



# Technology and Information Systems (SECP1513)

Section - 07

Cloud Computing Fundamentals - Literature Review  
on Cloud Computing Service Providers

**Done by : Group - 5**

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## 1. Introduction

Cloud is a model of processing where workers, organizations, stockpiling, advancement devices, and even applications are empowered through the web. Rather than associations making significant speculations to purchase gear, train staff, and give progressing upkeep, a few or all of these necessities are taken care of by a cloud specialist co-op. It's not simply organizations that profit by cloud computing. The cloud has changed our lives as individuals also. A large number of us use cloud benefits each day. At the point when we update our status via online media, binge a new streaming series, or check our financial balances, we're doubtlessly utilizing applications that are facilitated by cloud administrations. These applications are accessed through a web connection rather than installed on our hard drives or gadgets.

## 2. Main Body

### a) Comparative Evaluation :

Storage, database and backup service :

|                 | Storage                                                                                                                                   | Database                                                                                                                                                | Backup Service                                                             |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| Amazon EC2      | Simple Storage Service (S3), Elastic Block Storage (EBS), Elastic File System (EFS), Storage Gateway, Snowball, Snowball Edge, Snowmobile | Aurora, RDS, DynamoDB, ElastiCache, Redshift, Neptune, Database migration service                                                                       | Glacier                                                                    |
| Google cloud    | Cloud storage, Persistent disk, Transfer appliance, Transfer service                                                                      | Cloud SQL, Cloud Bigtable, Cloud Spanner, Cloud Datastore                                                                                               | Nearline (frequently accessed data), Coldline (infrequently accessed data) |
| Microsoft Azure | Blob Storage, Queue Storage, File Storage, Disk Storage, Data Lake Storage                                                                | SQL database, Database for MySQL, Database for PostgreSQL, Data warehouse, Server Stretch database, Cosmos DB, Table storage, Redis cache, Data Factory | Archival storage, Recovery backups, Site recovery                          |

Microsoft Azure has a different approach which is Data Lake that is designed uniquely for huge and data-intensive applications. Google provides limited storage options but they are well-targeted and unified. The cloud service with a wide range of storage options is Amazon EC2. Azure also has the best option for backup service.

OS environment offered :

| Amazon EC2                                                                                                                                                                                  | Google cloud                                                                                                                                                          | Microsoft Azure                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Amazon Linux, Ubuntu, Windows Server, Red Hat Enterprise Linux, SUSE Linux Enterprise Server, openSUSE Leap, Fedora, Fedora CoreOS, Debian, CentOS, Gentoo Linux, Oracle Linux, and FreeBSD | CentOS, Container-Optimized OS, Debian, Fedora CoreOS, Red Hat Enterprise Linux, SQL Server, SUSE Linux Enterprise Server, Ubuntu LTS, Windows client, Windows Server | Linux, Windows Server, CentOS, Debian, Flatcar Container Linux, Oracle Linux, Red Hat Enterprise Linux, SUSE Linux Enterprise, openSUSE, Ubuntu |

All three have a wide range of OS environments offered to better suit and support a variety of different community needs.

## Amazon EC2:

Amazon Elastic Compute Cloud (Amazon EC2) provides scalable computing capabilities in the Amazon Web Services (AWS) cloud. Using Amazon EC2 eliminates the need to invest in hardware on your front. So, you can quickly develop and deploy applications. You can use Amazon EC2 to launch as many or less virtual servers as you need, configure security and networking, and manage storage. The Amazon EC2 enables you to scale up or down to manage change in requirements or spikes of popularity, reducing your need to predict traffic. Let's see some features of Amazon EC2 - 1. Virtual computing environments, known as instances, 2. The default templates known as Amazon Machine Images (AMI), package the bits needed for your server (including the operating system and additional software), 3. Different configurations of CPU, memory, storage and networking capabilities for your instances, known as instance types, 4. Confirm login information for your instances using the key pair (AWS saves the public key and you store the private key in a safe place), 5. Temporary Storage volume for temporary data when you turn off, hibernate, or close your instance, for example known as Store Volume, 6. The storage volume for using your data using the Amazon Elastic Block Store

(Amazon EBS), also known as the Amazon EBS Volume, 7. Your Multiple physical locations for your companies are known as Example and Amazon EBS Volume, Region, and Availability Region, 8. A firewall that enables you to specify protocols, ports, and source IP ranges that can access your instances using security groups, 9. Static IPv4 address for dynamic cloud computing, also known as elastic IP address, 10. Metadata, also known as tags, allows you to create and assign your Amazon EC2 resources.

## Microsoft Azure:

The closest competitor to EC2 is a pointless efficient cloud structure that actually stands as a platform with a service (PAAS). If we look for a presenter client and a cloud that communicates in our language, it realizes that we are actually running a server firm, and trying to interconnect with Azure Stage information, the amputee resources are much more limited than its competitors. Its essential assets are the figure motors that use a large portion of the power of traditional server firms to provide both custom and predefined machine types, pre-secondary charging, Linux and Windows aggregates, programmed boundaries, and a carbon-non-partition structure. It offers complimentary planning to the community. Since crossover clouds are their real strength, the required registration administration proposed by Microsoft is simply referred to as a virtual machine. It provides support including Linux, Windows Worker, SQL Worker, Veteran, IBM, and SAP, such as enhanced security, crossover cloud capacity, and Microsoft programming support. Like EC2, it includes GPUs and higher registration options. There is a surprisingly wide inventory, just like AI and advanced programs for the man-made brain. It provides complimentary plans for one year with an additional 750 hours per month. This includes Windows or Linux B1S virtual machines. The auto scaling variant provided by Azure is known as the Virtual Machine Scale Set Container Administration. The Azure uses the Docker Center for the Buggy Administration Board and the Azure Computation Vault, but relies on Kubernetes. Microsoft supports clamp administration and cloud administration for similarly adapted web applications, similar to Amazon's Flexible Bean stock. It also has some exceptions to bring to the table, which is considered to be a help texture, especially for those who plan to apply it with micro sources engineering.

## Google Cloud Platform:

Google Cloud Platform is a part of Google Cloud. These include the Google Cloud Platform public cloud infrastructure, as well as the Google Workspace (formerly G Suite). Google Cloud Market has a place on one side and does not have a corporate hub that helps corporate clients, ITS service provider SAAS (software as a service). However, its special skills give significant

advantages to AI in industrial and computerized reasoning, and its industry-driving equipment in data testing. In contrast, Google's cover index is up to one year, which includes one F1-minor event per month. Its object storage is cloud storage block and block storage is percentage disk. Google gives Cabernets Motor to associations interested in sending segments. Like the vast majority of original cloud merchants, it is ready to provide holders and microservices. Additionally, Google has been forcibly included in the Cabernets project and it provides additional trends.

#### **b) Opinion :**

Cloud security at Amazon EC2 is the most noteworthy priority. As an EC2 client, they give advantage from a server firm and organization Engineering Worked to meet the Necessities of the most secured-touchy organizations. A bit of leeway of the EC2 cloud is that it permits clients to scale and innovate while keeping a safe atmosphere. Clients pay just for the services they use, meaning that one can have the security one requirements, however, without the forthright costs, and at a lower cost than in an on-premises environment. Consistently, a great deal of developers make billions of transactions on their cloud. The EC2 security team owns security for all administrations offered by EC2. They jump profound into security advancements to give their clients the most ideal experience. Projects incorporate new approval structures, updating cryptography and directing enormous scope review investigation.

### **3. Conclusion**

Cloud computing is the latest technology that provides huge benefits for humankind, especially in the business sector. It could reduce the cost of the hardware and software maintenance as well as ease the processes of the business. Even though the benefits provided are many but there are still concerns and problems related to security and privacy that are yet solved. People are still worried about their data integrity handled by the service provider. However, increment in research and development is on the positive trend, and it could tackle the complication. There will be law enforcement regarding the information security issue to better safeguard data privacy and integrity. Security will be enhanced with new research of technology.

#### **References :**

1. "Introducing Google cloud platform & our blog". Google Developer Blog. 2008-04-07. Retrieved 2017-03-07.

2. Montazerolghaem, Ahmadreza; Yaghmaee, Mohammad Hossein; Leon-Garcia, Alberto (September 2020). "Green Cloud Multimedia Networking: NFV/SDN Based Energy-Efficient Resource Allocation". IEEE Transactions on Green Communications and Networking. 3. "Announcing Amazon Elastic Compute Cloud (Amazon EC2) – beta". 24 August 2006. Retrieved 31 May 2014.
3. Storage options | Compute Engine Documentation | Google Cloud. (2021). Google Cloud.  
<https://cloud.google.com/compute/docs/disks>
4. Azure Storage - Secure cloud storage | Microsoft Azure. (2015). Microsoft.com; Microsoft Azure.  
<https://azure.microsoft.com/en-us/services/storage/#features>
5. Storage - Amazon Elastic Compute Cloud. (2021). Amazon.com.  
<https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/Storage.html>
6. Operating system details | Compute Engine Documentation | Google Cloud. (2021). Google Cloud.  
[https://cloud.google.com/compute/docs/images/os-details#suse\\_linux\\_enterprise\\_server\\_sles](https://cloud.google.com/compute/docs/images/os-details#suse_linux_enterprise_server_sles)
7. Virtual Machines (VMs) for Linux and Windows | Microsoft Azure. (2016). Microsoft.com; Microsoft Azure.  
<https://azure.microsoft.com/en-us/services/virtual-machines/#faqs>
8. Amazon EC2 FAQs - Amazon Web Services. (2020). Amazon Web Services, Inc.  
<https://aws.amazon.com/ec2/faqs/#:~:text=Amazon%20EC2%20currently%20supports%20a,%2C%20Oracle%20Linux%2C%20and%20FreeBSD.>