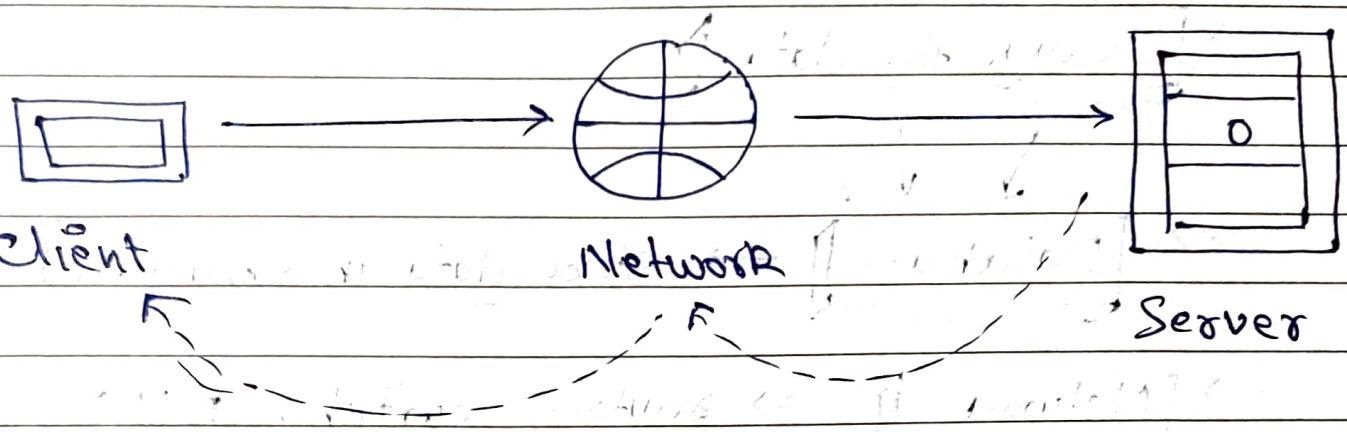
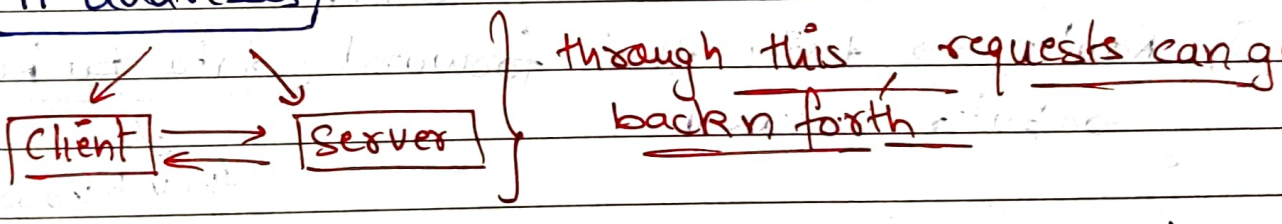
How websites work



=> In order for the client to connect to a server, there is a network b/w them that does the job.

Client can send a request/ data packets through the networks, into the servers.

=> Client & Server navigate each other through IP addresses



ex. Servers are just like network of your mail

↳ How mailing system work!!

Page :
Date :

* What is a server composed of?

→ CPU ⇒ do some calculations & perform operations

→ RAM ⇒ store info & retrieve, very quick

→ Storage for data → unstructured way
- files

⇒ - Database → store data in structured way

→ Network ⇒ routers, switch, DNS server.
↳ networking aspect

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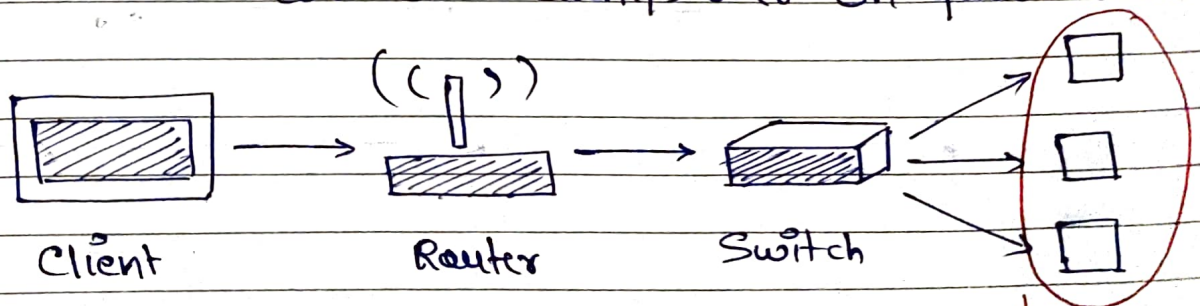
* IT terms :-

(1) Network → cables, routers or servers, connected with each other.

(2) Router → device that forward data packets b/w computer networks.
↳ they know where to send
like a post office

(3) Switch → takes a packet & sends it to correct client/server on your network.



⇒ switch knows to which computer to send the data to

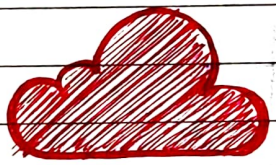
Page :
Date :

* problems with traditional IT approach

→ we were using [physical servers], & increasing their numbers, as the traffic ↑

↳ [Data center] → place for storing / keeping all servers

=> pay for rent
=> power supply
=> scaling limited
=> 24/7 team to maintain
=> disasters?

=> Solution → [Cloud] 

Lecture-2

* Cloud Computing

→ [on-demand] delivery of compute power, dB storage, applications & other IT resources

you get it when you need it

=> pay-as-you-go } => cloud service platform

↳ pay as request or when requested.

↳ when you are done, stop payment!

Page :
Date :

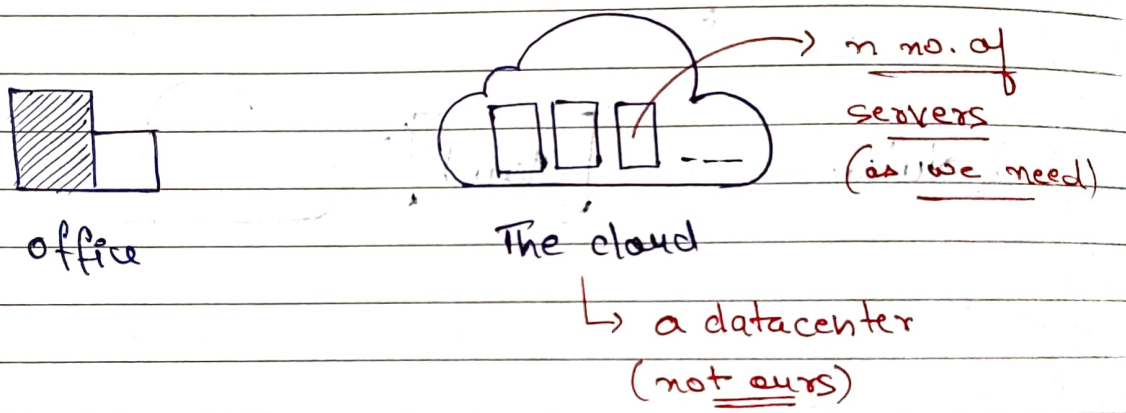
→ provision the right type & size of computing resources

big server Small server --- etc..

→ access as many resources as you need.

↳ simple way to access servers, storage, dBs, services etc.

⇒ AWS ⇒ via a web application



* Cloud Services in real life

Gmail

Dropbox → originally on AWS

Netflix → built on AWS

Page :
Date :

* Deployment Models of Cloud

(1) Private Cloud

↳ used by single org. & not exposed to public

ex rackspace.

↳ security for sensitive apps.

(2) Public Cloud

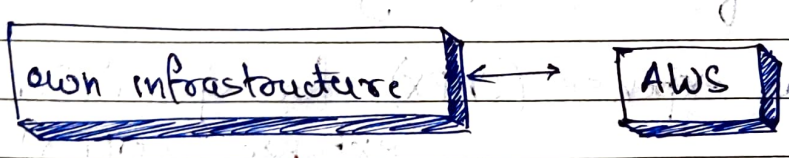
↳ resources owned & operated by a 3rd party cloud service provider, delivered over the internet.

ex Azure, GCP, AWS

↳ Six advantages of cloud computing.

(3) Hybrid Cloud

↳ keep some servers on premises & extend some capabilities to the cloud.

⇒ 

we can store sensitive assets here

Page :
Date :

* 5 characteristics of Cloud Computing

① On-demand self service

② Broad network access

③ Multi-tenancy & resource pooling

↳ multiple customers can share the same infrastructure & applicatn with security & privacy.

④ Rapid elasticity & scalability

↳ automatically & quickly acquire / dispose resources.

↳ ** Quickly & easily scale up ⇒ based on demand

major

⑤ Measured Service

↳ pay exactly for what we used

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* 6 Advantages of Cloud Computing

① Trade capital expense (CAPX) for operational expense (OPEX)

↳ pay on-demand : no hardware

↳ reduced Total cost of ownership (TCO) & OPEX

↳ as just renting from AWS

Page :
Date :

(2) Benefit from massive economies of scale.

↳ prices are reduced as AWS is more efficient due to large scale use.

(3) Stop guessing capacity

↳ scale based on actual measured usage.

(4) Increase speed & agility

(5) Stop spending money for running / maintaining data centers.

(6) Go global in minutes: AWS global infra.