# EC2 (Elastic compute cloud) venkatesh bojja

* EC2 is a web service from AWS ,that provides “Resizable” compute service in the cloud.
* Resizable = scale up / scale down
* EC2 is Regional.
* **EC2 instances pricing models:**

1.On –Demand instances(fixed price)

2.Reserved instances(long term commit 1 or 3 years)

3.Spot instances(huge capacity for cheaper price 90% diss)

4.Dedicated Host(if any customer need physical machine )

* **EC2 familes or instance types:**

1.General instances🡪(for general purpose)

2.Memory instances—(more memory)

3.CPU instances ---(more cpu)

4.Storage instances ---(more storage)

5.GPU instances –(Graphics,Heavy machines)

# SECURITY GROUPS

* Security Groups Act like a Firewall to secure the EC2 instances.
* SG: which stops the Unauthorized access to the EC2 instances.
* SG used to secure the EC2 instances.
* **SG has 2 types of Rules:**
* **Inbound Rule:** Which allows the traffic toward EC2 instances.
* The inbound Rules are always DENY. . By default.
* **Outbound Rule:** which Sends the traffic outside EC2 instances.
* The Outbound Rules are always ALLOW. By default.
* Every **EC2** instancemust be have atleast 1 Sg.
* You can create multiple SG’s and you can attach multiple SG’s to the Single **EC2** instance.
* In AWS each REGION have a Default Security Group.
* In SG have **protocals** ,**port numbers**
* Protocals : HTTP,HTTPS, SSH etc..,
* Port no: http:80,https:443,ssh:22,smtp:25 etc,..

# NACL(Network Access Control List)

* NACL is another layer of security for EC2 instances.
* It is used to tight the security .
* NACL is also have Inbound and Outbound Rules.
* NACL will hit first and then SG.
* **SG** is used in **EC2 level** and **NACL** is **subnet level.**

### This is the diagram for your understanding:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **AWS-cloud**   |  |  |  |  | | --- | --- | --- | --- | | **VPC-**another isolated network   |  |  |  | | --- | --- | --- | | NACL-subnet-level   |  |  | | --- | --- | | |  | | --- | | EC2 |   SG | | | |

# LB(Load Balancer)

* **Load balancer:** Which distribute the traffic across multiple servers.
* **LB** follows Round Robin Method.
* **LB** is used for Load balancer serves as the single point of contact for clients.
* Load Balancer always monitor “Application” **Not** Servers.
* Load Balancer is completely managed by AWS.
* Load Balancer can be accessed via URL(DNS name),We cannot login to the LB.
* **Types of Load Balancers:**

### 1.Application Load Balancer (ALB):

* latest generation, support HTTP,HTTPS, Default choose is ALB.
* Best for micro-services(k8s,Docker) Target Group=ec2 instances.

### 2. Network Load Balancer (NLB):

* Latest Generation, Support ‘TCP’.
* Extreme high performance , Network level, Using static ip’s

### 3. Gateway Load Balancer (GLB ):

* Latest Generation .It is used for security.
* Virtual Devices which can work on GENEVE Protocol.

### 4. Classic Load Balancer (CLB):

* Old generation, supports HTTP,HTTPS & TCP .

# S3 (Simple Storage Service)

### S3:

* S3 is a web service in AWS.
* S3 is **Global**.
* S3 is **object based storage**.
* S3 is **unlimited storage** by AWS.
* S3 is used to store our files.
* S3 can store all flat files (all types of files).
* With S3 we can upload ,Download and Access your files at any point of time.
* S3 is server less managed by AWS.

### S3 Buckets:

* In S3 we store in BUCKETS .
* Buckets are Regional.
* Bucket -- Name must be unique across the global.
* Bucket is container for objects.
* Object is a file.
* Each object must not exceed 5TB in size
* S3 supports Static Web Hosting (html files).

## Bucket Name restrictions:

\* Doesnt support Uppercase characters

\* You can use lower case letters, Numbers & . (period)

\* bucket name must be min 3 character length

\* Bucket Name must not exceed 63 characters

\* bucket name must start & end with either lower case letter or number.

\* You cannot use two consecutive

\* bucket name must not identical to IP address

## Practice:

* Login to AWS Management console.
* You must choose your Region.
* And search **S3** service 🡪 enter into this service.--> click on Buckets.
* In this Dashboard in right side we see an option 🡪Create Bucket –click on
* Give bucket name ,(bucket name should be unique ).-🡪choose AWS Region-🡪Object Ownership🡪ACLs enabled🡪click on it.
* **Block all public access 🡪uncheck the check box🡪**acknowledg check on .
* **Remaining is leave default. And click on -🡪Create Bucket.**
* **Now you click on your bucket -🡪 upload a object .After select uploaded object and select Actions 🡪 click on Make public access.**
* **And copy the URL and browse it at anywhere.**

## S3 Features:

1) Static Web Site Hosting

2) Versioning

3) Encryption

4) Replication

5) Object Lock

6) S3 transfer Acceleration

7) Access Logging

8) Bucket Policies

9) Life Cycle Management

## Storage Class:

1) Standard

2) Intelligent-Tier

3) Standard IA

4) One Zone IA

5) Reduced Redundancy Storage (RRS) -- Not Recommended

6) Glacier

7) Glacier Deep Archive

1. Standard:

* to store the regular used data.
* No retrieval Charge
* Data can be maintained in 3 copies across different hardware.

2.Standard IA - (Infrequently accessed):

* to store the object which can be accessed occasionally
* Retrieval charges applicable
* Min Object storage duration applicable
* Data can be maintained in 3 copies across different hardware.