**Module 1**

**Introduction to cloud computing**

**1. What is Cloud Computing?**

Cloud Computing is a modern technology that allows users to **store, access, and process data or applications over the internet** instead of using a local computer or personal server.

It provides **on-demand computing services** such as storage, databases, networking, software, and servers through cloud providers like **Amazon Web Services (AWS)**, **Microsoft Azure**, and **Google Cloud**.

**Example:**  
Using Google Drive to save files or watching movies on Netflix are examples of cloud computing, as the data and applications are hosted on cloud servers.

**2. Describe Cloud Computing Deployment Models**

Deployment models describe how the cloud environment is used and who can access it.

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| Deployment Model | Description | Example |
| Public Cloud | Cloud services available to the public through the internet. Managed by third-party providers. | AWS, Azure, Google Cloud |
| Private Cloud | Used by a single organization for more control, security, and privacy. | Company’s internal cloud |
| Hybrid Cloud | A mix of public and private clouds that share data and applications. | AWS + Private Datacentre |
| Community Cloud | Shared among organizations with similar goals or requirements. | Government or educational institutions |

**3. What are components of cloud computing?**

The main components of cloud computing are:

1. **Client Devices:** Used by users to access cloud services (like laptops, phones).
2. **Application:** Software running on the cloud (e.g., Gmail, Office 365).
3. **Storage:** Used to store data and files securely in the cloud.
4. **Server:** Handles user requests and hosts applications.
5. **Virtualization:** Allows multiple virtual machines to run on one physical machine.
6. **Networking:** Connects cloud servers, users, and data centers.
7. **Service Models:**
   * **IaaS (Infrastructure as a Service)** – provides virtual hardware and networking.
   * **PaaS (Platform as a Service)** – provides development tools and environments.
   * **SaaS (Software as a Service)** – provides ready-to-use software over the internet.

**4 - cloud computing advantage and disadvantage**

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| Advantages | Description |
| Cost Effective | Reduces hardware and maintenance costs; pay only for what you use. |
| Scalable | Can easily increase or decrease resources based on demand. |
| Accessible | Available from anywhere at any time with an internet connection. |
| Automatic Updates | Cloud providers manage system and software updates. |
| Backup & Recovery | Provides automatic data backup and disaster recovery. |
| Collaboration | Allows multiple users to work together in real-time. |

**5. Disadvantages of Cloud Computing**

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| Disadvantages | Description |
| Internet Dependency | Requires continuous internet access. |
| Security Risks | Data stored on third-party servers may face security threats. |
| Limited Control | Users have less control over infrastructure and data. |
| Downtime Issues | Possible service interruptions or outages. |
| Hidden Costs | Misuse of services can lead to unexpected expenses. |