

Unit - 2

Cloud Computing Service Models

- The most popular services of the cloud are that of either infrastructure, platform, software, or storage.
- The most common cloud service is that one offering data storage disks and virtual servers, i.e. infrastructure. Examples of Infrastructure-as-a-Service (IaaS) companies are Amazon, Rackspace, Flexiscale.
- If the cloud offers a development platform, and this includes operating system, programming language execution environment, database and web server, the model is known as Platform-as-a-Service (PaaS). Examples of which are Google App Engine, Microsoft Azure, Salesforce. Operating system can be frequently upgraded and developed with PaaS, services can be obtained from diverse sources, and programming can be worked in teams (geographically distributed).
- Software-as-a-Service (SaaS), finally, means that users can access various software applications on a pay-per-use basis. As opposed to buying license programs, often very expensive. Examples of such services include widely used **Cloud Write**.

GMail, or Google Docs.

Managed by vendor

PaaS:
Software as a
Service

Applications	Runtimes	Runtimes	Middleware	OS	Virtualization	Servers	Storage	Networking
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Managed by vendor

IaaS:
Infrastructure
as a Service

Applications	Runtimes	Runtimes	Middleware	OS	Virtualization	Servers	Storage	Networking
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not
your
problem

Managed by vendor

On
Premise

Applications	Runtimes	Runtimes	Middleware	OS	Virtualization	Servers	Storage	Networking
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not
your
problem

Cloud Native

Applications	Runtimes	Runtimes	Middleware	OS	Virtualization	Servers	Storage	Networking
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not
your
problem

* Infrastructure As A Service / IaaS :-

IaaS is one of the layers of cloud computing platforms wherein the customer organization outsources via its IT infrastructure such as servers, networking, processing, storage, virtual machines and other resources. Customers access these resources over internet i.e. cloud computing platform, on a pay-per-use model.

IaaS, earlier called Hardware As A Service (Haas), is a cloud computing platform based model.

→ Major IaaS Vendors and Products :

There are many examples of IaaS vendors and products. AWS offers storage services such as Simple Storage Services (S3) and Glacier, as well as compute services, including its Elastic Compute Cloud (EC2). GCP offers storage and compute services through Google Compute Engine (GCE), as does Microsoft Azure.

⇒ Advantages of IaaS Cloud Computing Layer :

- 1) You can dynamically choose a CPU, memory and storage configuration as per your needs.
- 2) You easily access the most computing power available on IaaS cloud platform.
- 3) You can eliminate the need of investment in rarely used IT software hardware.
- 4) IT infra will handled by the IaaS cloud Computing platform vendors.

⇒ Disadvantages of IaaS Cloud Computing layer :

- 1) There is a risk of IaaS cloud computing platform vendor by gaining the access to the organization data. But it can be avoided by opting for private cloud.
- 2) IaaS cloud computing platform model is dependent on internet availability.
- 3) It is also dependent on the availability of virtualization services.
- 4) IaaS cloud computing platform can limit the user privacy and customization options.

* Platform As A Service | PaaS :-

- PaaS cloud computing platform is a developer programming platform which is created for the programmers to develop, test, run and manage the applications.
- A developer is able to write the application as well as deploy it directly into this layer easily.
- PaaS extend and abstract the IaaS layer by removing the hassle of managing the individual virtual machine.
- In PaaS cloud computing platform, back end scalability is handled by the cloud service provider and the end user does not have to worry about to manage the infrastructure.
- All the infrastructure to run the applications will be over the internet.

→ Leading PaaS Vendors :

Google App Engine supports distributed web applications using Java, Python, PHP and Go. Red Hat OpenShift is a PaaS offering for creating open source applications using a wide variety of languages, databases and components.

⇒ Advantages of PaaS :-

- 1) Simplified Development
- 2) Lower risk
- 3) Prebuilt business functionality
- 4) Instant Community
- 5) Scalability

⇒ Disadvantages of PaaS :-

- 1) Vendor lock-in : One have to write the applications according to the platform provided by PaaS vendor so migration of an application to another PaaS vendor would be a problem.
- 2) Data Privacy : Corporate data whether it can be critical or not, will be private so if it is not located within the walls of the company, there can be a risk in terms of privacy of data.
- 3) Integration with the rest of the systems applications : It may happen that some applications are local and some are in cloud. So there will be chances of increased complexity when we want to use data which is in the cloud with the local data.