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INTRODUCTION

Introduction to Cloud Computing is delivery of computing services such as servers, database, storage network, intelligence and more over the internet. Cloud computing provides an alternative to the on premiers data-centre. Cloud computing can defined as a type of parallel and distributed system that consist a collection of interconnected and virtualized computer which are dynamically provisioned also presented as one or more unified computing resources. It also based on service level agreements that established through negotiation between the consumers and service providers. Cloud computing also means that instead of all the computer hardware and software we are using like desktop or somewhere inside your companys' network. It also provided for us service by another company and accessed over the cloud(internet).

Comparision Evaluation

The three cloud computing services compare differently under various factors. In terms of performance and scalability, Amazon EC2 has the best performance. One identifiable service is AWS Auto Scaling, a feature that allows users to create their scale automated plans regarding how various aspects respond to demand changes (Amazon, 2018). Microsoft Azure is considered a close competitor to AWS in performance with unique services as inbuilt ready to run server apps that it comes with (Petters, 2019). One of its significant features includes scalable data warehousing, which promotes scaling based on app usage. Google cloud platform falls behind Amazon EC2 and Azure when it comes to performance. Users utilizing Cloud Metrics here can perform scaling depending on their levels of operation.

According to Padghan (2020), pricing models of all the three platforms differ depending on the type of investments or size of the resources. Google Cloud offers

the best prices when it comes to small-sized investments. For example, it will cost you $50-55 per month to access small-sized virtual operations with limited RAM and Virtual CPU requirements. The same service costs $69 every month on AWS and $70-75 per month on Microsoft Azure (Padghan, 2020). For large size investments, Amazon Web Services has the best pricing. For an operation with the requirement of 4TB of RAM and 128 Virtual CPUs, AWS charges $2700-3000 every month. Azure charges the same at $5000 per month, while Google Cloud's monthly fee stands at $3800-4000.

As Petters (2019) identified, AWS's primary tools include SageMaker, Lex, Machine Learning, Deep Lens, and Translate. Key tools for Azure include AI tools like Azure Bot Service, Cognitive Service, and Machine Learning. IoT tools comprise IoT Hub, IoT Edge, Stream Analytics, and Time Series Insights. For Google Cloud, major AI tools are Dialogflow Enterprise Edition, Cloud Speed API, Cloud Natural Language, etc. Its IoT is Cloud IoT core.

Aspect: Storage

AMAZON EC2	GOOGLE CLOUD PLATFORM	MICROSOFT AZURE
SSS to EFS: • It includes its Simple Storage Service (S3) for object storage, Elastic Block Storage (EBS) for persistent block storage for use with EC2, and Elastic File System (EFS) for file storage.	Unified storage and more: • it has a growing menu of storage services available. Cloud Storage is its unified object storage service, and it also has a Persistent Disk option. It offers a Transfer Appliance similar to Amazon WS Snowball, as well as online transfer services..	Storage Services: • include Blob Storage for REST-based object storage of unstructured data, Queue Storage for large-volume workloads, File Storage and Disk Storage. It also has a Data Lake Store, which is useful for big data applications..

Aspect: security

Amazon EC2	Google Cloud Platform	Microsoft Azure
Amazon EC2 is fine-tuned to prevent attacks, detect any suspicious activities, respond to incidents quickly and effectively and remediate your Amazon environment. It also offers courses to promote best security practices. It claims that its high quality security is similar to the security that would be available to you on-prem with the advantage that user security can be scaled up to match your company's growth.	Google Cloud offering its customers the choice between letting Google Cloud manage your profile keys or letting you manage your own. By managing your own, you can quickly rotate through keys, dispose of old keys, manage key permission, and audit key use. If you chose to enable two factor authentication (2FA), it will provide you with an additional layer of security so that even if a weak password is cracked, your system will not be exposed to hackers.	Microsoft Azure provide multi-layered security system, proving it to be one of their main priorities. User can opt into certain security features when setting up Azure account, which will increase the protection of user data. User can encrypt all their data stored on the server side, which will prevent readable copies from being available if their profile is breached. There is also an advanced-encryption standard which is one of the more popular security options on azure.

Aspect= Virtual machine instance type

Instance type	Amazon instances	Amazon RAM (Gb)	Microsoft Azure VMs	Microsoft Azure RAM (Gb)	Google Cloud Platform VMs	Google Cloud Computing RAM (Gb)
General purpose	m5.xlarge	16	B4MS	16	N1-standard-4	15
Compute optimized	c5.xlarge	8	F4s V2	8	N1-highcu-4	3.6
Memory optimized	r5.xlarge	32	E4 v3	32	N1-highmem-4	26
GPU instances	G3s.4xlarge	30.5	NC 6	56	NVIDIA@Tesla@P4	64

Aspect= OS environment

Cloud computing	Operating system
Microsoft Azure	Linux and Microsoft Windows
Amazon EC2	Linux
Google Cloud Computing	Debian-based Linux OS

Aspect= service model

Microsoft Azure	Amazon EC2	Google Cloud Platform
SaaS: -Application like SharePoint online, O365	IaaS: -Amazon takes the responsibility of networking,	IaaS: -offering that allows clients to run workloads on Google's

PaaS: -Operating system like Windows Azure, Database like SQL Azure, Development tools like NAPA IaaS: -Windows Azure Virtual Machines and Network, Storage	storage, server and virtualization and user is responsible for managing the Operating System, middleware, runtime, data and application	physical hardware. It lets the user create and run virtual machines on Google infrastructure. It also offers scale, performance and value that allows user launch compute clusters on Google's infrastructure.

Opinions: Advantages and Disadvantages of Cloud Computing Platforms

According to an article by Viana (2019), AWS has established itself as a giant in cloud computing because of its ability to handle significant amounts of enterprise requirements. Also, the platform's EC2 compute engine is customizable. The article identifies AWS's pricing model as its main disadvantage. The pricing structure keeps fluctuating, which is a worry for many of its users.

Microsoft Azure, on the other hand, employs Windows tools to offer cloud services, thus, providing an imminent solution to most Windows customers. According to a BMC Blogs (2020) report, Azure increases business agility, supports integration, has a secure log-in system, and can be deployed anywhere. Its main limitation is that some of its enterprise-grade applications are flawed to execute business needs perfectly.

Lastly, Google Cloud Platform (GCP) contains Big Data and Analytics tools as the two main components that make it an exemplary cloud service provider. GCP promotes business agility, facilitates business collaborations, allows for data ownership even when one switches to a different device, and can also be installed anywhere. Disadvantages associated with GCP include its pricing on certain services, which may be considered hefty. For instance, the platform charges $150 each month for basic services. Also, some users may find it confusing to use the GCP web interface (Vidal, 2018).

Best Cloud Computing Platform for Software Development

If given a chance to choose the best cloud computing platform for software development, I will go with Amazon Web Services. AWS has the best features of all platforms in terms of data security, user flexibility, and scalability. It contains the tools to create secure, flexible, and easy-to-scale software as the demand grows. Additionally, AWS developer tools and SDKs enable you to eliminate any coding complications by employing language-specific APIs for AWS services. Others like the AWS Fault Injection Simulator help improve the application's resilience, availability, and performance (Amazon, 2021).

Advantages Cloud Computing Platforms:

Amazon EC2	Google Cloud Platform	Microsoft Azure
-Can Handle Massive Enterprise Demands -Its EC2 Compute Engine Is Customizable - Has great security features. -Allows for elasticity as user demands increase.	-Promotes business agility - Facilitates business collaboration. - Allows for data ownership even when one switches to a different device. - It can also be applied anywhere.	- Provide solutions to cloud storage among Windows users. - Increases business agility. - Supports integration of businesses. - Has a secure log-in system. -It can be deployed anywhere.

Disadvantages Cloud Computing platforms:

Amazon EC2	Google Cloud Platform	Microsoft Azure
-A fluctuating pricing structure which worries many of its users.	-Hefty Prices On Certain Services. -The GCP web interface may prove confusing to use for some people.	-Some of its enterprise-grade applications are flawed to execute business needs perfectly.

CONCLUSION

At the end there are many cloud companies which are providing the same services but with some slightly differences for example in the price and capabilities. Some people used Azure and they give it Thumbs up and say it is the best option to anyone want to have a virtual machine or clouding services, Others don’t like it and recommand Amazon. Thus, it is all about what the customer and where do they feel comfortable with and made him happy. In conclusion, cloud computing is a big field that needs from one several years to have a back ground about, it is an interesting field as well.

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