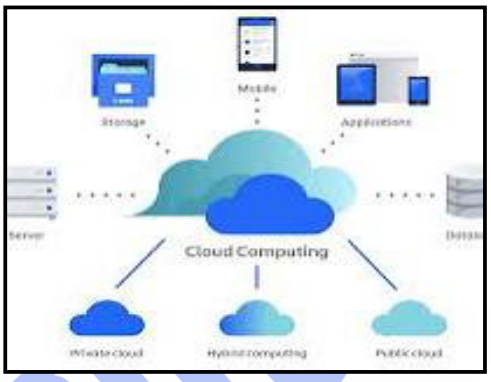
Cloud Storage and Types of Cloud Storage

Module 1 - Cloud Storage and Types of Cloud Storage

What is a Cloud?

The **cloud** is simply a network of computers. It refers to a network of computers owned by one person or company, where other people or companies can store their data.
On your personal machine, everything is stored on one physical storage device – your hard drive.



What Is Cloud Storage?

Cloud storage is a service that lets you save data and files online. Instead of keeping files on your computer's hard drive, you store them on remote servers maintained by providers like Google Drive, Dropbox, or iCloud.

This means you can access your files from any device with internet access, making it easy to share and collaborate with others.

What Is Cloud Computing?

Cloud computing is the delivery of computing services—such as servers, storage, databases, networking, software, and analytics—over the internet ("the cloud"). This allows individuals and businesses to access and use software and hardware that are managed by third parties at remote locations.

For example, instead of installing software on your computer, you can use it online, and instead of buying physical servers, companies can rent computing power from providers like Amazon Web Services (AWS), Microsoft Azure, or Google Cloud

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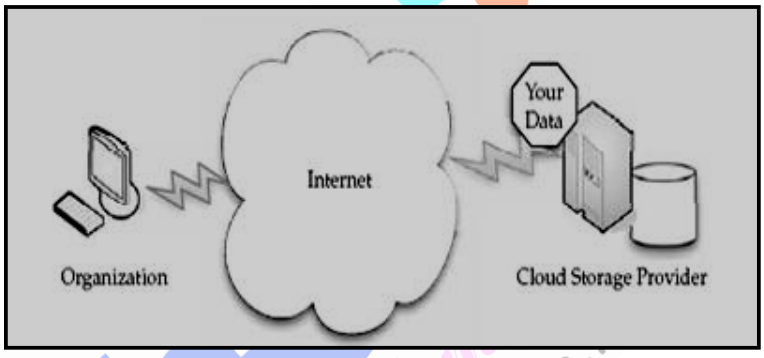
Cloud computing is the delivery of computing services—including servers, storage, databases, networking, software, analytics, and intelligence—over the internet ("the cloud") to offer faster innovation, flexible resources, and economies of scale.

You typically pay only for cloud services you use, helping you lower your operating costs, run your infrastructure more efficiently, and scale as your business needs change.

Key Features of Cloud Storage

1. Remote Access
Cloud storage allows you to access your files from anywhere with an internet connection. Whether you're at home, in the office, or traveling, you can retrieve and manage your data without being tied to a specific device or location.



2. Backup & Recovery
Cloud storage services often include automatic backup options, ensuring that your data is regularly saved and can be restored in case of accidental deletion, hardware failure, or other data loss events. This provides peace of mind knowing that your important information is protected.

3. Scalability
As your data storage needs grow, cloud storage can easily scale to accommodate more files without the need for additional physical hardware. You can increase or decrease your storage capacity based on your requirements, making it a flexible solution for both individuals and businesses.

4. Collaboration
Cloud storage facilitates easy sharing and collaboration by allowing multiple users to access and work on the same files simultaneously. This is especially useful for teams working remotely or across different locations, enhancing productivity and teamwork.

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Difference between Cloud Storage vs. Traditional Storage

Feature	Cloud Storage	Traditional Storage
Location	Data stored on remote servers accessed via the internet	Data stored on physical devices like hard drives or local servers
Scalability	Easily scalable; storage capacity can be increased as needed	Limited by physical hardware; upgrading requires purchasing new devices
Cost	Pay-as-you-go model; operational expenditure	High upfront costs for hardware; capital expenditure
Maintenance	Managed by service providers	Requires manual maintenance and management
Data Sharing	Easy to share files via links or collaboration tools	Sharing requires physical transfer or network setup
Security	Security managed by providers; includes encryption and backups	Security depends on user; risk of data loss if device fails
Speed	Dependent on internet speed; may have latency	Faster access as data is stored locally
Examples	Google Drive, Dropbox, iCloud	External hard drives, USB flash drives, local servers

Types of Cloud Storage:

There are four types of cloud storage are: Public, Private, Hybrid and Community cloud.

1. Public Cloud

- **Definition**: Cloud services offered over the public internet and available to anyone who wants to purchase them.
- **Managed By**: Third-party providers.
- **Key Features**:
  - Cost-effective, as resources are shared among multiple users.
  - Scalable to accommodate varying workloads.
  - No need for organizations to manage physical infrastructure.
- **Examples**:
  - Amazon Web Services (AWS)
  - Microsoft Azure

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- Google Cloud Platform (GCP

🏢 2. Private Cloud

- **Definition**: Cloud infrastructure dedicated solely to a single organization.
- **Managed By**: The organization itself or a third-party provider.
- **Key Features**:
  - Enhanced security and privacy.
  - Greater control over resources and data.
  - Customizable to specific organizational needs.
- **Examples**:
  - An internal cloud system managed by a company's IT department.
  - Private cloud services offered by VMware or OpenStack.

🔄 3. Hybrid Cloud

- **Definition**: A combination of public and private clouds, allowing data and applications to be shared between them.
- **Managed By**: Both the organization and third-party providers.
- **Key Features**:
  - Flexibility to move workloads between cloud solutions as needs change.
  - Optimized performance and cost-efficiency.
  - Enhanced disaster recovery and business continuity.
- **Examples**:
  - An organization using a private cloud for sensitive data and a public cloud for less-critical resources.
  - Microsoft Azure Stack enabling hybrid cloud deployments.

👥 4. Community Cloud

- **Definition**: A cloud infrastructure shared by several organizations with common concerns (e.g., security, compliance).
- **Managed By**: One or more of the organizations or a third-party provider.
- **Key Features**:
  - Cost-effective for organizations with shared objectives.
  - Facilitates collaboration among organizations.
  - Tailored to meet specific community requirements.
- **Examples**:
  - Government agencies sharing a cloud for joint projects.
  - Healthcare organizations collaborating on patient data management.