

# CLOUD COMPUTING

## Assignment - 2

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1. List out the various SaaS architecture?

There are various SaaS (Software as a Service) architectures, but the most common ones are:

(i) Single-instance multi-tenant architecture:

In this architecture, a single instance of the software serves multiple tenants, each having their own set of data and customizations.

(ii) Multi-instance architecture:

In this architecture, each tenant gets its own instance of the software, which is separate from other tenants' instances. This allows for greater customization and security.

(iii) Hybrid architecture:

This architecture combines the single instance multi-tenant and multi instance architecture. In this approach, certain parts of the software are shared among tenants while others are dedicated to specific tenants.

(iv) Micro services architecture:

In this architecture, the software is broken down into small, independent services that communicate with each other through APIs. This allows for greater scalabilities, flexibility and agility.

(v) Serverless architecture:

This architecture is a variant of the microservices architecture that eliminates the need for servers. Instead, the software is run on cloud platforms like AWS Lambda or Azure Functions, and the cloud provider handles the infrastructure and scaling.

(vi) Event-driven architecture:

In this architecture services communicate with each other through events allowing for asynchronous decoupled communication. This allows for greater flexibility and scalability.

### (vii) Container-based architectures:

In this architecture, the software is packaged into containers using tools like Docker or Kubernetes allowing for easy development and scaling.

Each architecture has its own advantage, and the choice depends on factors like the size of the application, the number of tenants, the desired level of customization and infrastructure available.

2. What is meant by PaaS? Discuss its application in the industry.

PaaS, or platform-as-a-service, is a cloud computing model where a third party provider offers a platform for developers to complete development environment including hardware, operating system, middleware, database and programming language support, developers can focus on application development without worrying about infrastructure management.

#### (i) Software Development:

PaaS platform can speed up the development process by providing ready-to-use components, libraries and tools. Developers can build and deploy application faster and with fewer errors.

#### (ii) DevOps:

PaaS platforms can facilitate the integration and delivery of applications, enabling DevOps teams to collaborate more effectively. PaaS can automate the build test and deployment process reducing the time to market.

#### (iii) Big Data:

PaaS can provide the infrastructure for processing analyzing and storing large volumes of data - PaaS platforms can provide services like Hadoop, Spark, NoSQL databases making it easier for business to work with big data.

#### (iv) IOT:

PaaS can provide the infrastructure for IOT applications, enabling businesses to collect, store and process data from connected devices. PaaS platforms

can provides services like device management & data ingestion and analytics.

v. Mobile application development:

PaaS can provide the infrastructure for mobile application development enabling developers to build and deploy mobile applications, quickly and easily.

PaaS offers many benefits to industries by providing a ready-to-use platform for application development and deployment. It enabled faster time-to-market, reduced development and allows developers to focus on building innovative applications rather than managing infrastructure.

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