Introduction to Cloud Computing

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Abstract - *Cloud computing it's a type Internet based computing which provides you shared processing resources and data to systems and other devices on respective demand.*

Cloud Computing is a huge scale distributed computing prototype that is manage by economies of scale, in which services are provided on demand over the internet for customers. Central remote servers and Internet are used to maintain application and data in cloud computing. It allows using application without access and installation their personal files on computer with internet access because of which data storage, bandwidth and processing became more efficient.

*Key Words***: Data storage, SaaS, PaaS, IaaS**

1. Introduction

Cloud computing assign remote services with a user's data, computation and software. It is a model which provide on demand access to a shared pool computing resource like servers, storage, networks, applications and services.

Cloud computing and storage solutions provide users and enterprises with various capabilities to store and process their data in third-party data centre's.[1] It depends on sharing of resources to acquire coherence and economy of scale over a network. Due to the advantages like cheap cost of services, high performance high computing power, scalability, accessibility and availability cloud computing has become demanded.
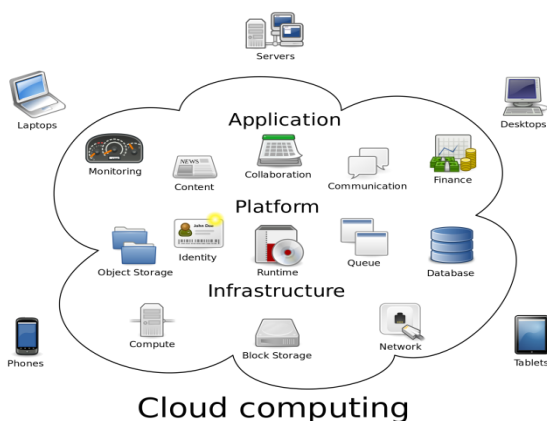

Fig -1: Cloud Computing

2. Why Cloud Computing?

- **Mobilization.** Services that you need are available anywhere in the World.

- **Saves time. :** To avoid hardens like time is needed to get new programs to operate so by using cloud computing you can save time by just accessing computer with internet to view your information needed

- **Going green**. Resources like pooling into a cloud unite energy use.

- **Consumer trends.** Currently most of people are using a source of cloud computing whether it is data storage, software or email this number continues to grow.

- **Cost**: Cloud providers claim cost reduction

- **Device and location independence :** regardless of their location or what device they use users can access systems using a web

- **Maintenance:** cloud computing do not need to be installed on each user computers so maintenance is easy.

- **Productivity** :It is increased because multiple users can work simultaneously on same data

- **Reliability**: with the use of multiple redundant sites reliability improves.

- **Scalability and elasticity** is more because of pooling of data

- **Security** due to centralization of data security can increase

3. Why not cloud computing?

There are some barriers while implementing cloud computing

- Cost - Before you developed your site or application and before launching servers, the cost required is more but once setup is build cost required is less.

- Complexity –sometimes for complex architecture the complexity may increase. Connection Issues

- As cloud require managing of services to sometime during management cloud server can go down

- Cloud Computing Can Have Security Issues

  As you are putting your information online though advanced encryption technique is used sometimes it can be hacked

- Increases Network Latency-Cloud computing require high network speed because we are going to use everything online so because of which some other application speed goes down

- Cyber-attacks-Now a days as cyber attack is increased to storing your data on cloud sometimes can be risky

- Lack of standardization-As there is no clear guidelines for providers because of which proper standardization is not maintain

4. Cloud architectures (Services)

There are different types of service architecture are as fallows

I.) Software as a service
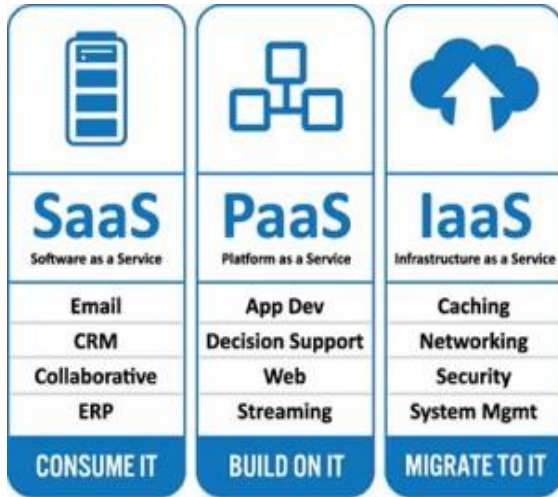II.) Platform as a service
III.)Infra structure as a service

Fig -2: Types of Clouds [7]

i)SaaS(Software as a service)

It is software licensing, in which software is licensed on subscription and then hosted so it referred as on demand software. It can be accessed via web browser[3].It allows you to access at cost than paying for licensed software or application and software is also remotely available so other additional hardware is not required. If we use software as service than there is no need for organization to maintain set up, installation or maintenance .Sometime it is also referred as hosted application

Services provided by community, governments or company provide software solutions to the clients it can be delivered over the network i.e. internet .There are some responsibility of vendors of SaaS for maintaining software as well as hardware components of applications.

They also planned and managed redundancy, recovery and data backup. And software are updated regularly after some time intervals

They also access real time applications which are synchronized from personal computers, Laptops and Smart Phones.

-NO additional expenditure is required

-NO extra investments

-Additional license is not required

-FAST implementation (in weeks)

-Highly available

-NO charges for updragation

-etc

Business utility Saas

Some applications are used by business and individuals for organization and gathering of data. For example the use case of CRM the customer relationships managements so in such cases business utility SaaS can be used.

Social Networking SaaS

As this era is the era of social media some applications like twitter, instagram, facebook etc are use by individuals for sharing information videos etc and networking.

Fig -3: Saas [4]

ii) PaaS(Platform as a service)

It is a cloud computing model that delivers applications over the Internet. The tools are provided by PaaS for software and hardware which are needed for applications developments.

Own infrastructure is provided by PaaS to host hardware and software. All Resources are provided by PaaS and IT team then maintain these resources. A PaaS provider supports all computing and software users only need to log in and start using the platform – usually through a Web browser interface. PaaS is a platform which allows users to run, develop and manage the application without any complexity of maintaining and building the infrastructure. The delivery of PaaS is maintain in two ways such as public cloud service and private cloud service [5][6].Depending upon the platform PaaS has categorized:

Computing Platforms - Platforms such as Snapdeal, Amazon and others Web Services, provide processing, storage and bandwidth as the service. To run the application on their infrastructure user can upload there software.

Business Application Platforms –Some Platforms provide a layer of abstraction from the technical complexities. Custom user interface can be used which will provide higher flexibility with less technical efforts and maintenance

Social Application Platforms –Where developers required writing new application such as Twitter, Facebook, and others they provide APIs to do the respective.
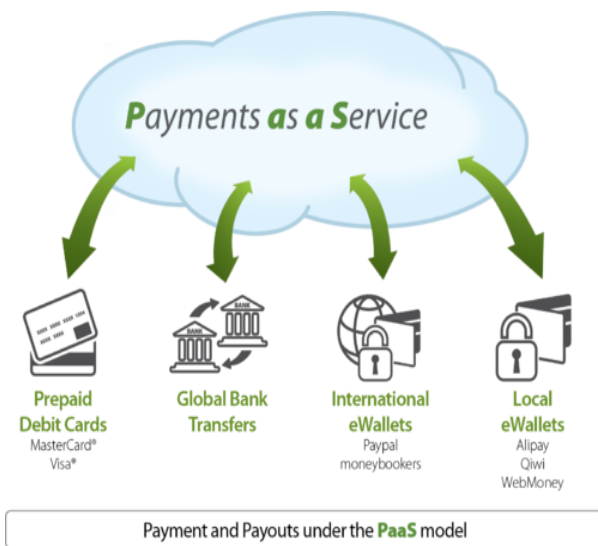

Fig -4: Paas [2]

iii) IaaS (Infrastructure as a Service) IaaS, provides business access to various web architecture, e.g. storage space, servers, and connections, without purchasing and managing this internet infrastructure themselves. This provides benefit to both those who providing the infrastructure and one who using it. In particular, IaaS allows an internet business a way to develop and grow on demand.

A service provided by a group, company, community, government etc that provides basic networking, load balancing, content delivery networks, commodity data storage, routing, and virtualized operating system hosting.

Types of IaaS

There are various types of Cloud IaaS providers. One or more of the following IaaS providers may offer:

- Computing, Storage and Bandwidth
- Resource Sharing
- Development and Test
- High Performance Computing

Various services are provided such as:

- Multiple tenets
- Allows IT to Shift Focus
- Hassle free service.
- Metered Service
- Flexible offering
- Investment Cap.
- Reduces TCO (Total Cost of Ownership)
- Utility Service
- Dynamic scaling

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BIOGRAPHIES

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