

AIM: Study of Cloud Computing architecture

1. Definition of cloud: The cloud refers to servers that are accessed over the Internet, and the software and databases that run on those servers.

2. Definition cloud computing:

Cloud computing is the delivery of different services through the Internet. These resources include tools and applications like data storage, servers, databases, networking, and software.

3. Different cloud services:

Cloud computing services fall into 4 categories:

☐ infrastructure as a service (IaaS)

☐ platform as a service (PaaS),

☐ software as a service (SaaS)

I. Infrastructure-as-a-service(IaaS):

IaaS is the most basic category of cloud computing services that allows you rent IT infrastructure (servers or VM's) from a cloud provider on a pay-as-you-go basis.

II. Platform as a service (PaaS) :

Platform-as-a-service (PaaS) refers to the supply an on-demand environment for developing, testing, delivering and managing software applications. It is designed to quickly create web or mobile apps, without worrying about setting up or managing the underlying infrastructure of servers, storage, network and

databases needed for development.

III. Software as a service (SaaS) :

Software-as-a-service (SaaS) is a method for delivering software applications over the Internet as per the demand and on a subscription basis.

4.Types of cloud:

1) Public Cloud – Whole computing infrastructure is located on the premises of a cloud computing company that offers the cloud service.

2) Private Cloud – Hosting all your computing infrastructure yourself and is not shared. The security and control level is highest while using a private network.

3) Hybrid Cloud – using both private and public clouds, depending on their purpose. You host your most important applications on your own servers to keep them more secure and secondary applications elsewhere.

4) Community Cloud – A community cloud is shared between organizations with a common goal or that fit into a specific community (professional community, geographic community, etc.).

5.Advantages of cloud computing:

☐ Cost Savings: Cost saving is the biggest benefit of cloud computing. It helps you to save substantial capital cost as it does not need any physical hardware investments.

❑ Strategic edge : Cloud computing offers a competitive edge over your competitors. It helps you to access the latest and applications any time without

spending your time and money on installations.

❑ High Speed : Cloud computing allows you to deploy your service quickly in fewer clicks. This faster deployment allows you to get the resources required for your system within fewer minutes.

❑ Back-up and restore data: Once the data is stored in a Cloud, it is easier to get

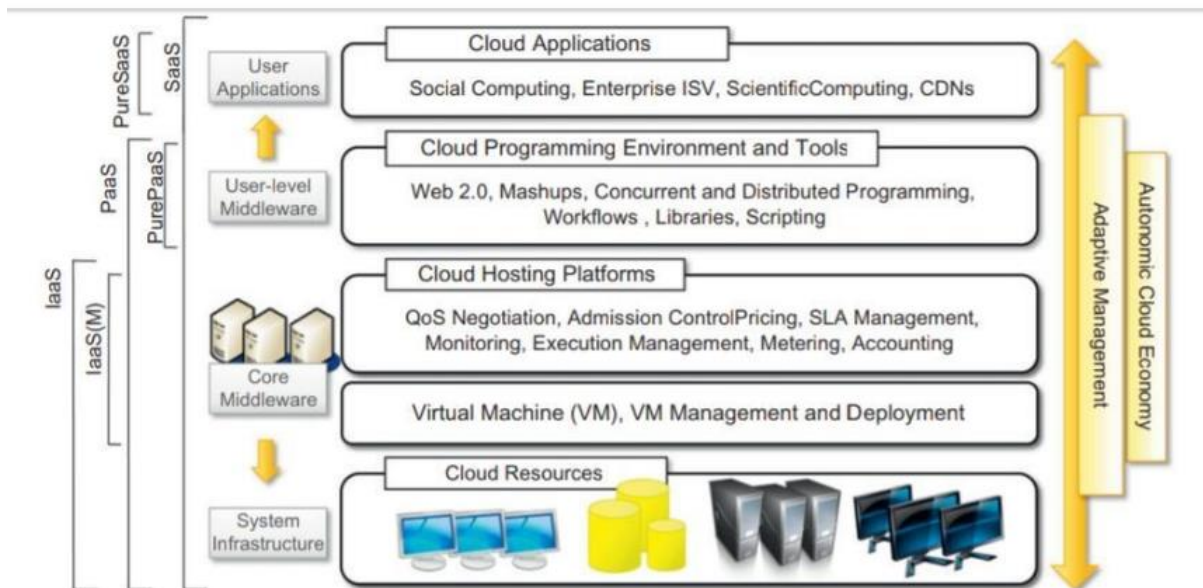
the back-up and recovery of that, which is otherwise very time taking process on-premise.

❑ Automatic Software Integration: In the cloud, software integration is something that occurs automatically. Therefore, you don't need to take additional efforts to customize and integrate your applications as per your preferences.

❑ Reliability: Reliability is one of the biggest pluses of cloud computing. You can always get instantly updated about the changes.

6.Comparison of SAAS,PAAS,IAAS.

features	laas	Pass	Saas
What is offered	Users get the infrastructure such as virtual machines,load balancers,IP addresses and firewalls for them to create a platform which it can use to test applications	Users get a work environment on demand. A platform made of software ,hardware and OS.it is a platform where new codes can be added for the development of the end product on use and pay basis.	The user gets ready to use packages.the pre-configured package is as per user requirement.and the user may or may not have to pay to use the services provided.
importance	Basic layer of cloud computing useful for administrators	The middle layer of cloud computing that enables development of apps	The final product,ready to use package.
Technicalities involved	Deep technical knowledge required.laas is thebasic layer and if not built strongly,it will not be able to support the further development of the service	Medium tech knowledge-how necessary for further development of the service takes place in this layer.	No tech knowledge required.it is the end product.the end user just needs to use the product that has been created.
Deals with	Services,load balancers,network arrays,virtual machines,storage disks	Java runtimes,database like oracle and web servers	Apps like gmail,yahho mail,dropbox and google drive services
examples	Cisco metapod,amazon web services,Microsoft azure	Apprenda,google app engine ,heroku	Google apps,cisco Webex,workday.



The architecture is mainly divides the cloud architecture into two parts:

- 1) Front End
- 2) Back End

Each end is connected to others through a network, generally to the Internet.

Front End

- ☐ The front end is the side of computer user or client.
- ☐ It involves the interfaces and the applications that are necessary to access the Cloud Computing system.

Back End

- ☐ The back end is the cloud section of the system.
- ☐ It involves all the resources which are necessary to give Cloud computing services.
- ☐ It includes huge data storage, virtual machines, security mechanism, services, deployment models, servers etc.

8. Components of cloud computing:

Cloud infrastructure consists of servers, storage devices, network, cloud management software, deployment software, and platform virtualization.

1. Hypervisor -Hypervisor is a firmware or low-level program that acts as a Virtual Machine Manager. It allows to share the single physical instance of cloud resources between several tenants.
2. Management Software-It helps to maintain and configure the infrastructure.
3. Deployment Software-It helps to deploy and integrate the application on the cloud.
4. Network-It is the key component of cloud infrastructure. It allows to connect cloud
5. Server-The server helps to compute the resource sharing and offers other services such allocation and deallocation.