CLOUD COMPUTING

Cloud: "The cloud" refers to servers that are accessed over the Internet, and the software and databases that run on those servers. Cloud servers are located in data centres all over the world. By using cloud computing, users and companies do not have to manage physical servers themselves or run software applications on their own machine

Cloud Computing means storing and accessing the data and programs on remote servers that are hosted on the internet instead of the computer's hard drive or local server. Cloud computing is also referred to as Internet-based computing, it is a technology where the resource is provided as a service through the Internet to the user. The data that is stored can be files, images, documents, or any other storable document.

The following are some of the Operation's that can be performed with Cloud Computing

- Storage, backup, and recovery of data
- Delivery of software on demand
- Development of new applications and services
- Streaming videos and audio

Working of Cloud Computing:

Cloud computing helps users in easily accessing computing resources like storage, and processing over internet rather than local hard wares.

- **Infrastructure:** Cloud computing depends on remote network servers hosted on internet for store, manage, and process the data.
- **On-Demand Access:** Users can access cloud services and resources based on-demand they can scale up or down the without having to invest for physical hardware.
- **Types of Services:** Cloud computing offers various benefits such as cost saving, scalability, reliability and accessibility it reduces capital expenditures, improves efficiency.

Types of Cloud Computing Services are as follows:

1. Infrastructure as a Service (IaaS)

2. Platform as a Service (PaaS)
3. Software as a Service (SaaS)

1. Infrastructure as a Service (IaaS)

- **Flexibility and Control:** IaaS comes up with providing virtualized computing resources such as VMs, Storage, and networks facilitating users with control over the Operating system and applications.

- **Reducing Expenses of Hardware**: IaaS provides business cost savings with the elimination of physical infrastructure investments making it cost-effective.

- **Scalability of Resources:** The cloud provides in scaling of hardware resources up or down as per demand facilitating optimal performance with cost efficiency.

2. Platform as a Service (PaaS)

- **Simplifying the Development:** Platform as a Service offers application development by keeping the underlying Infrastructure as an Abstraction. It helps the developers to completely focus on application logic (Code) and background operations are completely managed by the AWS platform.

- **Enhancing Efficiency and Productivity:** PaaS lowers the Management of Infrastructure complexity, speeding up the Execution time and bringing the updates quickly to market by streamlining the development process.

- **Automation of Scaling:** Management of resource scaling, guaranteeing the program's workload efficiency is ensured by PaaS.

3. SaaS (Software as a service)

- **Collaboration And Accessibility:** Software as a Service (SaaS) helps users to easily access applications without having the requirement of local installations. It is fully managed by the AWS Software working as a service over the internet encouraging effortless cooperation and ease of access.

- **Automation of Updates:** SaaS providers manage the handling of software maintenance with automatic latest updates ensuring users gain experience with the latest features and security patches.

- **Cost Efficiency:** SaaS acts as a cost-effective solution by reducing the overhead of IT support by eliminating the need for individual software licenses.

Cloud Deployment Models:

Cloud Deployment Model functions as a virtual computing environment with a deployment architecture that varies depending on the amount of data you want to store and who has access to the infrastructure.

Types of Cloud Computing Deployment Models

The cloud deployment model identifies the specific type of cloud environment based on ownership, scale, and access, as well as the cloud's nature and purpose. The location of the servers you're utilizing and who controls them are defined by a cloud deployment model. It specifies how your cloud infrastructure will look, what you can change, and whether you will be given services or will have to create everything yourself. Relationships between the infrastructure and your users are also defined by cloud deployment types. Different types of cloud computing deployment models are:

- Public Cloud
- Private Cloud
- Multi