# the sparks foundation

TASK 6 - CLOUD COMPUTING(REPORT)

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Cloud computing provides us a means by which we can access the application as utilities over the internet . It allows us to create , configure and customize applications online.

There are 3 major cloud providers:

* Amazon Web Services(AWS)
* Microsoft Azure
* Google Cloud Platform(GCP)

AMAZON WEB SERVICES

Amazon web services is a subsidiary of amazon providing on-demand cloud computing platforms and APIs to individuals , companies and government on a metered pay-as-you-go basis.

These cloud computing web services provide a variety of basic abstract technical infrastructure and distributed computing building blocks and tools.

Amazon Web Services is a subordinate of Amazon that provides cloud computing platform to evolve an organization. AWS has always been a building block for those organization as they are used to create and develop any type of application over the cloud. Simplified implementation, high security, elasticity, scalability, and flexibility are some of the known advantages of Amazon Web Services. Additionally, Amazon has different services that cater to fulfill the requirements of different domains.

Some of the most widely used domains of Amazon Web Services are Compute, Storage, Database, Migration, Network and Content Delivery, Management Tools, and Security and Identity Compliance.

**5 Best Services offered by AWS :**

1. **Amazon Elastic Cloud Compute (EC2)**

The Amazon EC2 service comes under the compute domain and it provides services that help to compute workloads. Amazon EC2 web interface is used to reduce the expensive physical servers by creating virtual machines. Also, they help in managing different features of the virtual servers such as security, ports, and storage. Amazon EC2 is highly preferable while creating a virtual server within a few minutes with just a few clicks according to the user’s operating system conveniently. It offers resizable compute capacity in the cloud. This helps a lot to focus more on the project rather than the server maintenance.

1. **Amazon S3 (Simple Storage Service)**

Amazon S3 is categorized under storage domain that provides data storage over the Internet services. Primarily, S3 stores data over the cloud in the form of objects. Amazon S3 stores the data with high security because of its improved infrastructure. The information is distributed over different physical regions and has a high-quality integration. This prevents the data from getting lost and helps to retrieve stored data irrespective of time and space via the Internet. Amazon S3 is highly available so that users can access their data just by one click with minimum or zero retrieving time.

1. **Amazon Virtual Private Cloud (VPC)**

Amazon VPC falls under the Networking domain of AWS which is used to isolate the network infrastructure of user’s computer. Every Amazon account holds a unique virtual network that protects the information from being accessed by others. These networks are logically isolated from other virtual networks in AWS clouds. This makes the user information risk-free in the AWS cloud.

1. **Amazon CloudFront**

Amazon CloudFront represents the delivery domain that is used to deliver the content with great speed and reduced latency. Amazon CloudFront is used to connect with other AWS services and to help the developers to send the content to the end-users in a seamless manner. AWS CloudFront is managing all the users content in an effective manner via the Global Content Delivery Service.

**5. Amazon Relational Database Services (RDS)**

Amazon RDS comes under the Database domain of Amazon Web Services and is used to handle database related workloads. The RDS helps the users to design and manage the relational database in the cloud which stores the complex data of the infrastructure. Earlier RDs used to support MySQL and now it also supports Oracle, Microsoft SQL, and MariaDB. It reduces the operational costs and leverages the database server from maintenance and support.

AWS was the early leader in public cloud computing and has become major player in AI , database ,ML, serverless deployments. AWS holds 33% share in cloud market. It is the No.1 cloud provider in the market. There are still many services provided by AWS.

* Analytics
* Storage
* Compute
* Blockchain
* Networking and content delivery
* Security, Identity and compliance

MICROSOFT AZURE

A close competitor to AWS with an exceptionally capable cloud infrastructure. It provides a range of cloud services, including compute, analytics, storage and networking. It offers tools that support all industries -- including e-commerce, finance and a variety of Fortune 500 companies -- and is compatible with open source technologies. Running virtual machines or containers in the cloud is one of the most popular uses for Microsoft Azure. These compute resources can host infrastructure components, such as domain name system (DNS) servers; Windows Server services -- such as Internet Information Services (IIS). Microsoft also supports the use of third-party operating systems, such as Linux. It focuses more on hybrid clouds.

Azure is also commonly used as a platform for hosting databases in the cloud. Microsoft offers serverless relational databases such as Azure SQL and non-relational databases such as NoSQL.

Services of azure:

1. Azure DevOps
2. Virtual Machines
3. Azure Cosmos DB
4. Azure Active Directory
5. API Management
6. Azure Content Delivery Network
7. Azure Backup
8. Logic Apps
9. Azure Site Recovery and Azure bots

Enterprises could utilize deeply-integrated Azure cloud services for building, deploying, and managing simple or complex applications with ease. The support of Azure for a diverse range of programming languages, databases, operating systems, frameworks, and devices is extensive. It has the highest data centres than any other cloud providers in the market.

GOOGLE CLOUD PLATFORM(GCP)

Google Cloud Platform provides infrastructure as a service, platform as a service, and serverless computing environments. It uses Google Compute Engine for creating instances. The industry leading tools are

* Deep learning
* Artificial intelligence
* Machine learning
* Data analytics

Compute

* App Engine - Platform as a Service to deploy Java, PHP, Node.js, Python, C#, .Net, Ruby and Go applications.
* Compute Engine - Infrastructure as a Service to run Microsoft Windows and Linux virtual machines.

Storage & Databases

* Cloud Storage - Object storage with integrated edge caching to store unstructured data.
* Cloud SQL - Database as a Service based on MySQL and PostgreSQL
* Cloud Datastore - NoSQL database for web and mobile applications.

Networking

* VPC - Virtual Private Cloud for managing the software defined network of cloud resources.
* Cloud DNS - Managed, authoritative DNS service running on the same infrastructure as Google.

Identity & Security

* Cloud Key Management Service - Cloud-hosted key management service integrated with IAM and audit logging.
* Cloud Resource Manager - Service to manage resources by project, folder, and organization based on the hierarchy.