

EC2 - Elastic ~~cloud~~ compute cloud.

→ It is AWS service where we can launch EC2 Instances.

- EC2 is one of the Biggest service in AWS.

- EC2 is Regional service.

- EC2 instance is serverBase.

Load balancer :- Which distribute the traffic to multiple servers.

* Elastic load balancer (ELB) :- Distributes the traffic to multiple EC2 instances across AZ's.

- ELB completely managed by AWS.

- ELB is Service from AWS, not server.

- You can't login to ELB, you can access ELB with DNS Name.

- ELB Doesn't have any AZ's, it is created at Region level.

* Elastic Beanstalk :- Easy and quick deployment of applications ~~in~~ in AWS, IN general PaaS → You don't have control on the server backbone of Beanstalk is EC2 instance.

* AWS Beanstalk :- You have full control on EC2 instances launched by Beanstalk

- Beanstalk handle EC2 instances behalf of us.

* Lightsail :- If you want to setup and create virtual lightsail instance which already has everything installed are ready. (gitlab, nodejs etc.)

- If Doesn't support Auto-scaling.

IMP

* Lambda * (service)

- In the Lambda service we creates a function.
- Using this service we can run the function without application and server. & it's called serverless.
- Lambda is serverless.
- You can run the code without servers.
- Lambda is used for Automation.

Lee - 13 }

* S3 = Simple Storage Service *

- S3 is unlimited storage by AWS.
 - S3 is used to store the files.
 - S3 can store any kind of files. (FILE (FLAT files)).
 - With S3, we can upload, download, store the data & access your files.
 - You can't execute any files in S3.
 - You can't install, run, execute any files in S3.
 - S3 is serverless.
 - AWS handles HA, performance, scalability etc for S3.
 - IN AWS, all services will start with simple and end with service.
- SNS → Simple Notification Service.
SES → Simple Email Service.
- Bucket - Bucket is container of objects. (folders)
 - object - object is a file. (file)
 - Name of the file/object is a key (product.MP4, MP3)

* S3 is object based storage.

* S3 is Regional

- S3 supports static website hosting.
 - Create a bucket and upload all the html files and enable static website hosting.
 - No need to worry about HA, performance, scalability etc. because S3 handles it.

* EBS :- Elastic Block Storage.

- EBS is Block Based Storage. (we can do everything there - ex. run, execute, stop, install etc.)
Hard Disk = Volume = EBS Volume.
- Volume can be attached and detached.
 - You can't attach multiple volumes to the EC2 instance.
 - EC2 instance has default volume, that volume is called Root volume.
 - The Root Volume always contains OS (Windows, Linux).
- * EC2 supports only server side OS not client side OS.
 - If ~~OS~~^{you} have OS on the volume, the volume is called Root volume.
 - EC2 instance can have only 1 Root volume.
 - EC2 instance can have multiple additional volumes.
 - Max volume of EBS volume is 16 TB.
- * You can't attach a volume to multiple EC2 instances at the same time.
 - Volume size can be increased on FLY (no need to stop the EC2 instance, no downtime)
 - Volume size can't be decreased. (delete the volume & re-create is based on requirement.)
- * Root volume device names :- /dev/sda1. (For Windows/Linux)
- * Root volume is always mounted / attached as /dev/sda1.

- Q: Is it possible to detach the Root volume while EC2 is running?
- No, Stop EC2 instance first & then detach the Root volume.
- Q: Is it possible to detach the addition volume when EC2 is running?
- Yes, It is not recommended.

- * EC2 instance has AZ, volumes also has AZ.
- EC2 instance & volume should be in same AZ.
 - We can't attach 1a volume to 1b EC2 instance. (diff AZ)
 - We can → 1a → to 1a EC2 instance (same AZ)

- You can't share the volumes among EC2 instances.

Lec 14

* Elastic file system.

* EFS concept Only for linux.

- EFS completely managed by AWS.

* - EFS is shared storage concept for only Linux.
- EFS is file base storage.

* FSx is for Windows EC2 instance.

- EFS works with NFS protocol.

= EFS can be replicated to other Regions. } Duplicate

- EFS can be mounted to multiple EC2 instances at the same time across AZ's.

* Show family

show cone → 8 TB
show Edge → 100 TB
show Mobile → PB's } S3

- Show family is used to transfer huge data from on-prem to AWS and vice versa.

* Show family is a Physical Data Transfer using Devices

* Storage Gateway.

- Storage Gateway is Hybrid storage service in AWS.

* Database Services *

* **RDS** :- Relational Database Service.

- RDS is completely managed by the AWS.
- RDS is service where we can setup, configure and maintain RDBMS Databases.
- RDS DB instance, RDS supports only RDBMS databases only.

* RDS supports 7 Engines.

- MySQL
- Oracle (MOMPMAL)
- MSSQL
- PostgreSQL
- Maria DB
- Aurora — (AWS is owner)
- IBM DB2.

* - **DynamoDB** → NoSQL database service [Non-Relational] ***

* **DMS** :- Data migration Service.

Database :- Is used to store the data.

Datawarehouse:- It is used to store huge data.

Redshift :- Datawarehouse in AWS.

* **ElastiCache** ⇒ In memory database caching service.

- Low latency
- High performance.

Lec-15

Route 53

— Service.

- * - Route 53 is DNS Service from AWS, DNS Port Number is 53.
- R53 contains Records.
- R53 is Global.



* **VPC** = Virtual Private Cloud

- It is like a virtual datacenter on cloud.

* **CloudFront** : — Service.

- In this service we creates distribution.
 - Applying this service in AWS it will be provide same content on different locations with low latency.
- * - CDN = Content Delivery Network.
TTL = Time to live.

Lec-16

IAM :- Identity And Access Management.

- You can control the entire AWS using IAM by providing proper permissions to the IAM users.

* **Cloud Cloud-watch** :-

- Cloudwatch is used to monitor all AWS resources (EC2, ELB, S3, RDS etc.)
 - In Cloudwatch we creates **alarms** to monitor AWS resources.
 - Cloudwatch monitors the performance.
- * **Basic monitoring** - you will get the datapoints every 5 mins, FREE, [Default].

* **Detailed Monitoring** - you will get the data points every 1 min, billable.

* **CloudTrail** :- Monitor entire AWS account.
Record, monitor, track, audit, logs etc.

- Investigation purpose.

* **Secret Manager** = it is used to store secrets (credentials, keys etc).

* **AWS Backup** :- Centrally manage & automate backup.

* **WAF** :- Web application firewall.
- Protect your web application from common web exploits.

* **AWS Shield**:- Managed DDoS protection service.

* **AWS Support**:-

- Basic support
- Developer support
- Business support
- Enterprise support