

Amazon Web Services

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Abstract -- AWS started offering its cloud services in 2006 as web services also known as cloud computing. It benefits with decreasing the investment over the infrastructure like computer systems and various gadgets or electronic items. But its cost for its services but it's lesser than the expenditure spent before. AWS provides 12 months free subscription to every user but after these 12 months the user has to pay for it. AWS is growing fast and the leading the market.

Index Terms— EC2, Route53, Cloud Computing, S3 bucket, Elastic Load Balancing.

I. INTRODUCTION

The computing which uses internet and browser to share information, computer resources and software and other computing thing on the demand of user. Through this the user can access cloud computing anytime at any place and through any devices like mobile phones and desktops. The current leading cloud providing companies are Amazon, Sales force, Microsoft, Google and IBM. Cloud handles big data on demand of the user and this paper includes the various sub services of AWS and comparisons with other cloud services.

The sections of this paper are: Section 2 includes description about AWS sub services, section 3 includes the algorithm and the major problem of Amazon EC2 and section 4 includes the proposed paper work and last section includes conclusion and references.

II. AMAZON WEB SERVICES

Amazon Web Services provides various sub services like: EC2, S3, RDS, ELB, and Route53.

1. Amazon EC2:

It is a sub service of AWS. It provides user to launch instance and the instance works as infrastructure or environment where the user can get the environment

to store the whole data he wants to access anywhere. The environment will be similar to the system. The user can deploy all his software and data over there and can use it at any time.

User can delete that virtual machine too and the operating system he/she wants he/she can make instance of that particular operating system. Some are available for free for some time but some are available on paid basis. The data on instance is stored on server at data center. It allows selecting CPU, memory size and type, storage size.

Benefits of EC2:

1. Instances are available on demand of user.
2. User can have the operating system according to his choice.
3. Scalable.
4. It provides flexible hosting.

2. Amazon S3:

It's known as simple storage service. It provides user scalable and secure storage. It is easy for user to use.

User can store data anywhere anytime and can retrieve too. The user just needs to create his own bucket first and then you can upload your data in that bucket.

3. Amazon Route53:

It is a Domain Name System also called as DNS. It is scalable web service. It provides users or developers to route to end user so that he/she can access Internet application.

The connection between AWS infrastructure and user is established by Route53.

It also registers for domain name where user can purchase the domain name and manage it.

4. Amazon RDS:

RDS stands for Relational Database Service. It is easy to use and handle data and operate over it. User can easily focus on application. You don't have to put efforts on database administration like backing up data, scaling and monitoring.

In Relational Database Service it provides you various database engines which are totally six in number, among which you can choose. They are Oracle, PostgreSQL, Amazon Aurora, MySQL, Microsoft SQL and Maria DB. You can use existing license or pay for databases like SQL Server and Oracle.

5. Amazon ELB:

ELB is for Elastic Load Balancing. It manages the traffic generated by multiple AWS instances.

It lets you to avoid too much fault. It increases fault tolerance capacity.

III. MAP REDUCE ALGORITHM

Map reduce is an algorithm which is used to modify a large amount of data into data sets. MAP and REDUCE are two keywords:

- The big data is first mapped (analyzed according to similar kind of data).
- Reduce (the similar data is reduced into same data sets).

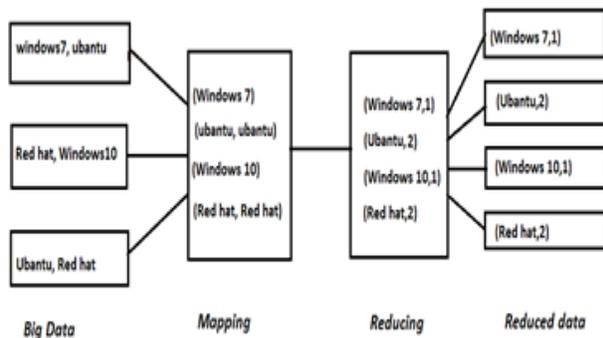


Fig: Example of Map Reduce Algorithm

In the above example, we have big data through various Amazon EC2 instances. So, this will create confusion and load because of the large data and the uploading time over instance is greater than the

computational time of the machine. So, to resolve the problem of big data over the instance we use map reduce algorithm. Here, in this example there are various operating systems, so at the stage one all the similar kind of data will be put together which is known as mapping. After that in the next step, the data is reduced to (key, number). Here, key is the name to indicate a particular set of data and number is the count of that data. This process is known as reducing so that the big data is reduced. At last step they are reduced to the data sets, where similar kind of data is put together in the form (key, number).

Problem:

In AWS EC2 instances, it takes long time to upload big data, which is more than computational time.

Result:

In EC2, we form various instances. So, map reduces helps to minimize the confusion between data of instances formed by all users and breaks it into data sets of similar kind of instances. It will solve the problem of big data and the uploading time of data will be less than the computational time.

IV. PROPOSED WORK

The agenda of this paper is basically describing AWS and its sub- services. Additionally it also compares AWS with other emerging cloud services, majorly with EC2 instance.

But it also describes about the problem of big data in EC2 instances.

As we know to upload big data in instances takes longer time. So, using map reduce algorithm, the data is:

- Firstly reduced to its similar data.
- Than the similar kind of data form their sets and this is how it simplifies the big data confusion and load over server.

It is mentioned that this paper is about Amazon Web Services and comparing it with other cloud services like Sales force, Microsoft Azure, Google Cloud. In Amazon Web Services, it works as IaaS as it provides infrastructure to user in the form of EC2 Instances

where user can deploy his machine and software. He can store data in simple storage services which provides secure and scalable storage to user. User uses RDS to operate over data. This is how it works as Infrastructure as a Service.

On the other hand Sales force works as PaaS and provides user a platform to build and deploy his application. The user codes his application in Apex language over Lightning framework and deploys it over the cloud and can access it from anywhere. This is how it works as Platform as a Service.

For virtual machine we work over AWS EC2 instance, in Microsoft Azure we work over Azure Virtual Machine and in Google cloud we work over Google Compute Engine.

For storage in AWS we use S3 bucket, in Microsoft Azure we use Azure Blob Storage and in Google Cloud we use Google Storage.

For operating over data in AWS we use Amazon Redshift, in Microsoft Azure we use Microsoft Azure SQL Database and in Google Cloud we use Google BigQuery.

All these cloud services follows three basic models of it:

1. IaaS: Infrastructure as a Service in which user gets whole computing environment.
2. PaaS: Platform as a Service in which user gets platform to build and deploy his application.
3. SaaS: Software as a Service in which user gets the whole software to use.

The top five cloud providers in market are:

1. Microsoft Azure
2. Amazon Web Services
3. Google Cloud
4. IBM Cloud
5. Oracle Cloud

And if we talk about the cloud market according to various services:

1. Public IaaS:

Market Leader: Amazon Web Services

Next three companies: Microsoft, Google, IBM.

2. Public PaaS:

Market Leader: Amazon Web Services

Next three companies: Salesforce, Microsoft, IBM.

3. Managed Private Cloud:

Market Leader: IBM

Next three companies: AWS, Rackspace, NTT

V. CONCLUSION

This paper concludes about the description of AWS and how it differs from other cloud provider services. For e.g. Where AWS EC2 instances provide you to access your system and it falls under the category of IaaS, on contrary Sales force provides the platform to implement your application and falls under the category of PaaS.

It also described the problem of big data over server. And its solution can be done by using map reduce algorithm.

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