Amazon Web Services(AWS)

Defining AWS :

AWS is a secure cloud service provider with many services to help businesses scale and grow.

AWS Services

1. **Compute Services**

--> Amazon Elastic Compute Cloud(EC2) :

- We need raw compute capacity to host our applications & provide the compute power that our business needs.
- When we are working with aws those servers are virtual & the servers use to gain access to virtual servers is called EC2.

EC2 stands Elastic Compute Cloud :
Elastic : Elastic refers to increase or decrease size of existing servers.
Compute : Compute refers to reason why most users run servers to host running applications or process data.
These actions require compute resources, including processing power (CPU) and memory (RAM).
Cloud : Cloud refers to the fact that the EC2 instances that you run are hosted in the cloud.

- Gives you full Control over guest OS either MicroSoft Windows or Linux on each instance.
- With Amazon EC2, you can launch any number of instances of any size into any Availability Zone anywhere in the world in minutes.
- Instances launch from Amazon Machine Images (AMIs), which are effectively virtual machine templates.

--> Amazon Lightsail:

- Amazon Lightsail is a lightweight cloud platform for a simple web application.
- Provides virtual private servers to run simple workloads in a cost-effective way.

--> AWS Lambda:

- AWS Lambda is a service where we run the code without servers.
- Lambda is Serveless Service.

--> AWS Batch :

- AWS Batch is a service where we run hundreds of thousands of batch workloads.

--> AWS Elastic Beanstalk :

- AWS Elastic Beanstalk is a service that deploys, manages, and scales your web applications for you.

--> AWS Outposts :

- AWS Outposts is a service to run AWS infrastructure in your on-premises data center.

--> AWS App Runner
--> EC2 Image Builder
--> Serverless Application Repository
--> AWS Simspace Weaver

2. **Storage and Content Delivery Services**:

Storage Services :

--> Amazon Simple Storage Service(Amazon S3):

1. Amazon S3 is a service that provides object-level storage.
2. Amazon S3 stores data as objects in buckets.
3. The maximum file size for an object in Amazon S3 is 5TB.
4. Web accessible object store (through API or HTTPS)
5. Highly Durable (99.999999999% design)

Types or Storage Classes of S3:

--> S3 Standard
--> S3 Intelligent-tiering
--> S3 Standard Infrequent Access(S3 Standard IA)
--> S3 One Zone IA
--> S3 Glacier
--> S3 Glacier Deep Archive

--> AWS Elatic File System(AWS EFS)

- Amazon Elastic File System (Amazon EFS) provides a simple, scalable, fully managed, elastic (Network File System) NFS storage.
- A network file system (NFS) enables you to store and retrieve data in a network.

--> AWS Backup:

- AWS Backup centrally manages and automates backups across AWS regions.

--> Storage Gateway
--> AWS Elastic Disaster Recovery
--> FSx

Content Delivery Services:

--> CloudFront :

- Global Content Delivery Network.
- Amazon CloudFront is a web service that gives businesses and web application developers an easy and cost effective way to distribute content with low latency and high data transfer speeds.

--> AWS Direct Connect:
Dedicated Network Connection to AWS.

--> Route 53:
Scalable DNS and Domain Name Registration.

--> Global Accelerator

3. **Databases** :

--> Amazon RDS: Amazon RDS is a managed database service that sets up and operates a relational database in the cloud.

--> Amazon DynamoDB : Amazon DynamoDB is a NoSQL Database. Data is stored in tables with a flexible column structure.

--> Amazon DocumentDB : Fully managed MongoDB-compatible database

service.

--> Amazon ElastiCache

Cloud Vendors

1. Amazon Web Services(AWS)
    - AWS is scalable because it has an ability to scale the computing resources up or down according to the organization's demand.
    - AWS is cost-effective as it works on a pay-as-you-go pricing model.
2. Azure
    - Microsoft Azure is also known as Windows Azure.
    - Microsoft Azure provides scalable, flexible, and cost-effective
    - It allows developers to quickly manage applications and websites.
3. Google Cloud Platform(GCP)
    - Google cloud platform is a product of Google.
    - Google cloud includes various big data services such as Google BigQuery, Google CloudDataproc, Google CloudDatalab, and Google Cloud Pub/Sub.
4. IBM Cloud Services
    - IBM Cloud is an open-source, faster, and more reliable platform. It is built with a suite of advanced data and AI tools.
    - IBM cloud improves operational efficiency.
5. VMware Cloud
    - VMware cloud is a Software-Defined Data Center (SSDC) unified platform for the Hybrid Cloud.
    - VMware cloud works on the pay-as-per-use model and monthly subscription
6. Oracle cloud
    - Oracle cloud platform is offered by the Oracle Corporation.
7. Red Hat
    - Red Hat virtualization is an open standard and desktop virtualization platform produced by Red Hat.
    - Red Hat provides secure, certified, and updated container images via the Red Hat Container catalog.
8. DigitalOcean
    - DigitalOcean is the unique cloud provider that offers computing services to the organization.
9. Rackspace
10. Alibaba Cloud

Features	Amazon	Microsoft Azure	Google Cloud
Age	11 years old	5 years old	6 years old
Pricing	Per second pricing with a 60-second minimum	Per-minute basis	Per-minute basis
Compute	EC2 (Elastic Compute Cloud) provides all the computing administration. The program oversees virtual machines, which can either be designed by the owner or have pre-configured settings for convenience	With Microsoft Azure, you can create virtual machines and scale sets for virtual machines.	As part of GCP (Google Cloud Platform), GCE (Google Compute Engine) does a similar function.
Storage	AWS provides apportioned, transient (brief) stockpiling. As soon as an instance begins, it is demolished at the end of the case.	Azure uses ID drives (transient capacity), and Page Blobs VM-based volumes are stored in Block Storage (Microsoft's choice). Object Storage uses Square Blobs and Files.	Comparatively, Google's Cloud Platform offers both brief stockpiling and constant circles. For Object stockpiling, GCP has Google Cloud Storage.

AWS Documentation

- For documentation of AWS, aws has provided a link https://docs.aws.amazon.com/?nc2=h_ql_doc_do.

Github

- GitHub is a code hosting platform for version control and collaboration.
- GitHub provides distributed version controls geared towards tracking and managing changes to software code.
- Process we do in Github:
    1. Create and use a repository
    2. Start and manage a new branch
    3. Make changes to a file and push them to GitHub as commits
    4. Open and merge a pull request

Linux

- Linux is Operating System.
- We have Linux Commands to create a file, edit a file, read a file, remove a file, download an application or a file.