Amazon Web Services(AWS)

Amazon Web Services offers a broad set of global cloud-based products which include compute, storage, databases, analytics, networking, mobile, developer tools, management tools, IoT, security and enterprise applications are on-demand available in seconds with pay-as-you-go-pricing. From the data warehousing to deployment tools, directories to content delivery, over 140+ services are available on the AWS now a days and new services can be provi- sioned quickly without the upfront capital expense. This allows enterprises, start-ups, small and medium-sized businesses, and customers in the public sector to access the building blocksthey need to respond quickly to changing business requirements. This white paper provides you with an overview of the benefits of the AWS Cloud and introduces you to the services thatmake up the platform.

In 2006, AWS began offering IT infrastructure services to businesses as web services—now commonly known as cloud computing. One of the key benefits of cloud computing is the opportunity to replace upfront capital infrastructure expenses with low variable costs that scale with your business. With the cloud, businesses no longer need to plan for and procure servers and other IT infrastructure weeks or months in advance. Instead, they can instantly spin up hundreds or thousands of servers in minutes and deliver results faster.Today, AWS provides a highly reliable, scalable, low-cost infrastructure platform in the cloud that powers hundreds of thousands of businesses in 190 countries around the world.

1.1.1 Benefits of AWS

The key benefits of using AWS are as follows:

@ Keep Your Data Safe: The AWS infrastructure puts strong safeguards in place to help protect your privacy. All data is stored in highly secure AWS data centers.

@ Meet Compliance Requirements: AWS manages dozens of compliance programs in its infrastructure. This means that segments of your compliance have already been completed.

@ Save Money: Cut costs by using AWS data centers. Maintain the highest standard of security without having to manage your own facility

@ Scale Quickly: Security scales with your AWS Cloud usage. No matter the size of your business, the AWS infrastructure is designed to keep your data safe.

1.1.2 AWS Services Used

Amazon EC2: Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides secure, re-sizable compute capacity in the cloud. It is designed to make web-scale computing easier for developers.

The Amazon EC2 simple web service interface allows you to obtain and configure capacity with minimal friction. It provides you with complete control of your computing resources and lets you run on Amazon's proven computing environment. Amazon EC2 reduces the time required to obtain and boot new server instances (called Amazon EC2 instances) to minutes, allowing you to quickly scale capacity, both up and down, as your computing requirements change. Amazon EC2 changes the economics of computing by allowing you to pay only for capacity that you actually use. Amazon EC2 provides developers and system administrators the tools to build failure resilient applications and isolate themselves from common failure scenarios.

Instance types

Amazon EC2 passes on to you the financial benefits of Amazon's scale. You pay a very low rate for the compute capacity you actually consume.

@ On-Demand Instances—With On-Demand instances, you pay for compute capacity by the hour with no long-term commitments. You can increase or decrease your compute capacity depending on the demands of your application and only pay the specified hourly rate for the instances you use. The use of On-Demand instances frees you from the costs and complexities of planning, purchasing, and maintaining hardware and transforms what are commonly large fixed costs into much smaller variable costs. On-Demand instancesalso remove the need to buy "safety net" capacity to handle periodic traffic spikes.

@ Reserved Instances—Reserved Instances provide you with a significant discount (up to 75%) compared to On-Demand instance pricing. You have the flexibility to change families, operating system types, and tenancies while benefiting from Reserved Instance pricing when you use Convertible Reserved Instances.

@ Spot Instances—Spot Instances are available at up to a 90% discount compared to On- Demand prices and let you take advantage of unused EC2 capacity in the AWS Cloud. You can significantly reduce the cost of running your applications, grow your applica- tion's compute capacity and throughput for the same budget, and enable new types of cloud computing applications.

Amazon RDS: Amazon Relational Database Service (Amazon RDS) makes it easy to set up, operate, and scale a relational database in the cloud. It provides cost-efficient and re-sizable capacity while automating time-consuming administration tasks such as hardware provisioning, database setup, patching and backups. It frees you to focus on your applications so you can give them the fast performance,high availability, security and compatibility they need.

Amazon RDS is available on several database instance types - optimized for memory, per-formance or I/O - and provides you with six familiar database engines to choose from, including Amazon Aurora, PostgreSQL, MySQL, MariaDB, Oracle Database, and SQL Server. You canuse the AWS Database Migration Service to easily migrate or replicate your existing databases to Amazon RDS.

The postgresql used in the project is made on AWS by using the RDS of the cloud. So thedata can be accessed remotely as per the requirement of the administrator.