Creating and Working with an EC2 Instance SOP

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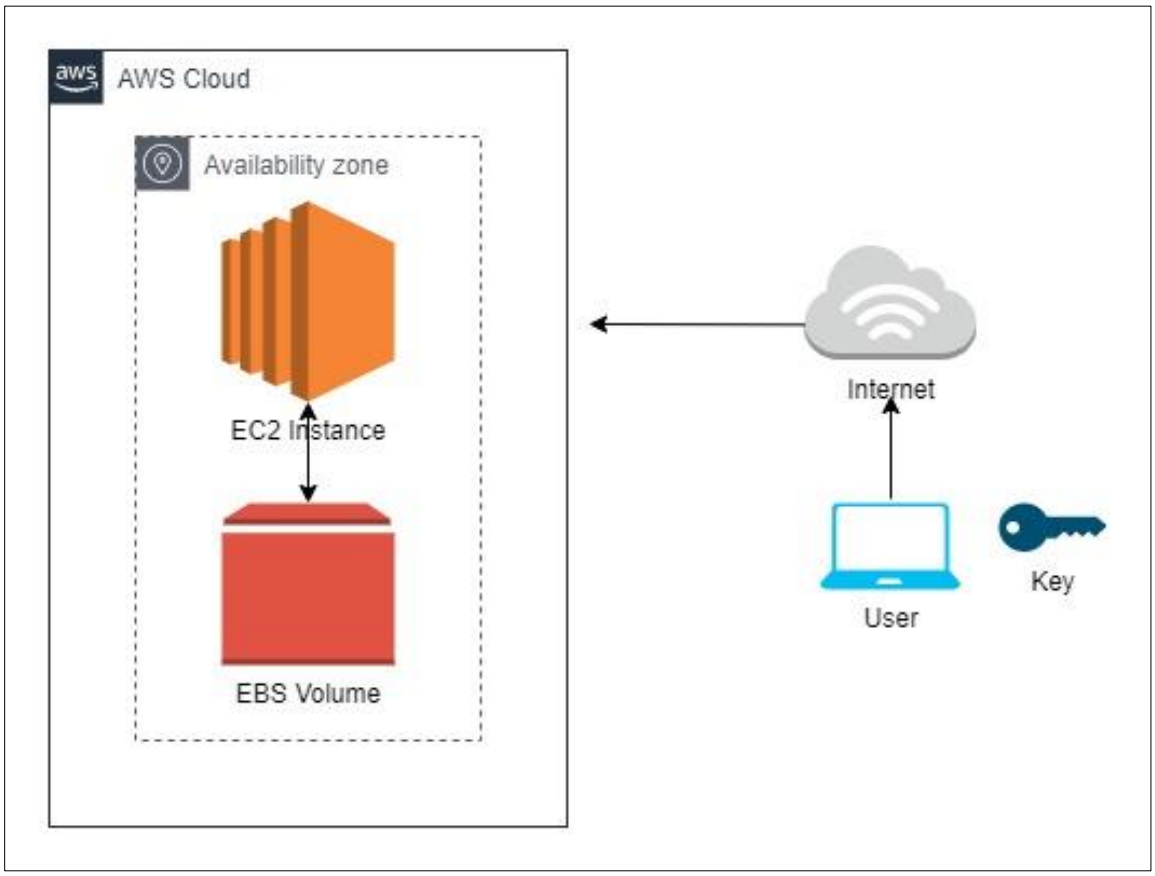
1. Creating and Working with an EC2 Instance

1.1 Description

We will be creating an EC2 instance, which is a server used for basic web services, providing resizable compute servers in the AWS Cloud. Every EC2 instance that we create comes with a default Elastic Block Store (EBS) volume attached to it, providing persistent block storage. Then SSH into the instance and using cli we will create a new EBS volume with greater size and attach it to our instance.

1.2 Architecture Diagram

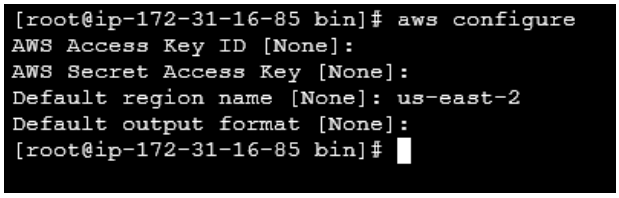
The diagram below displays a visual representation of the application architecture:



1.3 Lab Steps

Follow the steps outlined below to achieve the objective of this lab exercise:

1. Open the AWS console and navigate to **EC2 service** and go to **Instances**.
2. Click **Launch Instance** and then:
   a. Choose an Amazon Machine Image (AMI), find an **Amazon Linux- 2 AMI** at the top of the list and choose Select and click on **Next**.
   b. Choose an Instance Type, find **t2.micro** and click on **Next: Configure Instance Details**.
   c. Configure Instance Details by attaching **CCL-EC2-Role** at IAM Role selection, leave rest to default and click on **Next: Add Storage**.
   d. Notice that we are creating General Purpose SSD with 8GiB Size, we can increase the storage size according to our requirements, but for now we will keep it at default.
   e. Select **Create a new security group** give it a name and open port 22 and type SSH with source as My IP which will automatically fill. (You can open SSH port open to world by giving 0.0.0.0/0 which is not required here).
   f. Review all the settings Click on **Launch**, create a new key-pair, provide name, download it and click on **create**.
   g. After it displays **Launched instanced successfully**, click on **view instance** and wait for some time while the instance comes to **running** state. EC2 instance is created.
3. We can connect to our instance from our local machine through SSH using putty or you can connect from the console using session manager. (Choose your instance and select connect).
4. Once you ssh into your instance configure your default region to **us-east-2**, and follow the below steps:



5. Now, let's create a snapshot for existing attached EBS volume. For this follow the below steps from CLI:
   a. Find **Root Device**, **EBS volume ID**.

```
aws ec2 describe-volumes --filters Name=attachment.instance-
id,Values=<your-instance-ip>
```

   b. Now using EBS volume id we will **Create snapshot**.

```
aws ec2 create-snapshot --volume-id <voli-id> --description
"This is my root volume snapshot created from cli"
```

   c. Note the snapshot id created, now let's **Create Volume** and enter the snapshot ID of the snapshot created in the above step and enter the volume size greater than the default one attached to our instance. Note that the volume being created and snapshot should be in same availability zone.

```
aws ec2 create-volume --volume-type gp2 --size 10 --snapshot-
id <snap-id> --availability-zone us-east-2b
```

d. Now, stop the state of EC2 instance from the console, Because we cannot detach the default volume attached to our EC2 instance when the instance is running.
e. Since the instance is stopped we will perform the further actions from console. Go to the **defaultEBS volume** attached to your ec2 instance, select it, choose **Actions** and then choose **Detach**.
f. Now select the new EBS volume created, choose **Actions** and then choose **Attach** by providing the instance id and device name as **/dev/xvda.**
g. Now we have our new EBS volume with greater size attached to EC2 instance.

1.4 Troubleshooting

S. No.	Problem	Solution (s)
1.	Unable to attach the new EBS volume to EC2 instance.	To attach a new EBS volume to an EC2 instance, make sure you detach the default EBS attached to it, because only one EBS can be mounted to an instance at a time and are in same availability zone
2.	Unable to detach the EBS volume for the EC2 instance.	To detach the EBS volume from instance, you need to change the state of the instance from running to stop and then try to detach the EBS volume from it.
3.	Unable to perform operations from cli when connected from putty	Check whether you have attached **CCL-EC2-Role**

1.5 Supporting References

Refer the below links for additional information:

1. https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/ebs-creating-volume.html
2. https://docs.aws.amazon.com/cli/latest/reference/ec2/index.html