

Cloud computing

Cloud Computing is the delivery of computing services (like storage, servers, databases, networking, software) over the internet (“the cloud”) instead of using local servers or personal devices.

In simple,

Cloud computing means using the internet to store and use files, games, apps, and more — instead of keeping everything on your own computer or phone.

Imagine the "cloud" as a giant **online locker** where you can keep your things (like photos, videos, or homework), and you can open it from **any device** — computer, tablet, or phone — **anywhere!**

Why is it useful?

You don't lose files if your computer breaks.

You can work on the same project from home, school, or a friend's house.

You don't need a super powerful computer — the cloud does the hard work!

Examples:

- Google Drive (for saving documents)
- YouTube (videos stored in the cloud)
- Online games like Minecraft servers

A style of computing in which scalable and elastic IT-enabled capabilities are delivered as a service using Internet technologies.

-- Gartner



Advantages of Cloud Computing:

Cost Savings: No upfront investment in hardware.

Flexibility & Scalability: Quickly adjust resources.

Accessibility: Work from anywhere.

Disaster Recovery: Automated backup and recovery.

Maintenance-Free: Provider handles updates and hardware.

Scalability

- **Definition:**

Scalability is the ability of a system to **handle increasing workloads by adding resources** (like CPU, memory, storage) in a planned way.

- **Types:**

- **Vertical Scaling (Scale Up):** Adding more power (CPU, RAM) to an existing server or VM.
- **Horizontal Scaling (Scale Out):** Adding more servers or VMs to spread the load.

- **Example:**

If your website gets more visitors, you can add more servers (horizontal) or upgrade existing ones (vertical) to handle traffic.

Elasticity

- **Definition:**

Elasticity is the ability to **automatically and quickly add or remove resources based on current demand**.

- **Key Point:**

Elastic systems **scale up and down dynamically** to optimize resource usage and cost.

- **Example:**

During a sale, an e-commerce site automatically spins up extra servers to handle traffic spikes and then reduces them when traffic goes down.

Scalable and Elastic

**TaxSmile — Tax submission portal — On Prem — 2 Servers — Feb
Arch — Apr — Load Testing and Stress Testing — 3 More Servers**

- 1.Approvals from the stake holders — Directors, COO, CTO
- 2.Place the Order — Vendor — Germany
- 3.Retro the servers — **Network Engs** — 24/7 — 3 Teams + 1 Team
- 4.Rent for the room
- 5.Power Supply

Apr — Aug — Traffic will go down

**TaxSmile — Tax submission portal — Cloud Solution — 2 Servers — Feb
Azure Portal — text box — 5 — Save button — 1 min**



This above example shows how effectively cloud solution work

Instead of buying 3 new servers for spike in the month of April - July and leaving the server as ideal servers in other times

Using cloud makes work easier – no rent, no power supply cost, no network engineers, etc...

Just by editing the no of server in azure portal we can handle the spike.

HOSTING TECHNIQUE

On-site	IaaS	PaaS	SaaS
Applications	Applications	Applications	Applications
Data	Data	Data	Data
Runtime	Runtime	Runtime	Runtime
Middleware	Middleware	Middleware	Middleware
O/S	O/S	O/S	O/S
Virtualization	Virtualization	Virtualization	Virtualization
Servers	Servers	Servers	Servers
Storage	Storage	Storage	Storage
Networking	Networking	Networking	Networking
 You manage	 Service provider manages		