertised to the inside system.

(4) **OUTSIDE LOCAL :-** (OL)

- Addresses ~~assigned to the outside~~ by which outside devices are known to the inside

- IG mapped to IL & OL to OG
- Static entries are 1-1 mappings of local & global addresses.
- Dynamic entries may be many to 1 or 1 to many.
- Every 1st placed into NAT table, a timer is started; the period of timer is translation timeout

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DOMAIN NAME SERVICE

- Domain names are used to map the domain names to the IP address.
- while accesing any webpage or a website, user never enters ~~the~~ IP address in the browser, they always enter the website name or we can call them domain name.
- There are different types of domain names

ROOT SERVER

[.edu, .org, .in, .com]
.edu → education, .in → india, .com → commercial

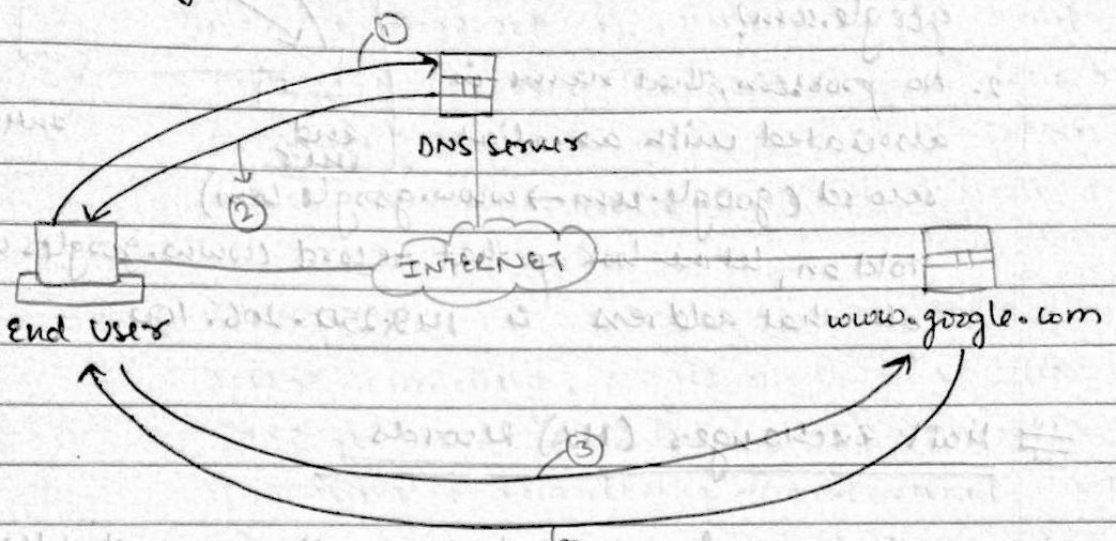
[Class A, B or C] .edu (education) or .org, .in (India), .com (commercial)

- IP addresses are dynamic & static
- Suppose if we have made a website and hosted on a particular server but after a few days we have changed that server so the IP address will change in this case but domain name will remain same.
- Pointer (PTR) Records :- DNS is required to look up an address & find out what name is associated with it

UNIT-1

DOMAIN NAME SERVER

DNS translates an easy to remember site name into an Internet address (IP). eg. 'www.google.com' into '142.250.206.100'.

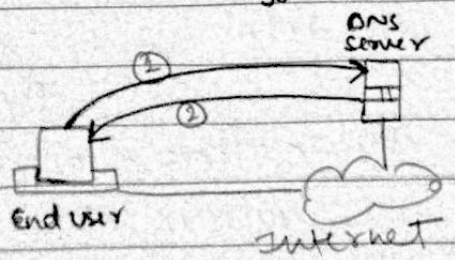


PC asks (at events then PC starts working)

1. what is the address for www.google.com?
2. No problem that address is 142.250.206.100.
3. I would like to access your site! → IP address ke through mangna
4. Ok here are its contents.

PTR / Pointer Records / Reverse Lookup

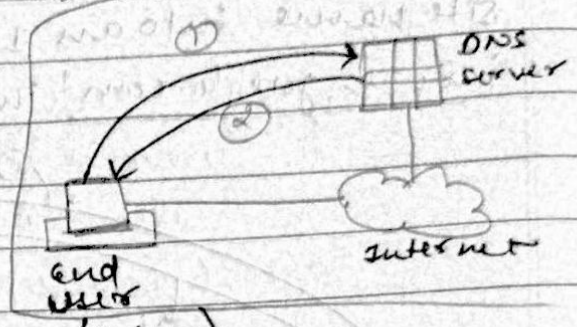
Sometimes DNS is required to lookup an address & find out what name is associated with it, known as reverse lookup. On DNS server, this is configured with a diff. record type called a pointer (PTR) record.



1. what is the name associated with 142.250.206.100?
2. No issues, that name is www.google.com

Alias / CNAME Records

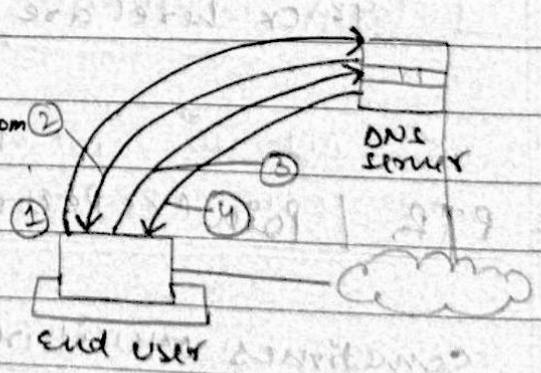
This type of record is used when a site can be accessed by using a no. of diff. names.



1. What is the address for google.com?
2. No problem, that name is associated with an alias record (google.com → www.google.com)
   Hold on, let me look up that record (www.google.com), ok that address is 142.250.206.100

Mail Exchanger (MX) Records

This record is used when sending email b/w users. To determine the server that's used to process mail for a specific domain, a client or the client's server performs a DNS lookup for an existing MX record.



1. I need to send an email to bob@example.com, does example.com have a MX record?
2. No prob, yes, example.com has an MX record. It lists a server name of mail.example.com
3. What is the address record for mail.example.com?
4. No prob, its 10.10.10.200.

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STATIC ROUTING

→ Routers are core of data network. They are the devices responsible for the transfer of packets from 1 network to next.

→ Static routes are very common & don't require same amt. of processing & overhead as dynamic.

⇒ They are manually registered by network administrator (till which network packet will reach).

⇒ It requires 3 components :-

→ Dest^n IP address (Network IP mainly)

→ Subnet Mask of Dest^n IP

→ Next Hop IP Address

DYNAMIC ROUTING

→ They aren't manually done by network administrator.

⇒ It facilitates router to pick & choose the routing path depending on network structure's logical changes in real time.

⇒ Various protocols are used like

RIP (Routing Info. Protocol)

EIGRP | IGRP (Enhanced Interior Gateway Routing Protocol)

OSPF (Open Shortest Path First)

BGP (Border Gateway Protocol)

	Static Routing	Dynamic Routing
(1)	In this type of routing the routes are user defined.	In this type of routing, the routes are updated according to the topology.
(2)	It doesn't use complex routing algorithms.	It uses complex routing algorithms
(3)	It is done manually	It is done automatically
(4)	Less bandwidth is required	More bandwidth is required.
(5)	It is implemented in small network	It is implemented in large networks.
(6)	Route ~~depends on the~~ destn is always ~~same~~ ~~topology~~ same.	Route depends on ~~always the same~~ current topology.
(7)	~~Less~~ More secure	Less secure

IPv6 → 64 bits

UNIT-1

NETWORKING TOOLS

(I) IP config (Internet Protocol configeration command)

- It's a console, app^n of some operating system that displays all current TCP/IP network configeration values.
- It handles DNS settings
- It refreshes Dynamic Host configeration Protocol (DHCP) and Domain Name System
- It displays all IP addresses including IPV4 IPv6 addresses, subnet masks, default gateway for all adapters.

SYNTAX

ipconfig/all → if connected, more ing displayed

(II) Ping

used to verify the reachability of a targeted device, does by sending an Internet control Message protocol (ICMP) echo msg to target. If target receives a msg, it responds to initial sender with an ICMP echo-reply msg.
But when devices use firewall it may not ping so the developer/engineer needs to look/check whether it's due to firewall, or it's an actual problem.

or network design

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WEB SERVERS (web sites / webpages are stored)

- A computer system that hosts website or collection of webpages is called as web servers.

- A web server has to be connected to internet to act as a web server.

- Web servers generally hosts multiple websites but some web servers are dedicated web servers that store only a few website.

web server
- Shared web server
- Dedicated web server

- web pages are a collection of data including texts, videos, images, and hyperlinks, etc. all located on some computer on the internet (web servers kehte hai)

- Web server is a dedicated computer responsible for running websites placed on those computers.

- The communication b/w the web servers & browsers is done using 'http'.

- Web servers deals with 2 different files.
  - → Dynamic webpages (user ke according change ho)
  - → Static webpages

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- Dynamic webpages displays different content for different users while maintaing the same layout & design. They are mostly written using AJAX, ASP or ASP.net.
  Lang / tool

  - Dynamic webpages take more time to load as compared to static webpages. Eg. weather updates, stock prices, news, calender.
  - Dynamic webpages need application programs for different services, server side resources like database → MySQL, web server like APACHE, server side script like PHP and client side script like javascript
  - There are 2 different types of Dynamic webpages

    → client side scripting / webpages :-
    - A webpage that changes to an action within it (client side event) uses client side scripting.
    - These scripts generates client side contents on the user's computers rather than the web server.
    - Eg. VB script and Java script are used.

    → Server side scripting / webpages :-
    - A webpage that changes when it is loaded or visited or based on what is submitted to it,
    - uses server side scripting
    - Eg. Login pages, shopping cards and submission forms. PHP is most popular server side scripting.

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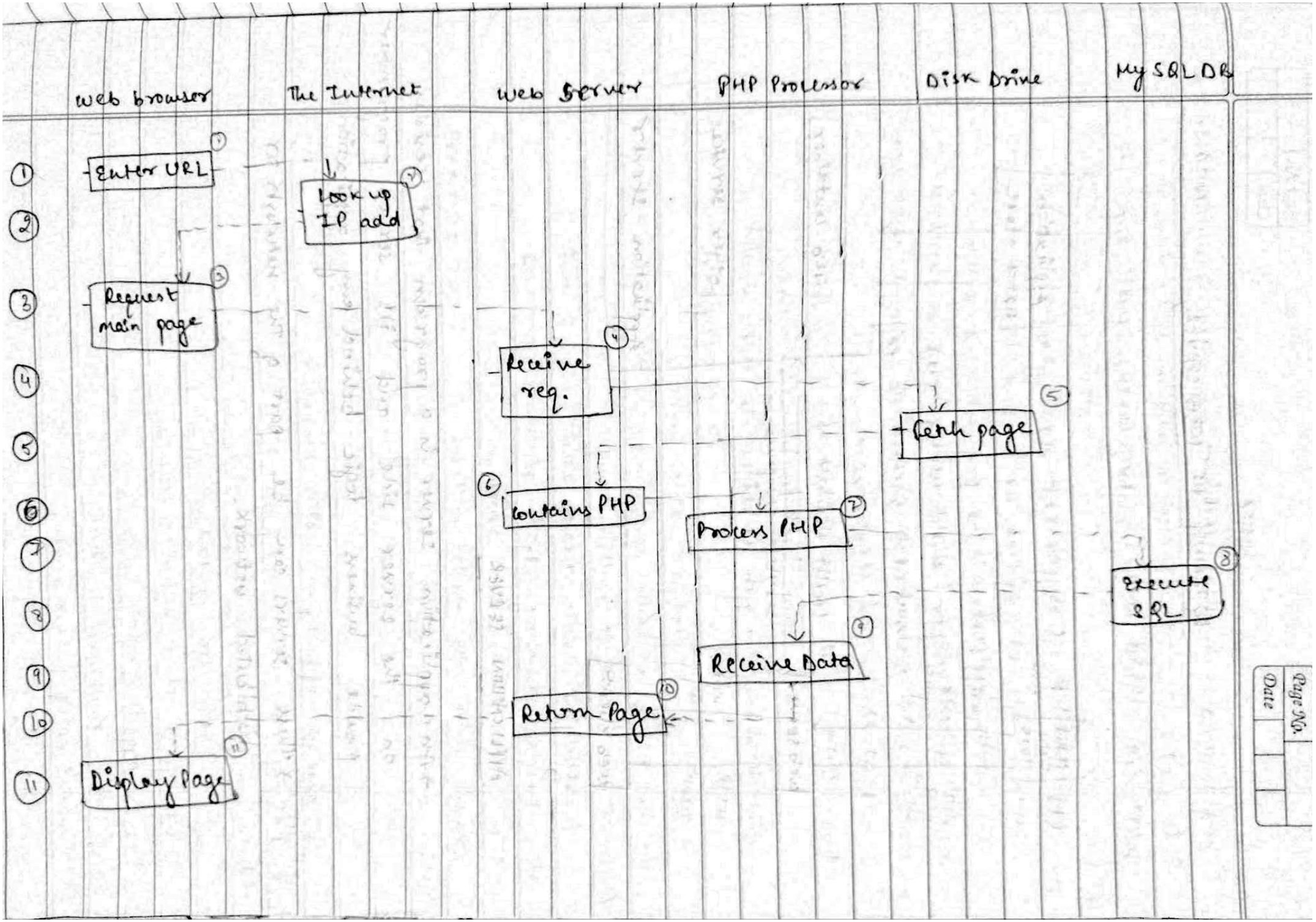
- Web servers not only helps in loading webpages but they also help in email services & storing files for which it uses SMTP & FTP
  Simple Mode Transfer Protocol

- Hardware of the web servers are connected to the internet that manages the data exchange facilities within different connected devices.

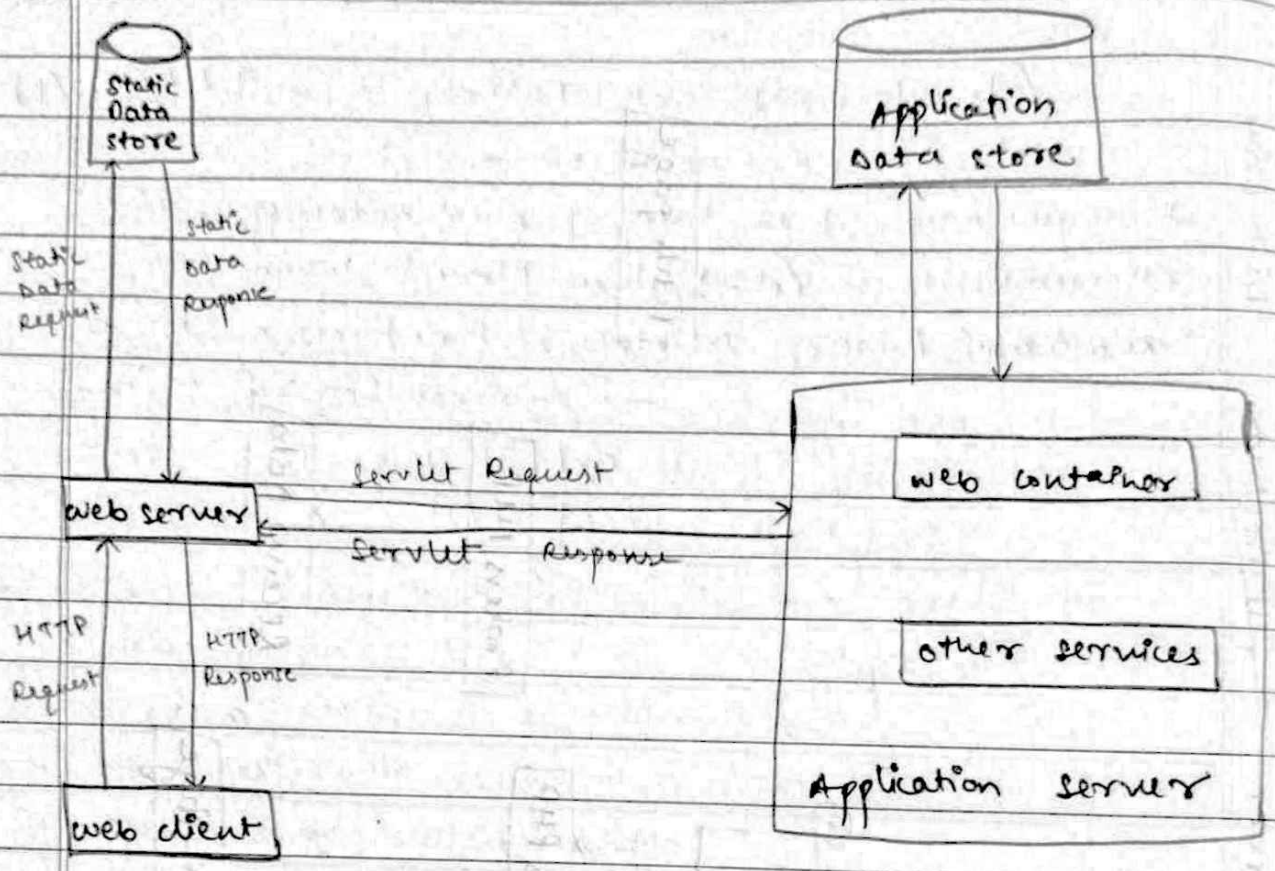
23/8/22 STATIC WEBPAGES

Web browser	The Internet (DNS)	Web Server at server.com	Disk at server.com

1. User enters https://server.com
2. Look up IP address of server.com
3. Request server.com main page
4. Receive req. for index page
5. Fetch index.html from hard disk
6. Return the index page
7. Receive the page & display it


Web browser
The Internet
Web Server
PHP Processor
Disk Drive
My SQL DB
1
2
3
4
5
6
7
8
9
10
11
Enter URL
Look up IP add
Request main page
Receive req.
Fetch page
Contains PHP
Process PHP
Execute SQL
Receive Data
Return Page
Display Page

WORKING OF WEB SERVER



APPLICATION SERVER

→ An application server is a program that resides on the server side and it's server programmer provide business logic behind any application

info from server, diff. country server, maybe diff. server

→ These servers can be part of the network or distributed network.

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WORKING OF APPLICATION SERVER

They are basically used in web based applications that has 3 tier

TIER 1 :-

This is a GUI interface that resides on the client side & that is usually a browser.

TIER 2 :-

This is called as middle tier which consists of application server.

TIER 3 :-

This is the third tier which is backend servers which is databases.

EXAMPLES OF APPLICATION

JBOSS, JRUN, WEBLOGIC, WEBSPHERE & GLASS FISH

SNIPPET

```
<? php
    echo "Today is " . data("l"). ". ";
?>
Heres the latest news
```

Date

SUBNETTING

If process on dif. MAC then we need NETWORKING
otherwise I.P.C of OS is sufficient

web browser → www.google.com

IP sent ↑ ↓ request for IP

DNS server

web browser knows I/P address of DNS
IP config → tells no MAC as well as DNS IP address

IP Address

Net ID — [request goes from client to server]

Host ID — [to reach particular host]

Steps of communication

1. DNS — IP address
2. IP address — | Net Id | Host id |
3. By Net id we reach the n/w where host is placed
4. By Host id we reach host

By port address we reach process

↓

HTTP = Port no. → identifies the process

↓

80

IP Addressing

$2^2, 2^3, 2^4, 2^5, 2^6, 2^7, 2^8, 2^9, 2^{10} \ldots, 2^{20}, \ldots, 2^{30}$

4, 8, 16, 32, 64, 128, 256, 512, 1024 (1 kilo), 1 Million, 1 Giga or Billion

n bit address space, k bits chosen

Address space = 2^k

size = $2^n / 2^k = 2^{n-k}$

- IPV4 = 32 bits
- IPv6 = 128 bits

Q If 8 bits are chosen in IPv4 then how many parts & size are there?

parts = 2^8

size of each = $2^{32-8} = 2^{24}$

ARPANET

Nid	Hid

Acc. to arpa net, 2^8 networks & 2^{24} IP addresses were acceptable. But her wastage of IP addresses was very high ∴ idea was dropped and CLASSFULL ADDRESSING was invented.

		Range of address	Subnet
2^{24} (most bit)	class A	0.0.0.0 – 126.255.255.255	0.255.255.255 — N.H.H.H
2^{16}	class B	128.0.0.0 – 191.255.255.255	0.0.255.255 — N.N.H.H
2^8	class C	192.0.0.0 – 223.255.255.255	0.0.0.255 — N.N.N.H
	class D	224.0.0.0 – 239.255.255.255	Not defined
	class E	240.0.0.0 – 255.255.255.255	Not defined

Mostly used!

Multicast & reserved for defense

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Prefix :-

	1 bit	7 bit	24 bit
class A	0	Network Id	Host id

class B	1	0	Network Bit (14)	Host Bit (16)

class C	1	1	0	Network bit (21)	Host Bit (8)

class D	1	1	1	0	Host bit (28)

class E	1	1	1	1	Host Bit 28

Q Determine class

(a) 10110111100... ⇒ class B (Prefix → 10)

(b) 011011... ⇒ class A (prefix → 0)

NOTE :- 127.00.0 – 127.255.255.255 is reserved for loopback

(c) 0x ABCDE ⇒ A → 1010 → class B

Q 190.40.30.60 class B

Net Id → 190.40.0.0 → not usable

Starting Address → 190.40.0.1 → First host

Ending Address → 190.40.255.254 → last host

Broadcast Id → 190.40.255.255 is not usable

NEED for SUBNETTING

- Reduce wastage :- Helps to conserve IP Addresses.
- Improve Network Performance :- smaller the network, the more you can contain such issues with subnet.
- Isolation :- If 1 subnet is affected the entire network isn't brought down.
- Easy Administration :- Effective, ↓ size of routing table & ensures fluctuation in 1 region don't effect the entire network.

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* A disadvantage is that steps are increased (of subnet)

Q class C 196.0.20.0

(i) How many IP addresses in block?

class C so $2^8 = 256$

(ii) How many host can be connected $= 256 - 2 = 254$

(iii) Divide this n/w in 2 parts!

$\frac{256}{2} = 128$

1) 196.0.20.0 — 196.0.20.127

196.0.20.128 — 196.0.20.255

subnet	Net id	first host id	last host id	Broadcast id
1st	196.0.20.0	196.0.20.1	196.0.20.126	196.0.20.127
2nd	196.0.20.128	196.0.20.129	196.0.20.254	196.0.20.255

NOTE subnetting isn't known to internet It's for internal adjustment only

Q Net ID calculation 10.20.30.40

10.20.30.40

Net Mask ← 255.0.0.0 AND

10.0.0.0 → NET ID

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Q How router forward the packet?

→ On finding NET ID, it search the router table if match is found then it forward the packet from respective port.

Q Calculate DBA Direct Broadcast Address

→ 10 . 25 . 40 . 50 → Class A | 255.0.0.0

OR 0 . 255 . 255 . 255 → wild mask / complement of NETMASK

10 . 255 . 255 . 255

Q IP address 196 . 45 . 96 . 205

(a) 1st IP address (NET ID)

196 . 45 . 96 . 205

AND 255 . 255 . 255 . 0

196 . 45 . 96 . 0

(b) Last IP Address (BA)

196 . 45 . 96 . 205

OR 0 . 0 . 0 . 255

196 . 45 . 96 . 255

(c) 1st address of host = 196 . 45 . 96 . 1

(d) Last address of host = 196 . 45 . 96 . 254

(e) Total no. of IP addressing block = 2^8 = 256

(f) total host block = $2^8 - 2$ = 254.

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Q 2^{22} IP addresses, which class block will be allocated to this organisation also find how many IP addresses will be wasted.

A = 24 ✓

B = 16

wastage = $2^{24} - 2^{22} = 2^{22}(2^{2} - 1)$

$= 3 \times 2^{22}$

To prevent this wastage, ~~both~~ org. can share this block of class A with 3 more organisation. This is known as subnetting

Q Starting address 140.40.0.0 is divided among 8.

Ans $\frac{256}{8} = 32$ $\boxed{\text{class B}}$

1st organisation : 140.40.0.0 to 140.40.31.255

2nd org : 140.40.32.0 — 140.40.63.255

3rd org : 140.40.64.0 — 140.40.95.255

4th org : 140.40.96.0 — 140.40.127.255

5th org : 140.40.128.0 — 140.40.159.255

6th org : 140.40.160.0 — 140.40.191.255

7th org : 140.40.192.0 — 140.40.223.255

8th org : 140.40.224.0 — 140.40.255.255

organisations = $2^8 = 256$

IP addresses = $\frac{2^{16}}{8} = 2^{16-3} = 2^{13}$ (host ID)

256 − 16 = 240 usable IP addresses.

Date

~~HTTP~~

UNIT - 2

HTTP, HTTPS, FTP, SMTP, IMAP, POP3, VoIP

(1) HTTP (Hypertext Transfer Protocol)

(can be HTML files, multimedia files, etc)

→ An application layer protocol used primarily with the WWW (world wide web) in client-server model.

→ It's a standard & stateless protocol & uses port-80.

→ It has 2 versions :-

- HTTP/1.0 [a separate connection was required]
- HTTP/1.1 [same connection can be recycled several times]

→ Supports authentication b/w client - server.

Features of HTTP

- Connectionless :- HTTP request is initiated by browser as per user's request for info., the server proces request & launch back with a response.

- Simple :- typically designed to be plain & human readable. (HTTP/2 does encapsulation of HTTP msgs into frames).

- Extensible / customized :- HTTP can be integrated with new functionality by a single agreement b/w client & server.

- Stateless but not Sessionless :- HTTP is stateless, means there is no connection among 2 requests being consecutively carried out on same connection. But HTTP cookies provide

in making use of stateful sessions. with Header extensibility, HTTP cookies can be incorporated into workflow, making sessions creation on each HTTP request for sharing the same content.

(2) HTTPS (Hypertext Transfer Protocol Secure)

→ A primary protocol that secures communication & data transfer b/w a user's web browser & a website.

→ A secure version of HTTP whereat establishes TCP connection to a particular port on a remote host (port 443 by default). It uses SSL [secure socket layer] & TLS [transport layer security] to provide authentication & data encryption.

→ https = http + Cryptographic protocols.

→ Important when users transmit sensitive data like logging into bank a/c, email service or health insurance

→ This security system uses 2 different keys to encrypt communications b/w 2 parties:-

- The private key :- This key is controlled by owner of a website & it's kept as reader may have speculated, private. this key lives on a web server & is used to decrypt info encrypted by public key.

- Public key :- this key is available to everyone who wants to interact with server in a way that's secure. Info that's encrypted by the public key can only be decrypted by private key.

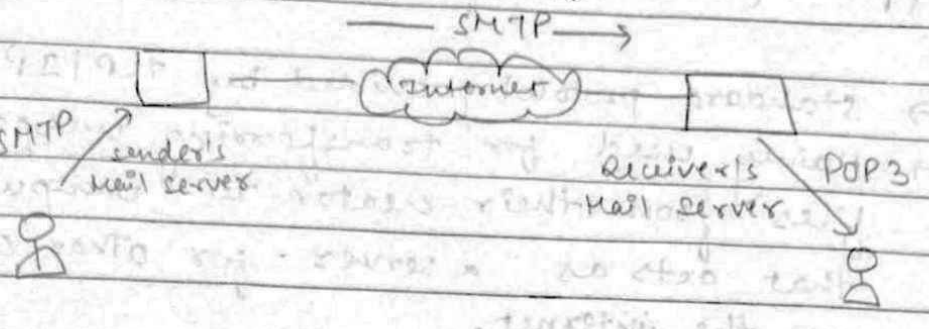
Parameter	HTTP	HTTPS
Protocol	Hypertext transfer protocol	Hypertext transfer Protocol with secure
Port	Port 80 by default	uses Port 443 by default.
security	less secure as data can be vulnerable to hackers.	Designed to prevent hackers from acessing critical info, it's secure against attacks.
Speed	Fast	slower than HTTP
Domain Name Validation	Doesn't need SSL	It requires SSL certificate
operation	operates on TCP/IP	operates using HTTP but uses encrypted TLS/SSL connection

SMTP (Simple Mail Transfer Protocol)

A text-based protocol usually used by 2 mail servers to exchange e-mail. Users can retrieve e-mail from the servers via mail clients such as: Outlook, Eudora or Pine. ~~to send~~ Mail clients use various protocols such as Post Office Protocol 3 (POP3) to connect to server.

SMTP uses well-known ports TCP port 25 & UDP port 25.

POP (Post Office Protocol)

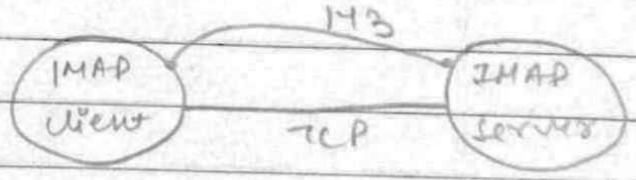


SMTP is a push protocol & POP3 is a pull protocol

POP3:- simple protocol with very limited functionalities. POP3 client is installed on recipient system while POP3 server is installed on recipient's mail server.

IMAP Protocol (Internet Message Access Protocol)

→ An appⁿ layer protocol used to receive emails from mail server.



→ It can operate in any online, offline & disconnected mode.

→ can check email-header, search for contents, create folders to organize mails in a hierarchy, downloads portion of msgs, set msg flags, etc.

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FTP (File Transfer Protocol)

→ Standard protocol provided by TCP/IP
→ Mainly used for transferring webpages files from their creator to computer that acts as a server for other computer on the internet.
→ Used for downloading the files to computer from other servers.
→ Transfers data reliably & efficiently.

24/9/22

UNIT-5

SEARCH ENGINES — COMPONENTS, WORKING, OPTIMIZATION, CRAWLING, BOTS

Google search is a fully automated search engine that uses software known as web crawlers that explore the web regularly to find pages to add to our index.
The vast pages listed are found & added auto when our web crawlers explore the web.

SEARCH ENGINES

A huge DB of internet resources such as web pages, news groups, programs, images, etc. & helps to locate infor. on WWW (world wide web).

COMPONENTS of SEARCH ENGINE

1. Web crawler
2. Database
3. Search Interfaces

□ WEB CRAWLER (Also known as spider or bots)

→ It's a software component that traverses the web to gather information.

Steps (of SE working)

1. Finding out what pages exist on web
   No central registry of all pages, so constantly looks for new & updated pages & adds them to list of known pages.

(already added)

some pages are known & some unknown (discovered when google follows a link from known to a new page) known as URL Discovery. (uses dbs)

2. Visit (or 'crawl') page to find out what's on it? uses a huge set of computers to crawl billions of pages. The fetching is done by Google bot (uses an algo process to determine which sites to crawl, how often & how many)

3. Indexing
After crawling, google finds what the page is about (called indexing), includes processing & analyzing the textual content & key content tags & attributes (<title>, alt, img, etc.)

□ ~~DATA~~ DATABASE

All the information on the web is stored on Database. It consists of huge web servers.

□ SEARCH INTERFACE

This component is an interface b/w user & database. It helps the user to search through the database.

eg. 'Bicycle shops' may give different results in Delhi & New York.

Serving search results :- when the user enters a query our machines search the index for matching pages & gives most relevant pages/results to user.

Page No.
Date

OPTIMIZATION

SEO is process of improving the ranking (visibility) of a website in SE. ↑ website is displayed, ~~the~~ ↑ visitors are expected.
optimizing a website may involve editing content to ↑ its relevance to specific keywords.

* BOTS are used by search engine to crawl websites, check links, retrieve content & update their indicies.

UNIT - 6

COOKIES & SESSIONS

A cookie is an item of data that a web server saves to your computer's hard disk via browser. It can contain almost any alphanumeric info (less than 4 KB) and can be retrieved from your computer & returned to the server.

USES

- Session tracking
- Maintaining data across multiple visits
- Holding shopping cost contents
- Storing login details

THIRD-PARTY COOKIES

Multiple elements on a web page can be embedded from multiple domains, each of which can issue its own cookies. When this happens. They are created by the addressing companies in order to track users across multiple websites.

REQUEST and RESPONSE DIALOG b/w WEB SERVER & WEB BROWSER

1. Browser issues a request to retrieve the main page index.html, at the website http://www.webserver.com.

2. After receiving the pair of headers, the web server returns some of its own. It also sends a cookie with a name & its value.

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Web Browser request Headers	Headers returned by 'webserver.com'
① GET /index.html HTTP/1.1 Host: www.webserver.com	
	② HTTP/1.1 200 OK content-type: text/html set-cookie: name=value ... contents of web page
③ GET /news.html HTTP/1.1 Host: www.webserver.com cookie: name=value	
	④ HTTP/1.1 200 OK content-type: text/html ... contents of web page

3. Once the browser has received the cookie, it will then return it with every future request made to the issuing server until the cookie expires or is deleted.

4. Because cookie has already been set, when the server receives the request to send /news.html, it doesn't have the to resend the cookie, but just returns the requested page.

Difference b/w SESSION & COOKIE

	SESSION	COOKIE
(1)	A session stores the variables & their values within a file in a temporary directory on server	Cookies are stored on the user's computer as a text file.
(2)	It can store unlimited amount of data.	It can store only limited data.
(3)	The session ends when the user logs out from the application or closes web browser.	Cookies end on the lifetime set by the user.
(4)	More secure as data is saved in encrypted form.	Less secure as data is stored in text file.
(5)	Session.start() f^n needs to be called to start the session.	No need to call a f^n to start the cookie as it is stored within the local computer.

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	FORUM	BLOGS
(1)	Forum is user generated content	Blog is an Author generated content
(2)	one can't trust the worthiness of the forum replies	Bloggers tend to build the trust of the readers & share views & ideas that are trustworthy
(3)	easier to generate content.	Need lot of time on research before publishing it.
(4)	Members are all equal. Anyone can start a discussion on a topic.	It's the blogger who starts the topic, & discussion may continue in comments.
(5)	Forum is many to many discussion platform. Any member can create a discussion & others can reply.	Blogs are 1-to-many discussion platforms, even if you consider guest article contribution. Readers express views on the article in comments only.