An Overview of Cloud Computing with Various Applications

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Abstract: Now a days cloud computing play very important role in field of various companies, IT industries and different organizations. Cloud computing helps to reduce the cost of organizations and other institutions like infrastructures, software and network. Cloud computing play very important role to make flexible environment for accessing the resources and save the data in secure mode. Now a days uses of clod computing is increasing every day and this recourses are using by various organizations and pay money to services of cloud technology. In this paper emphasized various cloud services provides and services. We have also focued on some cloud services and its security. This paper focus some famous cloud service provides and their features. They have also explore the differences between Amazon, Microsoft and google cloud computing services.

Keywords: Cloud Computing, Cloud Provides, Cloud Services.

1. INTRODUCTION

Cloud Computing (Ahmed M., 2012) [16] environment needs the traditional service providers to have two different ways: Infrastructure and service providers where Infrastructure providers manage cloud platforms and lease resources according to usage. Service providers rent resources from infrastructure providers to serve the end users. Cloud Computing is jointed with facmous companies like Google, Microsoft, and Amazon and today its are very great role in Information Technology industry.

Cloud Computing (Pathak P. et al., 2017) is one of the computing model, not a technology. It is another version of internet technology. In this model "customers" plug into the "cloud" to access IT resources which are priced and provided "on-demand". Essentially, these IT resources are accessible and shared among multiple users. In very easy words we can define cloud computing as it is provider of pooled network resources such as CPU, RAM, Storage, software over the web. These services are easily provides and released on demand. These days hosting companies are provided cloud servers, cloud resources, cloud storage, software hosted on the cloud environment. The business people use cloud in minimum cost they just pay for the storage usage. Cloud Computing combine virtualization (one computer hosting several "virtual" servers), automated provisioning (servers have software installed automatically), and Internet connectivity

technologies to provide the service. These are not new technologies but a new name applied to a collection of older technologies that are packaged, sold and delivered in a new way.

1.1. Types of Cloud Computing

Private cloud: Private clouds (Ahmed M., 2012)[17] are not real examples of cloud computing. Private clouds are more expensive and more secure when compared to public clouds. In private cloud computing ,the computing infrastructure is dedicated to a particular organization and not shared with other organizations.

Public cloud: In Public cloud (Ahmed M., 2012) [17] the computing infrastructure is hosted by the cloud vendor at the vendor's premises. The customer has no visibility and control over where the computing infrastructure is hosted. The computing infrastructure is shared between any organizations.

Hybrid cloud: Organizations (Ahmed M., 2012) [17] may host critical applications on private clouds and applications with relatively less security concerns on the public cloud. The usage of both private and public clouds together is called hybrid cloud. A related term is Cloud Bursting. In Cloud bursting organization use their own computing infrastructure for normal usage, but access the cloud for high/peak load requirements. This ensures that a sudden increase in computing requirement is handled gracefully.

1.2 Types of Cloud Services

There are various services provided by cloud. Most cloud computing services fall into following three broad categories:

➢   **Infrastructure-as-a-Service (IaaS)**

It is the most basic category of cloud computing services. With IaaS, we rent IT infrastructure servers and virtual machines (VMs), storage, networks, operating systems from a cloud provider on a pay-as-you-go basis. (https://www.computenext.com/blog/when-to-use-saas-paas-and-iaas/) [11] Moving down the stack, we get to the fundamental building blocks for cloud services. IaaS is comprised of highly automated and scalable compute resources, complemented by cloud storage and network

capability which can be self-provisioned, metered, and available on-demand.

➢ Platform as a Service (PaaS)

Platform-as-a-service (PaaS) refers to cloud computing services that supply an on-demand environment for developing, testing, delivering and managing software applications. PaaS is designed to make it easier for developers 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.

➢ Software as a Service (SaaS)

Software-as-a-service (SaaS) is a method for delivering software applications over the Internet, on demand and typically on a subscription basis. With SaaS, cloud providers host and manage the software application and underlying infrastructure and handle any maintenance, like software upgrades and security patching. Users connect to the application over the Internet, usually with a web browser on their phone, tablet or PC.

2. SECURITY ON SOME CLOUD STORAGE PROVIDER

Cloud storage is part of an Infrastructure as a Service. In this section discussed some cloud storage like Dropbox, Box and SugarSynand its security.

- **Dropbox:** Dropbox official website (Dropbox, 2014) there are more than two hundred million users in over two hundred countries uploading one billion files every twenty four hours (Dropbox, 2014). Dropbox provides storage services to 4 million businesses of which 97% are in Fortune 500. A drop box used the concept of encryption to secure the files and data from unauthorized access. Data stored on Dropbox servers is encrypted using 256-bit Advanced Encryption Standard (AES). Data is transferred using Secure Sockets Layer (SSL)/Transfer Layer Security (TLS). This secure tunnel is protected by 128-bit or higher AES encryption.

- **Box :** Boxwas founded in 2005 by Aaron Levie, student at University of Southern California and Dylan Smith, student at Duke University (Box, 2014). Business and Enterprise accounts are encrypted using 256-bit AES SSL encryption. It uses 256-bit AES encryption to encrypt and secure information.

- **SugarSync**: SugarSync was founded in 2008(SugarSync, 2014). The company, formerly known as Sharpcast and established in 2004 (Venture Beat, 2009), provides paid-only cloud storage services unlike Dropbox and Box.Transfer of files is secured using TLS/SSL encryption.

3. DIFFERENT CLOUD COMPUTING SERVICE PROVIDERS

There are different types of cloud computing service providers are available, to provide the services of cloud resources.

3.1 Amazon

Amazon is ne of the service providers which provides the all three types of services as Iaas, Saas and Paas. These services are known as different service name. EC2 (IaaS), Amazon Web Services (PaaS), Amazon Web Services (SaaS), S3 (Simple Storage Services).

3.2 Google cloud computing platform

Google Cloud Platform is a cloud computing service byGoogle(https://en.wikipedia.org/wiki/Google_Cloud_Platform) [12] that offers hosting on the same supporting infrastructure that Google uses internally for end-user products like Google Search and YouTube. Cloud Platform provides developer products to build a range of programs from simple websites to complex applications. Google Cloud Platform is a part of a suite of enterprise services from Google Cloud [disambiguation needed] and provides a set of modular cloud-based services with a host of development tools. For example, hosting and computing, cloud storage, data storage, translations APIs and prediction APIs.

3.3 HP Cloud

(https://en.wikipedia.org/wiki/HP_Cloud) [13]HP cloud is type of HP Applications that Transformation to Cloud Services—Delivers design, development, migration, and testing services to enable new and existing applications and business processes to run in the cloud.

4 COMPARATIVE ANALYSIS OF CLOUD COMPUTING SERVICES

In this research work we have compared various cloud computing services as shown in table 1.

Table 1: Comparative analysis of cloud computing services

Parameters	Amazon	Microsoft	Google
1. Cloud platform	Amazon Web Service	Microsoft Azure	Google AppEngine
2. Year of Launch	2006	2009	2008
3. Model Type	IaaS, PaaS	IaaS, PaaS	SaaS, PaaS
5. Storage Services	Amazon Simple Storage Service, Amazon Elastic Block Store, Amazon Elastic Cache, Amazon Cloud Front.	Blobs, Azure Drive, Tables, Queues.	Static File Server, MemCache.
6. Database Services	Amazon Simple DB, Amazon RDS.	SQL Azure	Data Store.
8. Cost Model	There is no minimum fee and it varies from region to region	Pay-as-you-go, then subscription	Charged on pay-per-use basis and per-minute quotas.
9. Supported Environment	Red Hat Enterprise Linux, Windows Server 2003∕2008, Oracle Enterprise Linux, Microsoft SQL Server Standard 2005,Fedora, Gentoo Linux	Operating system , Windows 7, Windows Server 2008, Windows Vista	Java Runtime Environment, Python Runtime Environment

5   CONCLUSION

Cloud computing provides the platforms to store the data or information in safty and secure manner. This paper explore the basic application of cloud computing, types of cloud computing, and services provided by the cloud computing. Cloud storage is part of an Infrastructure as a Service. This paper discussed some cloud storage like Dropbox, Box and SugarSyn and its security. There are hundreds and thousands of cloud service providers are available to provides the services. In this paper we have also Compared with Amazon, Microsoft and Google Cloud Services using various parameters.

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