

# Cloud Computing Environments and Data Centers

<sup>1</sup>Ansari Faheem, <sup>2</sup>Khushboo Azmi, <sup>3</sup>Mohammed Abdul Quddus

<sup>1</sup>Department of Electronic Science, <sup>2,3</sup>Department of Computer Science

<sup>1</sup>[ansarifah@gmail.com](mailto:ansarifah@gmail.com), <sup>2</sup>[khushboo.azmi@gamil.com](mailto:khushboo.azmi@gamil.com), <sup>3</sup>[msg4aqa@yahoo.co.in](mailto:msg4aqa@yahoo.co.in)

<sup>1,2,3</sup>Poona College of Arts, Science and Commerce, Camp, Pune, India

**Abstract--** In recent era the technology is continuously increases day by day. Therefor the government sectors, private industries /organization and small scale industries are also included to enhance such a technology for motivated the day to day life. In these technologies the most important role is “Social Media Networking” (SMN) and the cloud computing, with the help of cloud computing and SMN the human life interaction and the knowledge resources is become a very important role to manipulate the problems solving regarding any industries is become a very easy, but the other effect of the SMN is to increases the capacity of dataset and also the verities so the every industries and organization is to face the problems for the different types of datasets are generated by the SMN and any sectors. So the effect of all this thinks to increase the cost effectually but all the organization doesn't have to solve the situation because of the resource availability therefor before cloud computing the technology is uses with the help of mainframe servers. In this research paper we will try to learn the uses of the cloud computing and appearance services such, OSS (Operating System Services), SaaS (Software as a Service) platform, PaaS (Platform as a Service) and IaaS (Infrastructure as a Service). We are searching on internet and from business media reports like Forbes, Forrester's, and IDC (International Data Corporation) the number one cloud provider in the world is AWS (Amazon Web Services), With the help of AWS we are try to operate a server with different types of operating systems using data centers of different region.

**Keywords--** Mainframe Servers, VMs, Data centers, Cloud Computing, AWS

## I. INTRODUCTION

One of the first questions asked with the introduction of a new technology is: “When was it invented?” Other questions like “When it was first mentioned?” and “What are the prospects for its future?” are also common <sup>[1]</sup>. It was a gradual evolution that started in the 1950s with mainframe computing. The mainframe servers, multiple users were capable of accessing a central computer through dumb terminals, whose only function was to provide access to the mainframe computers/server. Because of the costs to buy and maintain mainframe

computers/server, it was not practical for an organization to buy and maintain one for every employee. Nor did the typical user need the large (at the time) storage capacity and processing power that a mainframe provided. Providing

shared access to a single resource was the solution that made commodity sense for this sophisticated piece of technology, after these in around 1970 the concepts the VMs is introduced.

## II. VIRTUAL MACHINES (VMS)

Using virtualization software like VMware, VirtualBox, Microsoft Virtual PC it became possible to execute one or more operating systems simultaneously in an isolated environment. Complete computers (virtual) could be executed inside one physical hardware which in turn can run a completely different operating system. The VM operating system took the 1950s' shared access mainframe to the next level, permitting multiple distinct computing environments to reside on one physical environment. Virtualization came to drive the technology, and was an important catalyst in the communication and information evolution. In the 1990s, telecommunications companies started offering virtualized private network connections. Telecommunications companies only offered single dedicated point-to-point data connections. The newly offered virtualized private network connections had the same service quality as their dedicated services at a reduced cost. Instead of building out physical infrastructure to allow for more users to have their own connections, telecommunications companies were now able to provide users with shared access to the same physical infrastructure.

## III. DATA CENTERS

A data center (sometimes spelled *datacenter*) is a centralized repository, either physical or virtual, for the storage, management, and dissemination of data and information organized around a particular body of knowledge or pertaining to a particular business.

The National Climatic Data Center (NCDC), for example, is a public data center that maintains the world's

largest archive of weather information. A private data center may exist within an organization's facilities or may be maintained as a specialized facility. According to Carrie Higbie, of Global Network Applications, every organization has a data center, although it might be referred to as a server room or even a computer closet [2]. The figure below shows the predicted image of AWS data center [3].



Fig 1: shows the AWS data Center

IV. CLOUD COMPUTING

Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction [4]. Cloud has often been used as a metaphor for Internet in the network diagram. Cloud computing is a new IT delivery model accessed over the network (Internet or intranet). The cloud tiered architecture is shown above diagram.

**Software as a service (SaaS).** Applications hosted by a provider on a cloud infrastructure are accessed from thin or thick clients over the network or a program interface (for example, web services). Examples are Google Docs, IBM SmartCloud Docs, IBM SmartCloud Meetings, Salesforce.com, CRM application and so on.

**Platform as a service (PaaS).** Providers deliver not only infrastructure but also middleware (databases, messaging engines and so on) and solution stacks for application build development and deploy. IBM SmartCloud Application Services and Google App Engine are two examples of PaaS.

**Infrastructure as a service (IaaS).** It is the delivery of computing infrastructure as a service. IBM SmartCloud Enterprise+, SoftLayer cloud and Amazon EC2 are some examples of IaaS shown in Fig 2.

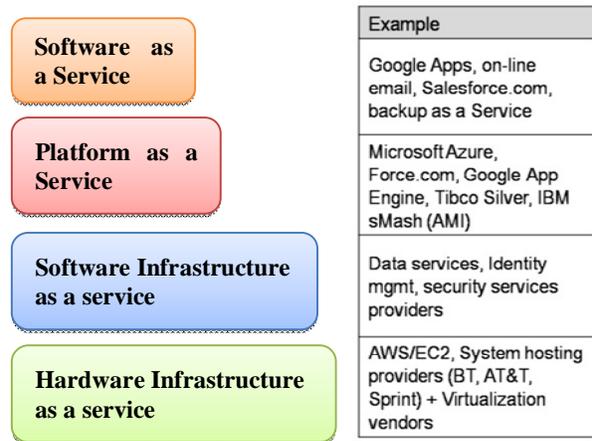


Fig 2: Example of IaaS

There are four major cloud distributions as a follows

1. **Public cloud.**
2. **Private cloud.**
3. **Community cloud.**
4. **Hybrid cloud.**

1. **Public cloud.** This is where computing resources provided by a cloud provider are used by different organizations through public Internet on a pay as you go (PAYG) model. Cloud providers ensure some sort of separation for resources used by different organizations. This is known as multitenancy. Software **Multitenancy** refers to software architecture in which a single instance of software runs on a server and serves multiple tenants.

2. **Private cloud.** This is where cloud infrastructure is solely owned by an organization and maintained either by this organization or a third party and can be located on site or off-site. Computing resources are behind the corporate firewall.

3. **Community cloud.** Here, cloud infrastructure is owned and shared by multiple organizations with a shared concern.

4. **Hybrid cloud.** It is the combination of any type of cloud model mentioned above connected by standardized or proprietary technology.

V. CLOUD PROVIDER

Cloud computing is the compelling paradigm, the mission of the cloud computing is to take computing on retail basis. Cloud is making internet the ultimate resource of all computing needs. The cloud computing services are sold on a subscription or pay per usage basis over internet. AWS, Google, Microsoft Azure, SoftLayer etc. are the predominant cloud service provider. Following figure 3 shows the some cloud services provider.

VI. IT SERVICES FORM AWS

Amazon Web Services (AWS) provides on-demand computing resources and services in the cloud, with pay-as-you-go pricing. For example, you can run a server on AWS that you can log on to, configure, secure, and run just as you would a server that's sitting in front of you [5]. Most of the services from AWS are available for free of cost for 750 hours with some limitation. By using this link <https://aws.amazon.com/> anyone can access IT services by creating account on AWS using account login, following IT services are available on <https://aws.amazon.com/>.



Fig 3: Cloud Service Provider

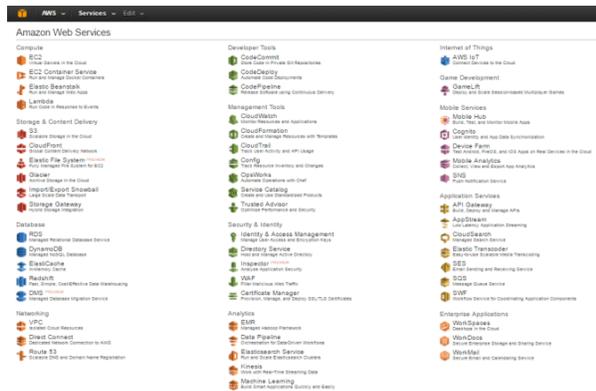


Fig 4: AWS IT services

In these research paper we have demonstrate the use of services such as OSS (**Operating System Services**), SaaS (**Software as a Service**) platform, PaaS (**Platform as a Service**) and IaaS (**Infrastructure as a Service**), with the help of AWS (**Amazon Web Services**) data centers to operate the compute optimize engine EC2 instance using SSH protocol for Linux operating and for windows operating system we can use RDP protocols (**Remote Desktop Protocol**). It provides benefit directly or indirectly to the business environment instead of traditional on-site alternatives.

VII. CONCLUSION

REFERENCES

- [1]<http://www.thoughtsoncloud.com/2014/03/a-brief-history-of-cloud-computing>
- [2]<http://searchdatacenter.techtarget.com/definition/data-center>.
- [3][https://www.google.co.in/search?q=data+centers&biw=1366&bih=667&source=lnms&tbm=isch&sa=X&ved=0ahUKEwiuxO\\_3zLzKAhVSHY4KHXE1AKEQ\\_AUIBygC#tbm=isch&q=AWS+data+centers&imgc=N788xqAPpNgOrM%3A](https://www.google.co.in/search?q=data+centers&biw=1366&bih=667&source=lnms&tbm=isch&sa=X&ved=0ahUKEwiuxO_3zLzKAhVSHY4KHXE1AKEQ_AUIBygC#tbm=isch&q=AWS+data+centers&imgc=N788xqAPpNgOrM%3A)
- [4]<http://www.thoughtsoncloud.com/2014/02/cloud-computing-basics/>
- [5]<http://docs.aws.amazon.com/gettingstarted/latest/awsgsg-intro/gsg-aws-intro.html>