

A Detailed Study on Cloud Computing Challenges and Cloud Vendors: Azure and AWS

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Abstract: Cloud computing is one of the emerging technologies where the data can be accessed from anywhere. Cloud computing provides various types of services so that the users are easily attracted to this growing technology. The cloud service providers (CSP) provide the users with the software and hardware stored at some remote locations which are controlled by the third party. The third party does almost everything. User had to just plug in and use the resources and data. It is better to pay and use the resource based on our needs unless to buy the resource permanently. As the cloud technology is growing the user had to face lot of issues and challenges. But even a small company is going to change their existing working environment to cloud environment. In this paper we discuss about various issues and challenges in cloud computing and detail study about various cloud computing vendors.

Keywords: Cloud computing, CSP, AWS, Azure, Migration, IaaS, PaaS, SaaS.

1. INTRODUCTION

In cloud computing technology the most tedious job is keeping the data secure. The main constraints like data storage, data security, and data integrity and data confidentiality were managed by the cloud service provider (CSP).The CSP reduce the user burden. The user need not aware of these data constraints. Even though cloud computing stand unique, it emerged out from grid computing. Almost all big and small companies use the cloud computing technology. It is very difficult for the small companies to purchase new hardware and software when they need some extra storage space. If the data is outsourced, the cost of storage will be less. Also maintaining the data will be an easy task. The method of making the multiple copies of data makes the data easily retrieved if any hardware failure occurs, which results in data loss.

2. CLOUD COMPUTING CHALLENGES:[4]

1. Access: Data access is one of the main challenges in cloud computing environment. In some cases the data owner or a third party will restrict the data access for particular users. But still some unauthorized users access the data. It will result in data alteration or changes in data. These altered data will be stored in cloud. It makes a big issue for the client.
2. Availability: As we know, in cloud computing we can share resources, storages etc.If a client needs a data from cloud, it should be available to them without any changes or alteration.
3. Data Integrity: Data integrity means providing the overall accuracy and consistency of the data. It means verifying the data for any change.
4. Data Confidentiality: It means preventing the data from unauthorized access. Only the authorized persons can access the data.
5. Data Storage: The data storage is managed by the CSP.The user never get a chance to know where and how the data is stored in the cloud.
6. Managing Cloud Spending: Most of the companies are wasting their money by spending a huge amount for cloud environment. It will become a big financial burden for the company. The employees will sign up a cloud account for some short span. But after their usage they forgot to turn it off.

7. Lack of trained professionals: The organization will try hard to get employees having cloud computing skills. Some companies were providing cloud training for the existing employees.
8. Managing Multi-cloud environment: Most companies use single and multi cloud environments. To maintaining this is a tedious task. Employees should be trained well to manage the cloud environment.
9. Migration: The recent development of cloud technology makes even small companies to change their existing system to cloud. The study shows 62% says it is difficult one. 64% says migration took more time than they expected. 55% says it exceeded their overall budget. Even though there is lot of issues for migration the companies are ready to face the issues. By making the companies or organization in to a cloud environment they can get lot of services.

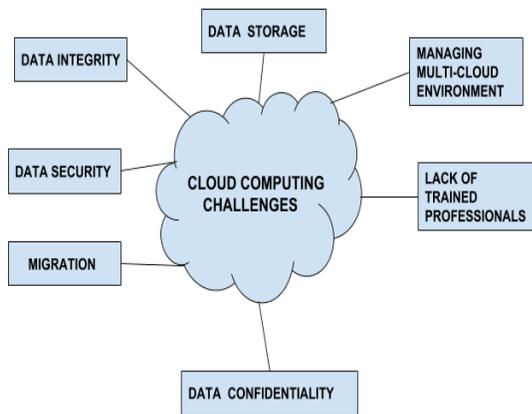


Fig 1. Cloud computing Challenges

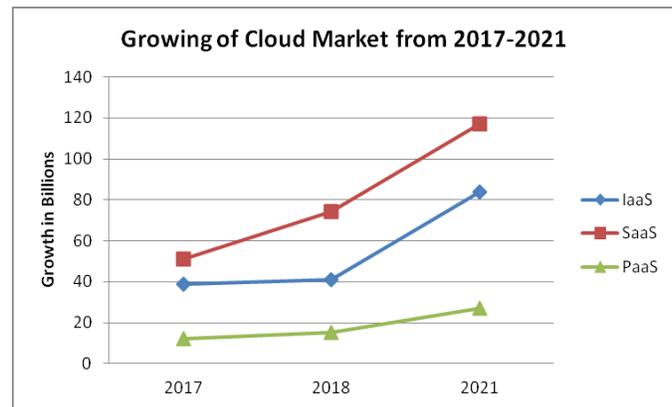


Fig2 Cloud computing growth over the years

3. CLOUD VENDORS

The Company which provides IaaS, SaaS, PaaS services to other businesses or individuals is called Cloud Service Providers. Most of the companies with network connectivity access the cloud services which are hosted in data centre. The CSP will provide various services for the companies. The companies will purchase the service from CSP instead of building their own cloud infrastructure to support various cloud services. The three main forms of cloud services are IaaS, SaaS, and PaaS. The top cloud computing vendors are Microsoft Azure and Amazon WS.

3.1 Microsoft Azure:

Microsoft Azure.[1] contains some important set of cloud eservices to make our organizations more comfortable to face business needs. Azure helps to make our services success with more than 100 end to end tools. It creates some intelligent applications with the help of some powerful data. It is more easy and fast to develop mobile, web and IOT applications with azure. The group of datacenter in MS Azure helps to make the application to develop fast, debugging and iteration. Applications are managed easily with the help of data centre. Azure helps to develop application with any tools and framework. It can be implemented with the existing system. Azure is more flexible and interoperable to build new applications.

3.2 Amazon AWS:

Amazon AWS is one of the most secure cloud platforms with function like delivery of content, data storage, computing power etc[2]. For companies and organizations AWS provide on demand cloud computing platform. The first company which offer pay- as-you- go model is AWS. For providing virtual servers they have EC2. For data backup AWS provides Simple storage service (S3). For managing

databases they have Amazon Relational Database Service. It offers a wide range of IOT and AI based applications.

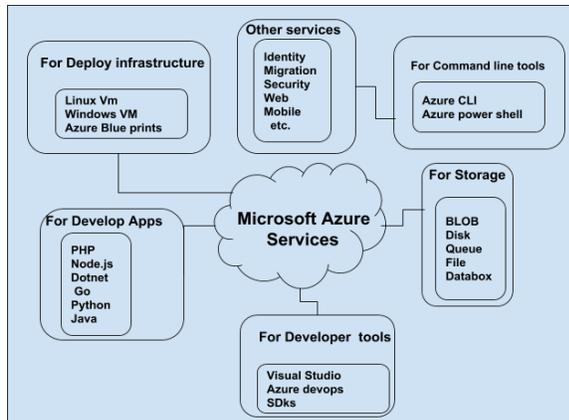


Fig2: Microsoft Azure services

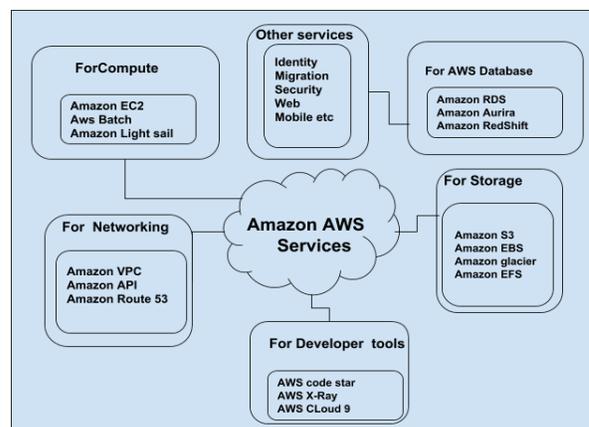


Fig3: Amazon AWS Services

Table1: Shows comparison of Azure and AWS.[3][2]

S. No	Features and Characteristics	Azure	AWS
1	Company	Microsoft	Amazon
2	Security	Multi level- SSE (Storage Service Encryption)	Data Encryption for S3
3	Other Network Connection	Using Azure Virtual network	Using IOT
4	Manage and deploy applications	Controlled by Azure Monitor	Controlled by Cloud Watch
5	ISO27001 Certified	YES	YES
6	User and Group Creation	Uses Azure directory service	Uses IAM service
7	Support Multi factor authentication	YES	YES
8	SSL	Support SSL by Microsoft App Service	Support SSL by AWS Certificate manager
9	Analyze cloud Configuration and security settings	By Azure advisor	By Trusted advisor
10	Manage Multiple account	By Azure Subscriptions	By AWS organization Subscriptions
11	Pay or Cost	Less	Expensive
12	Developer Tools	Visual studio, Azure devops	Code star, Cloud 9
13	Storage	BLOB, Disk, Queue, File	S3, EBS
14	PaaS	Cloud Services	Elastic Beanstalk
15	Network	VNET	VPC
16	Pay and Use Charge	Per Minute	Per Hour
17	Usage Plan	Flat monthly rate	Sliding Scale monthly rate

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