Comparative Analysis between different Cloud Initiatives

Cloud computing is the on-demand availability of computer system resources, especially data storage (cloud storage) and computing power, without direct active management by the user. The term is generally used to describe data centers available to many users over the Internet.Large clouds, predominant today, often have functions distributed over multiple locations from central servers. If the connection to the user is relatively close, it may be designated an edge server

Advantages of cloud computing:

1.Easy implementation

2.Accessibility

3. No hardware required

4.Cost per head

5.Flexibility for growth

6.Efficient recovery

Characteristics of cloud computing

1. On-demand computing and self-service provisioning

2. Resource pooling

3. Scalability and rapid elasticity

4. Pay-per-use pricing

6. Resiliency and availability

7. Security

Amazon Web Services (AWS):

It is a platform that offers flexible, reliable, scalable, easy-to-use and cost-effective cloud computing solutions. AWS is a comprehensive, easy to use computing platform offered by Amazon. The platform is developed with a combination of infrastructure as a service (IaaS), platform as a service (PaaS) and packaged software as a service (SaaS) offerings.

How Does AWS Work?

AWS operates on different services depending upon the user's needs Services can be Storing databases, networking,security,Analytics, etc.Amazon EC2 provides you virtual servers so that you can operate the system anytime you need .Amazon Elastic Block Store provides block level storage volume for data storage which you can apply on creation of an EC2 vm.

Google Cloud Platform (GCP):

Google Cloud Platform (GCP), offered by Google, is a suite of cloud computing services that runs on the same infrastructure that Google uses internally for its end-user products, such as Google Search, Gmail and YouTube. Alongside a set of management tools, it provides a series of modular cloud services including computing, data storage, data analytics and machine learning. Registration requires a credit card or bank account details.

How Does GCP Work?

Google Cloud Platform is essentially a public cloud-based machine whose services are delivered to customers on an as-you-go basis, by way of service components. Public cloud lets you leverage its resources to empower the applications you build, as well as to reach a broader base of customers.

Google uses Platform as a Service to deploy Java, PHP, and other applications. It provides an online file storage web service for storing and accessing data. It uses VPC (Virtual Private Cloud) ,CLB(Cloud Load Balancing) and CDN(Content Delivery Network for IP allocation , routing, distributing workloads on different users,etc.

Cloud IOT Core allows you to easily and securely connect, manage, and ingest data from devices that are connected to the Internet.

Microsoft Azure:

It is commonly referred to as Azure, is a cloud computing service created by Microsoft for building, testing, deploying, and managing applications and services through Microsoft-managed data centers. It provides software as a service (SaaS), platform as a service (PaaS) and infrastructure as a service (IaaS) and supports many different programming languages, tools, and frameworks, including both Microsoft-specific and third-party software and systems.

How Does Azure Work?

Azure, like other cloud platforms, relies on a technology known as virtualization. Most computer hardware can be emulated in software, because most computer hardware is simply a set of instructions permanently or semi-permanently encoded in silicon. Using an emulation layer that maps software instructions to hardware instructions, virtualized hardware can execute in software as if it were the actual hardware itself.

Essentially, the cloud is a set of physical servers in one or more data centers that execute virtualized hardware on behalf of customers.

Topic	AWS	Azure	GCP
Compute Service	Instances(EC2)	VM's	VM Instances(GCE)
Processor	In AWS, 128 can be the maximum processor in VM	In Azure, it can be 128	In Google cloud, it is only 96.
Platform as service	Elastic Beanstalk	Cloud Services	Google App Engine
Storage of Object	S3	Block Blob	Cloud Storage
File Storage	EFS	Azure Files	ZFS and Avere
Support	AWS supports large organizations with different services and enterprise support.	Organizations prefer Azure that uses Windows and who can work and understand Azure without any outside help	GCP is considered as a second option than AWS as both are similar in platform offerings.
Integrate Support	AWS does not have any platform or tools of its own and renders services from other platforms. Users do not find it hard and are happy with the services being offered.	Azure integrates well with other Microsoft tools and software and the platform. Users find it easy to operate within the tools.	GCP integrates with Gmail, YouTube, and other Google services to provide users with the seamless experience of google along with cloud services.
Open Source	AWS is not offered as open-source and its payment service can be described as pay as you use to type.	Open source is offered in Azure and hence users find it easy to use Azure for small services.	GCP is not offered open-source though some services can be availed for free. The cloud service should be paid as the user uses the service. Also, GCP provides portability of its services.
Management Tools	Management tools are very effective in AWS.	Management tools are not as proper and	All the tools are managed well in GCP.

	The services offered are very vast and proper matching the use of all the customers	efficient in Azure	But the services offered are very limited in GCP
Data	AWS is specially designed for applications with large storage data and network usage so that the cloud services are utilized fully.	Azure is designed for users with large data and that has machine learning integrated with the data.	GCP is for cloud applications designed in the native environment. They offer discounts and the contracts are easily flexible for the users.
Main Focus	AWS focusses on different services being offered on different platforms.	Azure has a broad feature set and has a primary focus on hybrid cloud.	GCP focuses mainly on DevOps with Docker and Kubernetes.