

# Deploying a Highly Available and Elastic Architecture on AWS

using VPCs, Autoscaling , ELB and MultiAZ RDS.

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# Highly Available and Elastic Architecture

- ▶ **High availability architecture/system** means a system which ensures optimal operational performance, even at times of **high** loads.
- ▶ **Elastic Architecture means** the ability of an system to resume its normal state after failure or stretching(scale-in) or compression(scale-out).

# VPC

- ▶ VPC stands for **V**irtual **P**rivate **C**loud, and in VPC we can create our own **SECURE** virtual cloud infrastructure, like Virtual Machines(EC2) , Database(RDS) ,Gateways, Firewalls (Security rules and routes), etc..

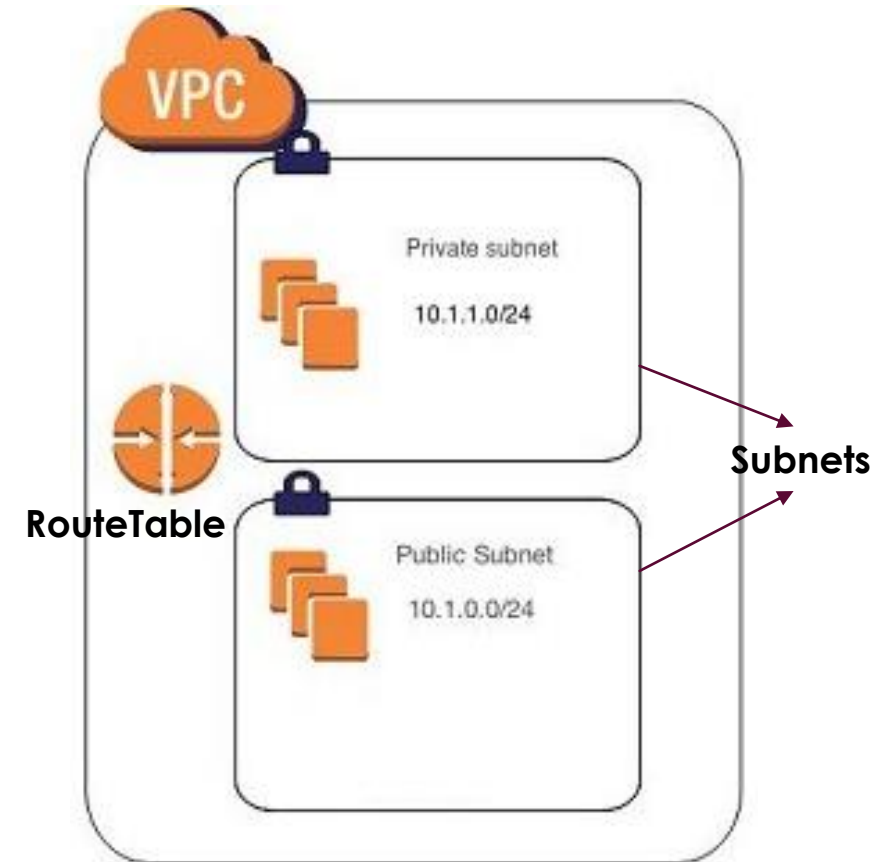


# Subnets

► Its a smaller network within the VPC where you can deploy your AWS resources.

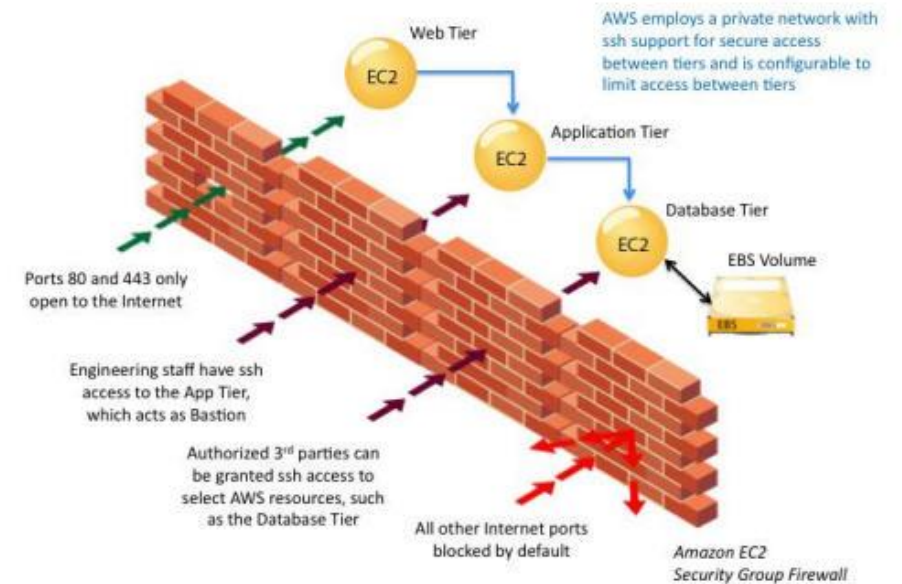
**VPC = Subnet 1+ Subnet 2 + ...so on .**

**A minimum of 1 subnet exists in a VPC.**



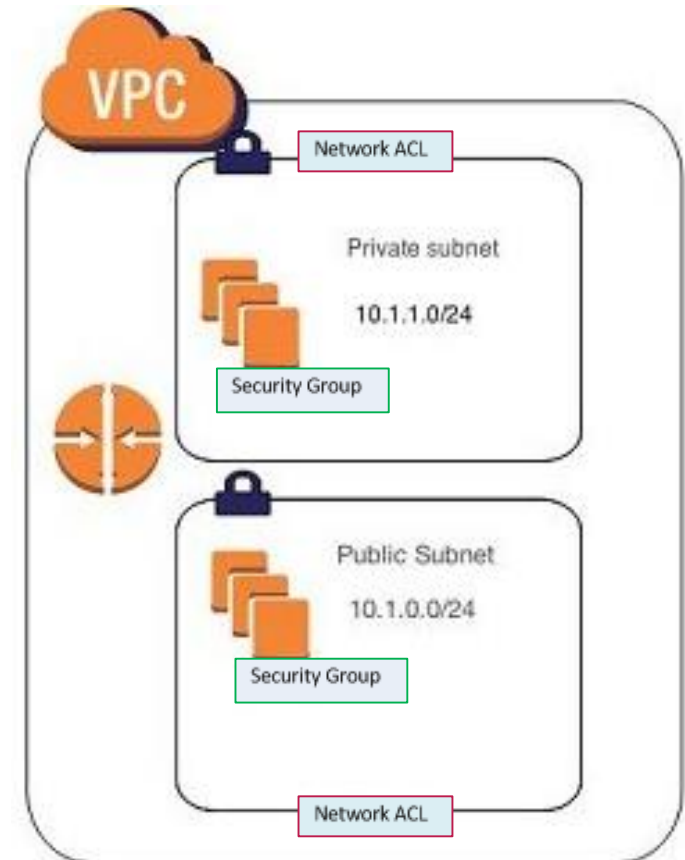
# Security Groups(SGs) and Network Access Control Lists(NACLs)

- ▶ FIREWALLS
- ▶ Guard VPC's , Subnets and resources from undesirable access ,providing security, and ability to configure inbound and outbound rules.



# Security Groups(SGs) and Network Access Control Lists(NACLs)

- ▶ SG's ==> for Resources
- ▶ NACL's ==> for SNs.



# Elastic Compute Cloud(EC2)

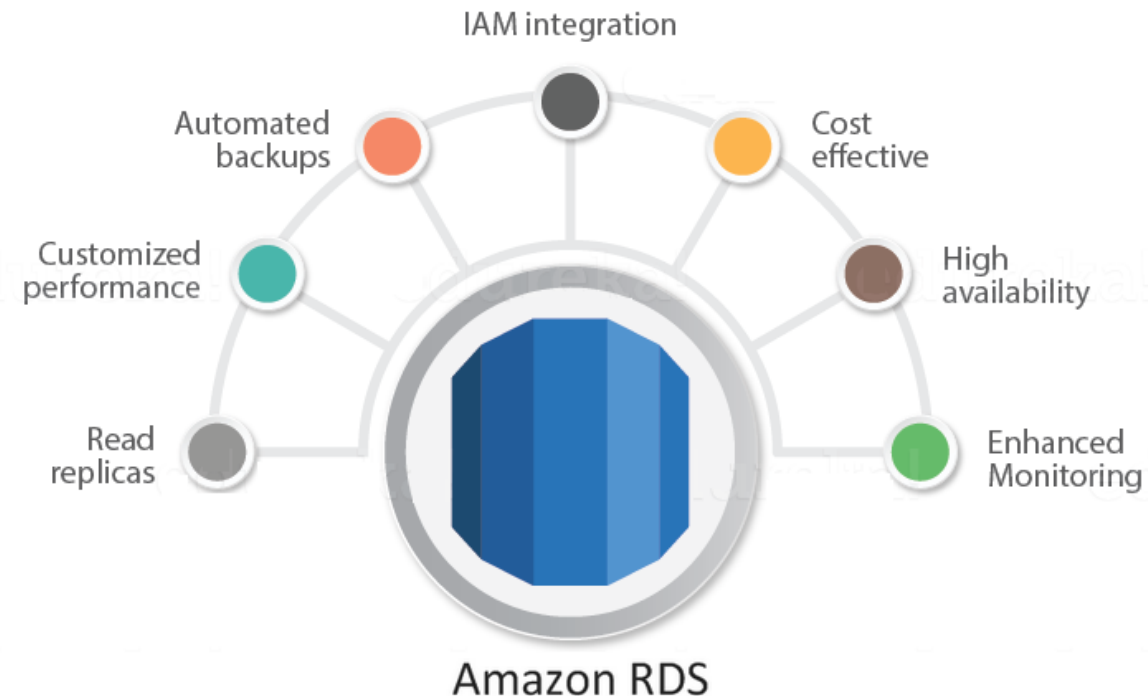
- ▶ A machine in cloud, more precisely a virtual machine (CPU + Memory + Processor + Disk)
- ▶ The beauty of EC2 is you can launch VMs on demand, stop , start ,reboot , terminate and change configuration on fly in few seconds or minutes.



Amazon EC2

# Relational Database Service (RDS)

- ▶ Database on cloud, Highly available , with easy backup feature and can quickly recover from failures.
- ▶ Supported databases by AWS are , MYSQL , AuroraDB, SQL Server , Maria DB , Oracle..etc..



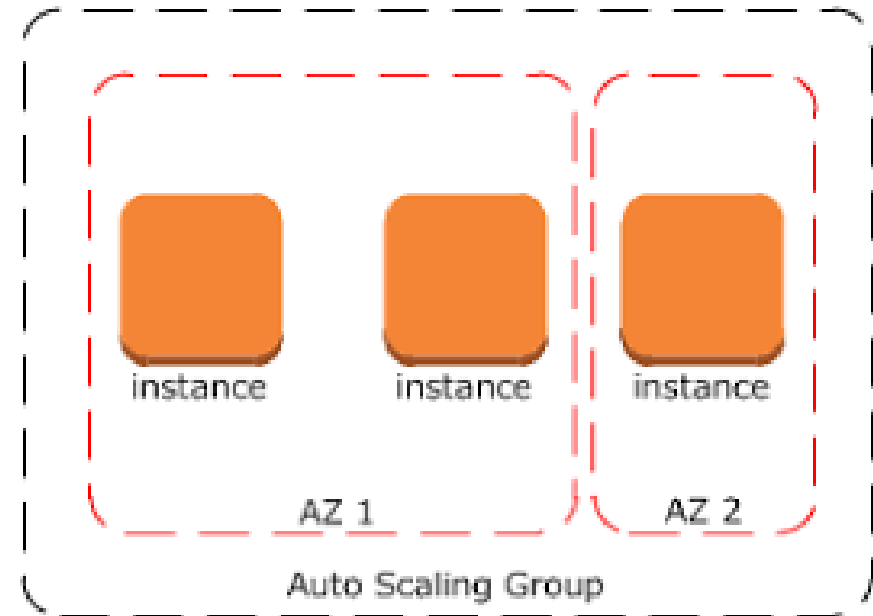


# Autocasting

► **Auto**(matically) + **Scale**(in or out) > VMs.

Also you can associate it with VM(EC2) metrics to scale in and out too.

Policy creations , notifications, logs..etc.. are some of the features supported.



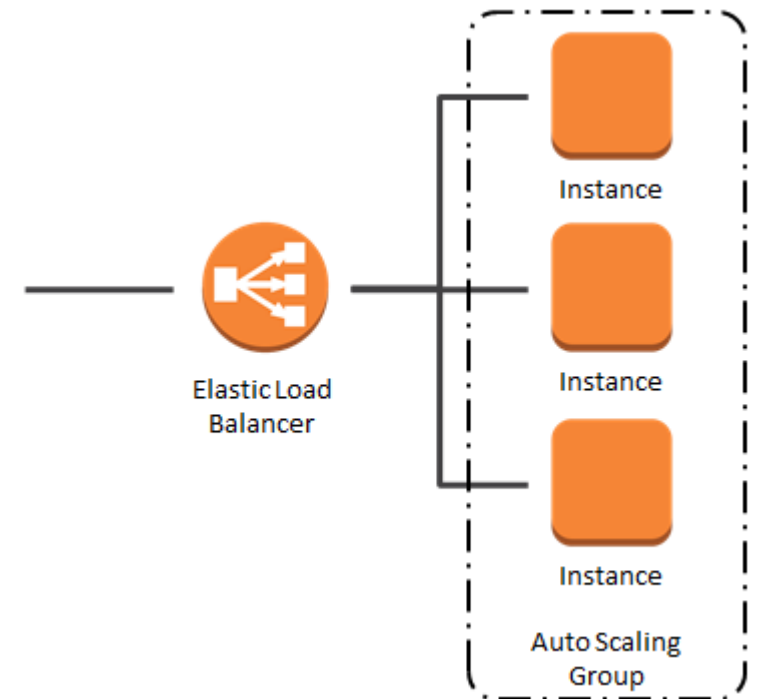
# Elastic Load Balance(ELB)



## ► Balancing load on VMs.

One of the most brilliant services on AWS , 99.99% available and super fast. Features like health checks and works very well with Autoscaling.

External ELBs and internal ELBs.



# What We're Going to Build

