**EC2**

EC2 is the most popular service in AWS. EC2 stands for Elastic Compute Cloud. It is Infrastructure as service.

EC2 offers the following:

- Virtual machines

- Load balancers

- Scalability

EC2 Configuration options

- Operating system

- Storage system.

- Network card

- Firewall / Security groups

- Boostrap script

EC2 User Data

This helps us to boostrap certain command, when the machine starts. We might want to install, update or download certain software at the start of the instance launch. Make sure to keep your user data script as light as possible, so as to prevent it from taking too much time when the instance boots.

Launching an EC2 Instance.

We will launch an EC2 instance using the RDP, LINUX OS.

EC2 Instance Types – Overview

There are five main type of instance. They are;

- General purpose => This is for general purpose use.

- Compute Optimized => This is for CPU intensive tasks

- Memory Optimized => in memory databases (caching).

- Storage Optimized => this is used to store data in databases

- Accelerated Computing => this is related to hardware and processors

AWS uses this naming convention:

t2.micro:

- t : instance class

- 2: generation

- micro : instance size

t2.micro is a free-tier instance, it can run up 750hours per month.

Launching an aws instance.

Follow these easy steps to launch an aws instance;

- Firstly choose your AMI of choice. **Amazon Linux 2 AMI**

**-** Choosean instance type t2.micro is recommended.

- Leave all fields in the configure instance page untouched except, “user data”.

- Enter the following in the user data field.

#!/bin/bash

yum update –y

yum update -y httpd

systemctl start httpd

systemctl enable httpd

echo “<h1>Hello world from $(hostname -f)</h1>” > /var/www/html/index.html

The user data above will install every necessary update, and display hello world “hostname” anytime it boots.

- Leave the “add storage” page untouched

- In the “add tags” page, a user add a tag [ name: my server, dept: engineering]

- In the “configure security group” section, add an http rule. So we can only access the website through the http protocol.

- Before launching the instance, take a look at the review page, so as to check if any mistakes were made. If none click launch.

There you go. You just successfully launched an AWS instance.

Now that you have you instance up and running, do well to stop it. So it is not always running when it’s not in use.

> Remember that the public IP changes any time you start your instance

Just in case, you want to kill or delete an instance, use the ‘terminate instance button’ to do this.

SECURITY GROUPS.

Security groups control and manage the kind of traffic that will be allowed into your server. Security groups will act as firewalls. They help regulate;

- Access to port

- Authorized IP ranges – IPV4 and IPV6

- This will allow inbound and outbound network.

Security groups can be attached to more than one EC2 instance. The security groups live outside the EC2 instance.

By default all inbound traffic is blocked and all outbound traffic is authorized. That is why we had to add the http rule in the configure security group page.

Inbound Rule – security group.

Inbound rules are set of instructions that tell AWS what can access the server.

Connecting to EC2 instance.

There are two ways a user can connect to EC2 instance:

- SSH [Secure Shell]

- AWS connect (this only works for LINUX related AMI)

EC2 Security Roles.

Roles gives EC2 certain permissions to take actions on our behalf.

EC2 Instances Purchasing Options

When dealing with EC2 pricing, a user have to take into account what kind of instance will be worth its money. The following are the options:

- On-Demand Instance : short workload, predictable pricing

- Reserved : minimum one year

- Spot Instances: short workloads and not reliable

- Dedicated Host: book an entire physical server.