What is cloud?

In **simple words**:

Cloud means using **computers, storage, and software over the internet** instead of owning and managing them yourself.

You **rent IT resources** when you need them and **pay only for what you use** ♣□

Cloud (very easy example)

Think of **electricity** □
You don't build a power plant at home — you **use electricity when needed and pay the bill**.

Cloud works the same way:

- No need to buy servers
- No need to maintain data centers
- Use resources on demand

What actually runs the cloud?

Behind the cloud are:

- Huge **data centers**
- **Physical servers**
- **Virtualization**
- **Networking**
- **Storage systems**

Cloud providers manage all of this for you.

Why cloud is used

✔ No hardware purchase
✔ Scales up/down instantly
✔ High availability
✔ Global access
✔ Backup & disaster recovery

Types of cloud (Deployment models)

1 Public Cloud

- Shared infrastructure
- Owned by cloud provider

Examples:

- AWS

- Microsoft Azure
- Google Cloud

Best for: Startups, websites, apps

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2 Private Cloud

- Dedicated to one organization
- More control & security

Examples:

- On-prem cloud using OpenStack
- Private AWS VPC

Best for: Banks, govt organizations

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3 Hybrid Cloud

- Mix of public + private

Example:

- Database on private cloud
- Web app on public cloud

Best for: Large enterprises

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4 Community Cloud

- Shared by similar organizations

Example:

- Govt departments sharing cloud

Types of cloud services (Service models)

1 IaaS (Infrastructure as a Service)

You get:

- VM
- Storage
- Network

You manage OS & apps.

Examples:

- AWS EC2
- Azure VM

2 PaaS (Platform as a Service)

You get:

- OS
- Runtime
- Platform

You deploy code only.

Examples:

- Google App Engine
- Azure App Service

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3 SaaS (Software as a Service)

You use ready software.

Examples:

- Gmail
- Office 365
- Salesforce

Cloud vs Data Center

Data Center	Cloud
You own servers	Provider owns servers
High upfront cost	Pay-as-you-go
Manual scaling	Auto scaling

Cloud + Linux (Important)

Most cloud servers run on **Linux**:

- AWS → Amazon Linux / RHEL / Ubuntu
- Azure → RHEL, Ubuntu

Real-world example

When you upload a photo to **Google Drive**:

1. Photo goes to cloud
2. Stored in data center
3. Accessible from anywhere
4. Auto backed up

Interview one-liner □

Cloud computing is the **on-demand delivery of computing resources over the internet with pay-as-you-use pricing**.