

Amazon Web Services & Era of Cloud Computing

Date of Submission: 05/07/2021, Date of Acceptance: 15/07/2021, Date of Publication: 26/07/2021

Abstract

Cloud computing works well in today's World and improves the ability to use the Internet more than ever before. Cloud computing gradually developed a way to apply its benefits to many organizations. It is highly demanding of all businesses that are tasked with improving the cost-cutting services as the organization pays for the service only on the basis of what they consume according to the inbound and outbound route.

Keywords: AWS, AWS DynamoDB, Cloud Architecture, AWS S3, AWS EC2, AWS Glacier, Amazon Backup Services, Cloud Computing, Virtual Machines on Cloud, Cloud Server, Disaster Management Strategy For Cloud, AWS RDS, AWS API, Amazon SQS.

Introduction

Cloud computing identifies new ways in which data and projects can be deleted and accessed without the need for a data banking client. The benefits of AWS (Amazon Web Services) in modern cloud are enormous. Data protection, compliance control, quantity, flexibility, cost effectiveness, multiple storage, automatic measurement, data access at any time, data encryption, high performance.

Objective of the Study

This paper aims to throw the light on usage of AWS cloud, Cloud architecture, Modern methods of data storage, data security and various perks of the cloud computing along with How the data storage evolved from CD, DVD and Hard disk drives to modern cloud.

Data Privacy & Security

Data is the most important asset in any organization. Data leaks can cause significant losses to an organization, so the entire organization considers data privacy in the first place to protect their sensitive data. Failure to comply with data protection guidelines could result in the loss or theft of company intellectual property, damage the reputation of the organization, corporate or individual fines and jeopardize the system's vulnerability to malware infection. The authoritative use of cloud environment in the organization and the ability to transmit sensitive evidence everywhere, the cloud plays an important role for industries to operate and operate efficiently, quickly and without restrictions. However, this capability must be maintained in a way that includes data security provided by AWS through security controls and procedures.

Following are some best approaches:

1. Data Encryption on both server and devices.
2. Encrypted Data storage using encryption keys (pem).
3. NIST approved algorithms ensures the encryption of sensitive data.
4. Data Security by using remote wipe apis.

Flexibility of Usage

An important advantage of cloud computing is its flexibility. Business in an organization can increase or scale and data loads may require faster and more flexible conversions in the AWS cloud. Thus, cloud computing allows employees to be more flexible. Employees can access files anywhere using web-enabled devices such as laptops, smartphones, textbooks and more. The ability to quickly share documents and other files online can also help support the association. Cloud computing allows the use of mobile technology. Business mobility management tools can provide important management skills and protect the organization from phone loss, accidental data loss or weak passwords, visibility required for today's security threats, including malware and other intruder devices. The AWS



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cloud allows an entity to directly increase or decrease its current resources to address the business needs that underpin to support business development without special changes to current systems. Flexibility is one of the most important reasons why companies move their business to the cloud.

Various Storage Options

Does anyone remember about a floppy disk as a storage device? The DVD and 2 GB of hard disk were a big thing when Y2K started. Now a day the standard system uses more than 1 terra byte of data. Very few of us use a driving pen to copy any file from one computer to another. The cloud is the present tense and the cloud is the future. Today no one needs to worry about storing data as the cloud is easily accessible. Even on Smartphones, data can be stored in the cloud so if the phone is lost, the data is still available in the cloud and can be accessed from anywhere with a user id and password. Following are some storage services provided by AWS:

1. Amazon Glacier
2. S3 Bucket
3. Elastic Block Storage

Amazon Elastic Compute Cloud or EC2

It is a kind of virtual machine provided by AWS, can be used as many types. Developers can configure these virtual machines as per their need. EC2 also allows users to build applications to measure themselves according to changing needs and peak times, and makes it easier to deploy virtual servers and manage storage, reducing the need to invest in hardware and help simplify development processes. The price of EC2 is based on hours and size of model, region, and application. Many benefits and features draw developers to EC2 on a computer. The main ones are:

1. Responding to changing environment needs: The simple increase of EC2 removes development barriers that arise when systems require multiple resources.
2. Flexibility in configuration: Users can choose the memory size, CPU, and boot partition size for the OS of their choice.
3. Elastic Cloud can integrate with various Amazon web services, such as RDS, SQS, and SimpleDB.
4. Direct control: Users gain administrative access to their cases, can stop and start situations while storing boot partition data, and can access console output for example.
5. Security: Users can control which situations remain confidential and have online exposure. EC2 uses Amazon Virtual Private Cloud (VPC) for security, and businesses can connect their secure IT infrastructure to VPC resources.
6. Cost: Among the many price options, EC2 offers affordable prices.

AWS Import and Export:

This service is very useful for the large amount of data transfer from physical drives to cloud.

Amazon Web Cloudfront

To access the content on the AWS cloud, AWS provides a centralized network of proxy servers called as CLOUDFRONT.

DynamoDB

Amazon DynamoDB is a NoSQL database, with the serverless architecture it is one of the reliable databases to create the tables and manage the data, it is extremely fast and fluent to manage the data at cloud. Using Api gateway and lambda one can create their own serverless database with API support. As it queries as reliable as a sql databases and more, user can perform all the CRUD operations without any hassle, which makes it the perfect solution.

Scalable, Available, Durable

As AWS Cloud provides one tap backup, accessibility to the various regions on the cloud, that makes DynamoDB scalable, available and durable, The DynamoDB scan API offers two consistent options when reading DynamoDB data: final readability and robust static reading. First, AWS default set, goes beyond the cost of illiteracy indicating writing or recent updates.

Secure

By the use of FGAC which is Fine-Grained Access Control, Aws provide top notch security to the API calls, Developers could choose the port as well as the hosts to directly connect the server as well as database using the proxies. By the help of Amazon IAM roles developers can create the necessary access to the application only so that it can't be exploited.

Easy Backup

AWS Backup is a complete backup utility that makes it easy to integrate and automate data backup on the AWS cloud platform using the AWS storage gateway. The AWS backup is fully integrated with a policy-making, easy-to-use solution, that allows you to meet business compliance requirements and is highly secure. Following are the benefits:

Internal

Set up backup strategies from the central backup console, simplify backup management and make it easy to ensure that application data across the AWS platform is backed up and secure. The AWS central console can be used, APIs, or command line interface to backup, restore, and set AWS platform storage policies in the cloud and on the premises using the AWS Storage Gateway.

Change Savings Procedures

Time and money can be saved, and manual error can be avoided using default backup procedures. A fully regulated solution for AWS Backup policy. AWS Backup provides automatic backup, storage, and development agendas, eliminating the need for standard scripts and manual processes. With AWS Backup, backup policies can be applied to AWS resources by simply separating them, making it easy to develop a backup strategy across all AWS resources and ensure that all application data is backed up properly.

Improve Backup Compatibility

By applying backup policies, encrypt the code, and update backup actions from the central console to help meet backup tracking needs. Backup policies make it easy to schedule a backup plan for internal or monitoring needs. AWS Backup protects backups by encrypting data during transfer and rest. Integrated backup logs across all AWS services make it easy to carry out compliance audits. AWS Backup is compatible with PCI and ISO and HIPAA compliant.

Automatic Measurement and Care

The automated process is a major challenge as many organizations are trying to move the system to a self-employed country to do tasks with less human assistance. The automation of product emergence, growth, expansion, delivery, and management makes the AWS cloud even stronger in today's world. That's one advantage of AWS cloud is why so many companies are trying to apply to their business processes. Automatic self-rating and automated care are two big reasons why companies want to move the system to a cloud that saves money and time. Automatic task scheduling, automatic data support, automatic deployment can be done using a cloud that dramatically reduces craftsmanship. AWS automation rating automatically monitors and manages resources to support the storage of cloud-based applications. AWS cloud is different from one cloud platform as in other cloud automation measurements can only be done with individual services. Using AWS auto-options automatic measurement can be controlled to increase bandwidth, for example, if you're for a while the traffic goes up, then it will increase the bandwidth and go down automatically when traffic is low. When the cloud is hosted on a web server and during the day the customer uses the app the most, the cloud will automatically increase the bandwidth which reduces costs. Another example is Black Friday most sites that take longer to open and place an order. Sometimes after storing things in a cart and while paying off a debt, the site goes down, when it reopens and the items in the curtains disappear. Recommend to use a cloud server and enable auto-measurement options at a time when large traffic will be expected. This will allow customers to place an order, so the company will receive, and reduce when the deals are completed which will allow you to save time and money on both sides, the buyer and the organization. Currently users need quick access, data access and information. When we sign in to any social networking site, we want to view details, photos as soon as we sign in. Pageant delays will cause problems and users will not use the site often. Small size companies face a huge wage challenge depending on demand. The AWS cloud is a preliminary platform that solves all these problems.

Disaster Recovery

Zero downtime is not uncommon during any installations. It brings business continuously as the system will be unavailable for some time until the application is completed. In many

cases, the AWS cloud brings business continuity and a disaster recovery plan that uses the cloud to maintain backups and eliminate delayed work that comes with downtime. The AWS cloud platform offers more advanced development rates than a standard local server. Using a multi-cloud system with backups and external data stored in multiple clouds can reduce downtime to seconds or minutes and thus enable productivity. System downtime, deficit and disaster recovery (DR) values are major factors in having integrated tools and resources. However, with the compelling acceptance of the AWS cloud platform, IT has added a new set of competitions to protect important business data that can be spread out without a data keeper. Cloud delivers inclusive, cost-effective recovery

1. Visual machine backups operate at the right time to deliver the goal of the recovery time in minutes.
2. The objectives of the reduced point of reduction with global dedupe and backup are constantly increasing, which also significantly reduces storage and bandwidth.
3. Easy configuration, eliminating security and security concerns and backup system failover Add to Big Data
4. A secure and robust disaster risk detection platform with standard sector verification and auditing.
5. Immediate acquisition of record permits to avoid penalties for improper compliance.
6. AWS solution providers and installation partners to assist with deployment.

Conclusion

Cloud computing has made it easier for businesses to operate and deliver services. It has also encouraged the growth of Small and Medium Enterprises in large part.

AWS proves to be the best in providing cloud services to individuals, organizations and most business organizations. It is very efficient and expensive as compared to its competitors. The provision of these affordable services makes Amazon Web Services very popular and leads to service worldwide. The provision of cloud computing services is not limited to the business sector. The medical industry benefits greatly from these services. The most popular service for investigators, is IaaS as they are able to do projects with high inventory requirements. Security is a major concern for all customers especially because of the vulnerability of the data. Customers are very sensitive to the receipt of their data without their consent. However, Small and Medium Businesses are looking for a greater sense of security with Amazon Web Services over its availability. For this reason, AWS is the preferred option for all new and future companies.

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