

26/06/25

# Forage

Date: \_\_\_\_\_ Page No. \_\_\_\_\_

## SOLUTIONS ARCHITECTURE

- AWS provides services for doing all kinds of things!

⇒ General services :-

### 1.) Code Pipeline :

This will build code & can deploy it to various AWS services.

- charged per pipeline.
- can be used with Elastic Beanstalk for blue/green no-downtime deployments.

### 2.) Elastic Load Balancing :

Distributes traffic across application servers, such as EC2, Lambda or Fargate.

- Uses health checks to know which servers should service requests.
- Changes are based on no. of hours the load balancer runs & amount of traffic it serves.

### 3.) RDS : Relational Database Service.

- Relational Database Hosting platform.
- Charged in the same way as EC2 (a virtual machine with a set amount of resources).
- Servers can be resized but must be restarted to do so.

### 4.) Route 53 :

- AWS Domain & DNS management.



## 5.) S3 : Simple Storage service .

- Stores objects in the cloud.
- Charge based on amount of data stored, how its stored, & for retrieval.

## ⇒ Application Executors :-

- A few ways of executing applications, from virtual machines to container executors, to function executors.

## 1.) EC2 : Elastic compute cloud .

scalable virtual servers.

- charged on resources of the ~~VM~~ virtual servers (RAM, CPU, storage) per hour.

- Servers can change their resource allocation but must be restarted.

## 2.) Fargate :

- Run containerized applications (eg:- Docker Images).
- Charged on resources assigned to the containers (RAM, CPU, storage) & how long it runs for.
- Scalable but requires manual orchestration.

## 3.) Lambda :

An application is uploaded to lambda & only executed when triggered.

- Ex:- on HTTP request via S3.



- Ex:- A lambda instance would run to just service a single HTTP request.
- Charge is based on amount of memory the lambda uses, how long it ~~uses~~ runs for, plus the no. of requests.
- Data transfers may change depending on which region(s) a lambda is fetching data from.
- Highly scalable up & down.
- Not suitable for serving static content.

#### 4.) Lightail:

- VM's like EC2 but simpler to set up.
- Charges based on the resources of the lightail VM.

- VM's resources cannot be changed, instead the machines must be cloned to a new machine instance & restarted.

### 5.) Elastic Beanstalk :

Ties EC2, RDS and Elastic Load Balancing with simple configuration & deployment.

- Primary advantage facilitates the autoscaling of EC2 instances.
- Billing is based on the combination of EC2, RDS & ELB used.
- Deployment is made easy with CLI tools & use rolling deployments so there is no downtime.
- Supports several languages like Python, PHP, NodeJS, Java, Go...



⇒ Availability zones (AZs) :-

For extra redundancy, services can be deployed across multiple AZ.

- Meaning requests can fall over from one AZ to another in case of infrastructure failure.
- Charge : Cost of the service is multiple by the no. of AZ's in it.

⇒ These were few & mostly used services in AWS.

- Pricing may differ in each region, but method is same
- EC2 Instance in region A can cost more than in region B, but <sup>BOTH</sup> are on hourly basis.
- Pricing calculator → calculator.aws/

⇒ Architecture diagram for a customer (startup) :-

