Importance of Cloud Computing in Amazon Web Services (AWS)

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Abstract -Amazon Web Services (AWS) is an Amazon subsidiary that provides companies, enterprises, and governments with on-demand cloud computing platforms. AWS offers a variety of cloud computing services that aid in the development of complex applications. Amazon Web Services offers a wide range of cloud-based services around the world, including compute, storage, databases, analytics, networking, mobile, developer tools, management tools, IoT, security, and enterprise applications: on-demand, available in seconds, and priced on a pay-as-you-go basis. This enables companies, start-ups, small and medium-sized firms, and public-sector customers to gain access to the building blocks they need to respond rapidly to changing business needs.AWS now powers hundreds of thousands of companies in 190 countries with a highly reliable, scalable, and low-cost cloud infrastructure platform.

***Key Words*:**Cloud Computing, Amazon Web Services (AWS),Cloud Services, Cloud Security in AWS, Advantage of Cloud Computing.

1. INTRODUCTION

Cloud computing, in which computing resources are made available to users on demand as needed, is becoming a more popular business model. Cloud computing's distinct value proposition opens up new possibilities for aligning IT and business objectives. Cloud computing makes use of internet technologies to deliver IT-enabled capabilities 'as a service' to any required users, i.e., we can access anything we want from anywhere to any computer without having to worry about storage, cost, management, and so on. We'll look at 'Amazon Web Services (AWS),' which is one of the largest cloud service providers on the planet. AWS is the most trusted cloud computing provider, offering not only excellent cloud security but also excellent cloud services. AWS is a low-cost, pay-per-use cloud service that is also highly secure and easy to use. Review the various AWS cloud deployment and service models in Introduction to the Importance of Cloud Computing in AWS. It also looks at some of the advantages of cloud computing with AWS over conventional IT service environments, such as scalability, flexibility, lower capital costs, and better resource utilization, which are all considered adoption reasons for cloud computing with AWS.

Fig-1: Benefits of AWS Cloud Technology

1.1 Cloud Services

Cloud Computing provides three kinds of Services:-
i) Private cloud: A private cloud is one that is owned by an organization and is used to provide services to its own users.

ii) Public cloud: Services are provided by a third party. Amazon Web Services (AWS), Microsoft Azure, IBM/SoftLayer, and Google Compute Engine are just a few examples.
iii) Hybrid cloud: This is a service that combines the benefits of both private and public clouds. This type's primary goal is to achieve scalability.

Cloud Computing has three Categories of Services:-
i) Infrastructure as a service (IaaS): This type of service allows users to move work from one machine to another, usually a virtual machine.
ii) Platform as a Service (PaaS): PaaS is a software development platform. Salesforce.com's Force.com, Amazon Elastic Beanstalk, and Google App Engine are all popular PaaS providers.
iii) Software as a service: SaaS delivers software applications over the Internet; these are often called Web Services.

Cloud Service Models	Cloud service Providers
SaaS	Cloud9 Analytics. CVM Solution ,LiveOps, Reval. Taleo. NetSuite. Google Apps, Antenna Software, Exoprise Systems. Gageln. Host Analytics, Knowledge Tree, Microsoft365, Joyent and Salesforce.com. Rackspace. IBM.
Paas	Google Apps. Microsoft Azure, SalesForce. Intuit. Netsuite. IBM. WorkXpress, Joyent, SAP and Amazon AWS
Iaas	Rackspace. Bluelock. CSC. GoGrid. IBM. OpenStack. Rackspace. Savvis. VMware. Terremark. Citrix. Joyent., Amazon Elastic Compute Cloud and BluePoint

1.2 Cloud Security

At AWS, cloud protection is a top priority. As an AWS client, you'll have access to a data centre and network infrastructure designed to meet the needs of the most security-conscious businesses. Safety in the cloud is similar to security in on-premises data centres, but without the costs of facilities and hardware maintenance.You don't have to think about handling physical servers or storage devices when you use the cloud. Instead, you track and secure the flow of data into and out of your cloud services with software-based security tools.
The AWS Cloud gives you the flexibility to scale and innovate while maintaining a stable environment and only paying for the services you use. This means you can get the security you need at a lower cost than you might with on-premises security. As an AWS customer, you gain access to all of AWS' best practices in terms of strategies, design, and operating processes, which were designed to meet the needs of our most security-conscious customers. Get the security controls flexibility and agility you need.
A shared accountability model is possible with the AWS Cloud. Although AWS is in charge of cloud security, you are in charge of cloud security. This means that, much as in an on-site data center, you maintain control over the protection you want to enforce to protect your own information, platform, software, systems, and networks.Via online tools, staff, and partners, AWS provides you with guidance and expertise. AWS provides you with current issue advisories, as well as the ability to work with AWS when you run into security problems. You gain access to hundreds of resources and features that will assist you in achieving your security goals. Across network security, configuration management, access control, and data encryption, AWS offers security-specific tools and features.

2.Advantages of Cloud Computing in AWS

- **Trade capital expense for variable expense –** Rather than investing heavily in data centres and servers before knowing how you'll use them, you can only pay for computing services when you use them, and only for how much you use them.

- **Benefit from massive economics of scale –** Cloud computing helps you to achieve lower variable costs than you could on your own. Since the cloud aggregates the consumption of hundreds of thousands of users, providers like AWS can achieve greater economies of scale, resulting in lower pay-as-you-go rates.

- **Stop guessing capacity–** Stop guessing about the infrastructure capacity requirements. When power decisions are made before an application is deployed, you often end up with either costly unused resources or reduced capacity. These issues are no longer a concern thanks to cloud computing. You can use as much or as little capacity as you need, and you can scale up and down with just a few minutes' notice.

- **Increase speed and agility –** New IT services are just a click away in a cloud computing environment, which means you can reduce the time it takes to make certain resources accessible to your developers from weeks to minutes. Since the expense and time it takes to experiment and improve are greatly reduced, the organization's agility increases dramatically.

- **Stop Spending Money running and maintaining Data Centers–** Instead of concentrating on the infrastructure, concentrate on projects that will set the organization apart. Instead of the heavy lifting of racking, stacking, and powering servers, cloud computing allows you to concentrate on your own customers.

- **Go global in minutes** – With only a few taps, you can quickly distribute your app to multiple regions around the world. This ensures you can provide your customers with lower latency and a great experience at a low cost.

3. Literature Survey

Many service providers make up the cloud computing technique, but there have been some issues with cloud computing in the IT industry. People were wary of cloud computing a few years ago because all of a company's data are stored online in the cloud, accessible from anywhere and by everyone.Before AWS was introduced to the market, there were several problems with cloud computing, which are listed below:
The major problems in Cloud Computing technique are:

1. Data Security Concern
2. Selecting the perfect cloud setup
3. Real time monitoring requirement
4. Cost barrier
5. Unauthorized Service providers

AWS is a technology that solves all of your programming problems. It provides infrastructure that is extremely reliable. When you use AWS, you don't have to think about data center maintenance because AWS takes care of it. AWS helps you to rapidly deploy the application in various locations around the world.AWS is very cost effective, highly scalable, more secure best cloud service providers in the world.

4. CONCLUSIONS

With the help of cloud computing, AWS provides building blocks that you can easily assemble to support virtually any workload. AWS offers a comprehensive set of highly available services that are intended to work together to create complex, scalable applications.
You can use highly reliable storage, low-cost computing, high-performance databases, management tools, and more. All of this is provided without charge up front, and you only pay for what you use. These services enable businesses to move more quickly, reduce IT costs, and scale.AWS is used by both big companies and the hottest start-ups to power

a wide range of Web and mobile applications, game development, data processing and warehousing, storage, archive, and many other workloads are among them.

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