Cloud Computing Fundamentals – Review on Cloud Computing Service Providers

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1 Introduction

Cloud computing is an internet service assistance that gives access to request to shared PC data and information. In another words, cloud computing implies hosted of services resources and data over the web. These assets include storage, network and applications. These assets can be rapidly prepared and can be liberated without any problem. Virtualization is the main impetus behind distributed computing

Cloud computing Services are quickly changing with new headways every day. It is significant for every web client to know the utilization of this innovation. Therefore, this topic should be reached a large range of users. It is about centralization of PC resources by moving the conventional on-premise server room to an centralized area where your services will run and scale better

2 .Pricing model, Elasticity, Monitoring tools/service provided.

Name	Google cloud	Microsoft Azure	Amazon EC2
Pricing Model	The monthly compute price is $0.0000025 per GB-s and the free tier provides 400,000 GB-s. Monthly compute charges = 1,100,000 * $0.0000025 = $ 2.75	Monthly Compute charges would be $17.6 as it's compute price is $0.00001600. Total monthly charges for Azure = Compute charges + Request charges = $17.6 + $0.40 = $18 per month.	The monthly compute price is $0.00001667 per GB-s and the free tier provides 400,000 GB-s. Monthly compute charges = 1,100,000 * $0.00001667 = $18.34
Elasticity	Autoscaling is supported by the Compute Engine to automatically add or delete VM instances from a managed instance community based on load increases or decreases. Autoscaling	The auto-scaling function allows your application to automatically scale up or down according to your specified parameters. As demand rises, the Azure auto-scaling	Amazon EC2 provides auto scaling services. Amazon EC2 Auto Scaling lets you preserve the availability of apps and allows you to add or delete EC2 instances automatically according to the

	helps the applications to handle changes in traffic gracefully, and where the demand for energy is smaller, it lowers costs. The autoscaler performs automatic scaling based on the calculated load after you specify the autoscaling policy..	function scales out instances impeccably. By flagging unwanted instances automatically, you can save money. Auto-scaling helps you to schedule alarms and updates on the basis of your scaling specifications.	requirements you specify. To ensure your fleet's health and availability, you can use the fleet management capabilities of EC2 Auto Scaling.
Monitoring Tools/services	It includes cloud monitoring,Collect metrics in real time and visualize insights. Services such as data management and storage, app development, SMB business analytics and AI, productivity and workload management tools.	Monitoring tools includes Serverless360, Application Insights, Azure Monitor and more. Services such as big data and predictive analytics, game and app development, scalable data wire-housing, blockchain technology, devops, IoT integration.	Monitoring tools includes SolarWinds® AppOptics™, SolarWinds Papertrail™ and etc. Services such as developer, engagement and monitoring tools, Machine learning and predictive analytics, Databases and storage solutions, Business productivity tools, App integration, Compute.

OPINIONS: By using the service providers, laaS and Paas services become available to us. Although I would prefer using Amazon AWSS. By utilizing them production becomes more affordable and faster as SaaS is basically used for customers who show that growth doesn't exist with connection. Besides them, system managers and engineers utilize laaS and Paas respectively. They are also provided by our service provider, Amazon AWS.

3. OS environments offered, Security, Performance and scalability

Name	Google cloud	Microsoft Azure	Amazon EC2
OS Environments	Window servers, Ubuntu, AWS Linux, CentOS, Debian, RHEL, SUSE,	Window servers, SUSE, RHEL, CentOS, Ubuntu, Debian.	Window servers, RHEL, Debian, Ubuntu, CentOS, SUSE
Security	Multi-layered security. Operational & device security. Google cloud develops and deploys infrastructure software. They will encrypt the information when transferring the data. They have stored the information of customers at different services, to prevent unauthorized access and service interruption.	Multi-layered security provided by Microsoft. They can detect the threats early with the real-time global cybersecurity intelligence. They provide the general Azure Security, storage security, database security, identity and access management, backup and disaster recovery and network technologies.	AWS provides services to protect data. With the big data, they can find the threats continuously. The AWS Identity Services enable customers to manage their identity. They provide the data privacy. AWS always protects privacy by filtering based on the rules created. They can filter out some web requests based on IP address.

Performance	.The Cloud function for Service Level Agreement is 99.5%	It can function 1,000,000 requests per month. It provides 99.9% availability of the Azure Active Directory Basic.	99.99% SLA commitment available. Each region consists of at least 3 available zones.

OPINIONS: Compare the three cloud computing, Google cloud has better OS environment. This means more customers can access to use the google cloud. For the Security, Both of the cloud computing has the multi-layered security. Microsoft Azure can detect the threat real time based on the global cybersecurity. It means that they can solve the problem earlier than other cloud computing. For the performance, Microsoft Azure can function 1000000 requests per month. The performance was better than others and the SLA that is Service Level Agreement is reached 99.9%. The Microsoft Azure can provide better performance given the good experience compared to other cloud computing.

4. Service model (IaaS, PaaS, SaaS), Virtual Machine (VM) & Storage

Name	Google cloud	Microsoft Azure	Amazon EC2
Service Model	IaasS (Infrastructure As a Service)	IaasS (Infrastructure As a Service)	IaasS (Infrastructure As a Service)
Virtual Machine	C2 Compute-Optimized is an ultra high performance for computer intensive workloads. Build on latest generation Intel Scalable Processors. This machine type offers up to 3.8GHz sustained all core turbo and provide transparency. This type offer much more computing power, run on a newer platform, and are usually more robust for compute-intensive workloads.	Dds-series General purpose compute. The D-series Azure Virtual Machines offer a combination of vCPUs, memory, and temporary storage able to meet the requirements associated with most production workloads. .The Ds-series, Dds-series, and the Das-series VMs both support Azure Premium SSDs and Ultra Disk storage depending on regional availability.	AMAZON EC2 devotes a few assets of the host computer, for example, CPU, memory, and occurrence storage, to a specific case. Amazon EC2 shares different assets of the host computer, for example, the organization and the disk subsystem, among occurrences. On the off chance that each case on a host computer attempts to use however much of one of these shared assets as could be expected, each gets an equivalent portion of that asset. In any case, when an asset is underused, a case can devour a higher portion of that asset while it's accessible.
Storage	Google Cloud can only store up to 15GB of storage. Google does offer paid storage options too, from 100 GB to 30TB	. Azure Storage stage is Microsoft's distributed storage answer for current information stockpiling situations. Core storage administrations offer a greatly adaptable article store for information objects, circle stockpiling for AZURE VIRTUAL MACHINE (VMs), a record framework administration for the cloud, an informing store for solid informing, and a NoSQL Store. Azure Blobs enormously adaptable article store for text and parallel information. Additionally incorporates uphold for	Amazon EBS gives sturdy, block-level storage volumes that you can append to a running occasion. You can utilize Amazon EBS as a primary storage device fordata that requires successive and granular updates. For instance, Amazon EBS is the suggested stockpiling choice when you run a data set on a case

		big data examination through data lake storage GEN 2	

Opinions: In the course of recent years, google, Microsoft and even amazon have bene pushing cloud services as a free from any and all harm strategy to store our information on the web while likewise taking into consideration brisk and basic record sharing. Google cloud has been one of the pioneers in the space for a long while, offering free storage levels to any individual who has a Google/Gmail account, permitting them to send huge email connections, store full-goal photographs in Google Photos or basically to back up significant documents from their cell phones or PCs. Providers today offer virtual machines that are pretty much comparative in setup. Every one of these occasions has its specificities: RAM power, CPU power, illustrations cards uncommonly intended to prepare computerized reasoning models. Regardless of whether you are in a multi-cloud improvement setting, or further upstream, in the quest for the arrangement most appropriate to your requirements, it is at times hard to locate the correct data and great correlation of virtual machines.

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