Introduction to Cloud Computing

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Cloud Computing Architecture

➤ Cloud computing technology is used by both small and large organizations to store the information in cloud and access it from anywhere at anytime using the internet connection.

➤ Cloud computing architecture is a combination of service-oriented architecture and event-driven architecture.

Cloud Computing Architecture

➢ An event-driven architecture is a software design pattern in which microservices react to changes in state, called events. Events can either carry a state (such as the price of an item or a delivery address) or events can be identifiers (a notification that an order was received or shipped, for example).

➢ A Service-oriented architecture (SOA) is a method of software development that uses software components called services to create business applications. Each service provides a business capability, and services can also communicate with each other across platforms and languages.
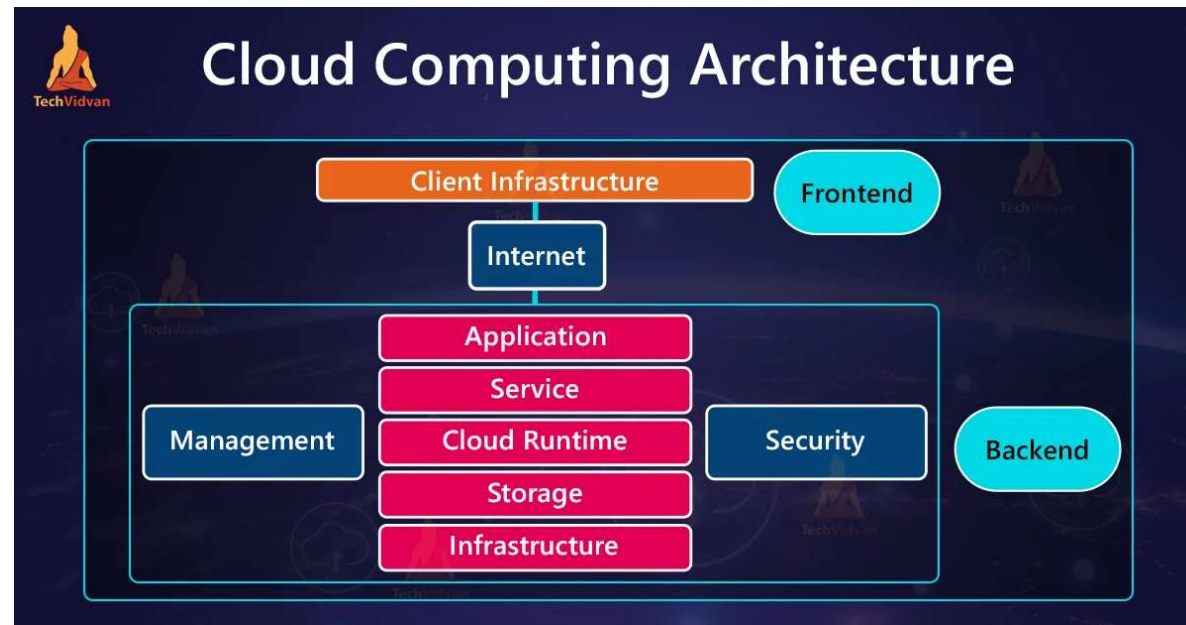
➢ Cloud computing architecture is divided into the following two parts:

    ✓ Front End

    ✓ Back End

Cloud Computing Architecture

Client Infrastructure		Frontend
	Internet	
	Application	
	Service	
Management	Cloud Runtime	Security
	Storage	
	Infrastructure	
		Backend

Front end

Cloud Computing Architecture

➢ The front end is used by the client.

➢ It contains client-side interfaces and applications that are required to access the cloud computing platforms.

➢ The front end includes web servers (including Chrome, Firefox, internet explorer, etc.), thin & fat clients, tablets, and mobile devices.

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Back end

Cloud Computing Architecture

➢ The back end is used by the service provider.

➢ It manages all the resources that are required to provide cloud computing services.

➢ It includes a huge amount of data storage, security mechanism, virtual machines, deploying models, servers, traffic control mechanisms, etc.

Both front end and back end are connected to others through a network, generally using the internet connection.

Components of Cloud Computing Architecture

Cloud Computing Architecture

➢ There are the following components of cloud computing architecture:

➢ Client Infrastructure: Client Infrastructure is a Front end component. It provides GUI (Graphical User Interface) to interact with the cloud.

➢ Application: The application may be any software or platform that a client wants to access.
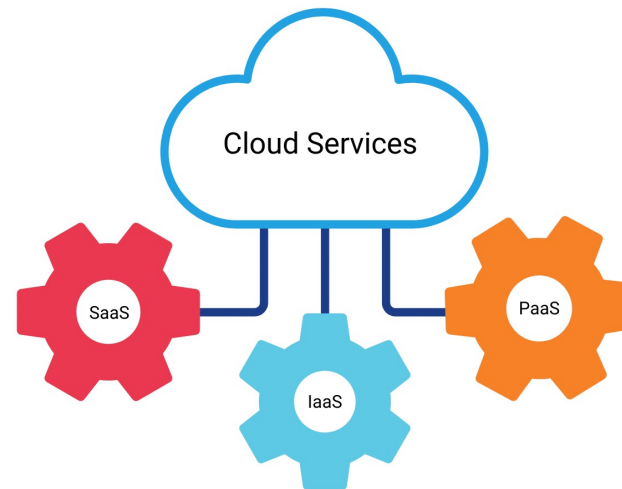
Components of Cloud Computing Architecture

➤ There are the following components of cloud computing architecture:

➤ Service: A Cloud Service manages that which type of service you access according to the client's requirement.

Components of Cloud Computing Architecture

Cloud Computing Architecture

➢ There are the following components of cloud computing architecture:

➢ Runtime Cloud: Runtime Cloud provides the execution and runtime environment to the virtual machines.

➢ Storage: Storage is one of the most important components of cloud computing. It provides a huge amount of storage capacity in the cloud to store and manage data.

Components of Cloud Computing Architecture

Cloud Computing Architecture

➢ There are the following components of cloud computing architecture:

➢ Infrastructure: It provides services on the host level, application level, and network level. Cloud infrastructure includes hardware and software components such as servers, storage, network devices, virtualization software, and other storage resources that are needed to support the cloud computing model.

➢ Management: Management is used to manage components such as application, service, runtime cloud, storage, infrastructure, and other security issues in the backend and establish coordination between them.

Components of Cloud Computing Architecture

Cloud Computing Architecture

➤ There are the following components of cloud computing architecture:

➤ Security: Security is an in-built back end component of cloud computing. It implements a security mechanism in the back end.

➤ Internet: The Internet is medium through which front end and back end can interact and communicate with each other.

Benefits of Cloud Computing Architecture

Cloud Computing Architecture

➤ Makes overall cloud computing system simpler.

➤ Improves data processing requirements.

➤ Helps in providing high security.

➤ Makes it more modularized.

Benefits of Cloud Computing Architecture

➢ Results in better disaster recovery.

➢ Gives good user accessibility.

➢ Reduces IT operating costs.

Cloud Computing Architecture

Cloud Solutions Architect

➤ In the current era of technological change, cloud computing is one of the most sought-after professional options.

➤ According to LinkedIn, Cloud Computing will be the second most in-demand expertise in 2022, and many companies are looking for experts in this field.

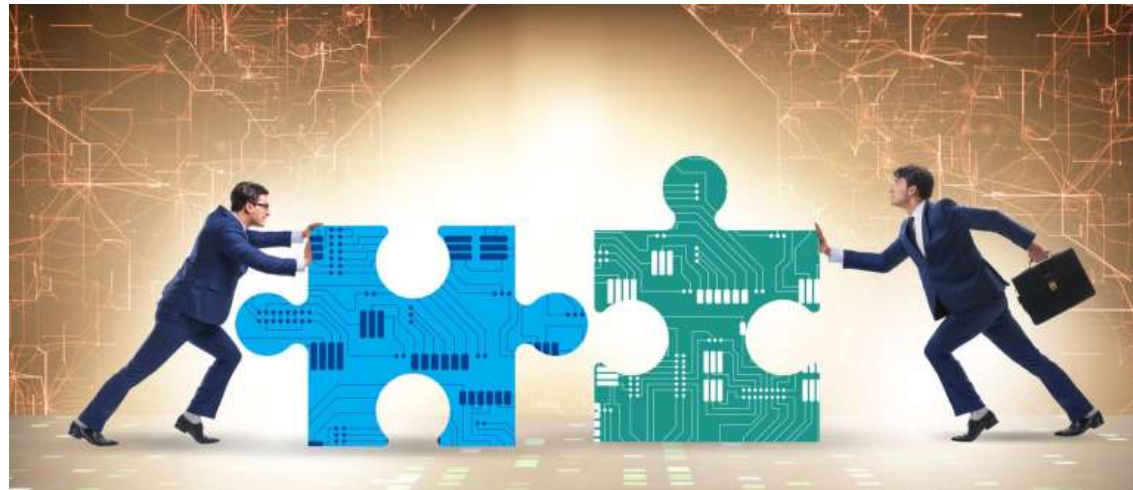➤ Individuals can start off with becoming a cloud architect for a rewarding career.

Skillset For Cloud Architect

Cloud Computing Architecture

➤ To work as an architect, one must have a specialization in Cloud Computing service or IT sector.

➤ Their technological abilities are their most valuable asset.

Cloud Computing Architecture

➢ The following are among some of the Cloud Architect requirements:

- o **Working knowledge** of a cloud service provider,

- o Expertise with a relational or NoSQL **database** is required,

- o **Programming** abilities,

- o **Network administration** abilities,

- o **Containerization** using Kubernetes and Docker,

- o Cloud **hosting** and **security** expertise

Containerization is operating **system-level** virtualization or **application-level** virtualization over multiple network resources so that software applications can run in isolated user spaces called containers in any cloud or non-cloud environment, regardless of type or vendor.

Cloud Computing

Cloud Computing Architecture

Jobs For a Cloud Solutions Architect

➢ These are some of the job titles for the Cloud Architect professionals:

- o Cloud Specialist (AWS, Azure),

- o Service Cloud Architect,

- o Senior IT Architect,

- o Cloud Data Architect,

- o Solutions Architect,

- o Cloud Architect,

- o Security Architect.

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