Cloude Computing
Module -3

- **Different type of cloud storage**

Cloud services have made it possible for anyone to store digital data and access it from anywhere. This means that cloud storage is essentially a virtual hard drive. From saving important data such as word documents, and video files, to accessing the cloud to process complex data and run applications – cloud storage is a versatile system.

- ✓ **Private cloud storage**

Private cloud storage is also known as enterprise or internal cloud storage. Data is stored on the company or organization's intranet in this case. This data is protected by the company's own firewall. Private cloud storage is a great option for companies with expensive data centers and can manage data privacy in-house. A major advantage of saving data on a private cloud is that it offers complete control to the user. On the other hand, one of the major drawbacks of private cloud storage is the cost and effort of maintenance and updates. The responsibility of managing private cloud storage lies with the host company.

- ✓ **Public cloud storage**

Public cloud storage requires few administrative controls and can be accessed online by the user and anyone else who the user authorizes. With public cloud storage, the user/company doesn't need to maintain the system. Public cloud storage is hosted by different solution providers, so there's very little opportunity for customizing the security fields, as they are common for all users. Amazon Web Services (AWS), IBM Cloud, Google Cloud, and Microsoft Azure are a few popular public cloud storage solution providers. Public cloud storage is easily scalable, affordable, reliable and offers seamless monitoring and zero maintenance.

- ✓ **Hybrid cloud storage**

Hybrid cloud storage is a combination of private and public cloud storage. As the name suggests, hybrid cloud storage offers the best of both worlds to the

user – the security of a private cloud and the personalization of a public cloud. In a hybrid cloud, data can be stored on the private cloud, and information processing tasks can be assigned to the public cloud as well, with the help of cloud computing services. Hybrid cloud storage is affordable and offers easy customization and greater user control.

- ✓ **Community cloud storage**

Community cloud storage is a variation of the private cloud storage model, which offers cloud solutions for specific businesses or communities. In this model, cloud storage providers offer their cloud architecture, software and other development tools to meet the community's requirements. Any data is stored on the community-owned private cloud storage to manage the community's security and compliance needs. Community cloud storage is a great option for health, financial or legal companies with strict compliance policies.

- o **What is role base access control and identity and access management and MFA**

Role-Based Access Control (RBAC): RBAC is a method of managing access to resources based on a user's role within an organization. It helps manage who has access to resources, what they can do with those resources, and what areas they can access. RBAC provides fine-grained access management, allowing organizations to control access to resources based on the roles of individual users within the organization.

Identity and Access Management (IAM): IAM is a combination of policies and technologies that allows organizations to identify users and provide the right form of access as and when required. It controls the permissions and access for users and cloud resources. IAM policies are sets of permission policies that can be attached to either users or cloud resources to authorize what they access and what they can do with it.

Multi-Factor Authentication (MFA): MFA is an authentication method that requires the user to provide two or more verification factors to gain access to a resource such as an application, online account, or a VPN. It acts as an additional layer of security to prevent unauthorized users from accessing accounts, even when the password has been stolen.

- **What is physical and virtual host allocation?**

Physical Host Allocation: This refers to the process of assigning physical resources from a host computer to guest virtual machines. The hypervisor, a type of software, manages this process, ensuring efficient allocation of shared physical resources and preventing resource overuse by competing virtual machines. An optimal host allocation and load distribution framework can optimize the placement of virtual machines (VMs) to handle increasing network traffic in data centers.
Virtual Host Allocation: This involves creating virtual machines on physical machines that meet certain conditions, such as memory and software environment configuration. The allocation of virtual machines is based on available hardware and software in the server of data centers. In Infrastructure as a Service (IaaS) mode, all resources are provided in the form of virtual machines (VMs). To achieve efficient resource utilization, reduce users' costs, and save users' computing time, VM allocation must be optimized.

- **How to access resource of cloud computing?**

Self-Service Web Portal: Users can acquire cloud computing resources on a self-service web portal.
Broad Network Access: Cloud computing resources can be accessed by heterogeneous devices. The cloud resources are delivered to users over a network, such as the internet or an intranet, so you can access cloud services or apps remotely on demand.
Software and APIs: Users can access data in Cloud Storage through an internet connection and software such as a web portal, browser, or mobile app via an application programming interface (API).
Resource Provisioning: The allocation of resources and services from a cloud provider to a customer is known as resource provisioning in cloud computing. This involves choosing, deploying, and managing software and hardware resources to assure application performance.

- **Type of backup in cloud?**

Full Cloud Backup: This is a complete copy of your data. It's the most comprehensive and secure solution, but it can be expensive.
Differential Cloud Backup: Differential backups are incremental backups that compare the current version of a file to the previous version of that same file. They only back up the files that have changed since the last full backup.
Incremental Cloud Backup: The incremental backup only saves changes since the last full or incremental backup.

Synthetic Full Backups: Full backups are a combination of incremental and differential backups.

- **What is disaster recovery?**

Disaster recovery is the process by which an organization anticipates and addresses technology-related disasters. The process of preparing for and recovering from any event that prevents a workload or system from fulfilling its business objectives in its primary deployed location, such as power outages, natural events, or security issues. Disaster recovery targets are measured with Recovery Point Objectives (RPO) and Recovery Time Objectives (RTO). The failures handled by disaster recovery tend to be rarer than those covered by high availability and are larger scale disaster events. Disaster recovery includes an organization's procedures and policies to recover quickly from such events.