Module 12 – Lambda Function

Lambda Function.

AWS Lambda is a serverless computing service provided by Amazon Web Services (AWS). It allows you to run code without provisioning or managing servers. With Lambda, you can simply upload your code, and AWS takes care of everything required to run and scale your code with high availability.

Create the Lambda function for AUTO Start/Stop EC2 instances. Using the Event Bridge to trigger the Lambda function.

- Click on Create Function.
- Then we need to select in which Runtime we want us to create the function. They have various ones, but we will see Python example.
- Click on Create Function.
- Use the code below to start EC2 instance using the Lambda function.

```
import json
import boto3
ec2 = boto3.resource('ec2', region_name='us-east-1')
def lambda_handler(event, context):
    instances = ec2.instances.filter(Filters=[
        {
            'Name': 'instance-state-name',
            'Values': ['stopped']
        },

    ])
    for instance in instances:
        id=instance.id
        ec2.instances.filter(InstanceIds=[id]).start()
        print("Instance ID is started :- "+instance.id)
    return "success"
```

- Now let's modify the IAM permission so that Lambda has access to EC2 instance.
- For That we need to create a role and assign the policies. Here is the policy which we will used for EC2-start stop.

```
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "VisualEditor0",
            "Effect": "Allow",
            "Action": [
```

```
                "ec2:DescribeInstances",
                "ec2:StartInstances",
                "ec2:DescribeTags",
                "ec2:DescribeInstanceTypes",
                "ec2:StopInstances",
                "ec2:DescribeInstanceStatus"
            ],
            "Resource": "*"
        }
    ]
}
```

- We will attach this policy to the Lambda function role.
- Execute this lambda function and we will see if the stopped instance is getting started or not.

- Now let's create another function which will help us to stop the running instance.
- Here is the code.

```
import json
import boto3
ec2 = boto3.resource('ec2', region_name='us-east-1')
def lambda_handler(event, context):
    instances = ec2.instances.filter(Filters=[
        {
            'Name': 'instance-state-name',
            'Values': ['running']
        },

    ])
    for instance in instances:
        id=instance.id
        ec2.instances.filter(InstanceIds=[id]).stop()
        print("Instance ID is Stopped :- "+instance.id)
    return "success"
```

- Execute this lambda function and we will see if the stopped instance is getting started or not.

- Now let's try to implement EventBridge so that these Lambda functions can trigger at schedule time.

- Go to EventBridge and click on Create Rule.
- Give the name and Select Rule with an event pattern.
- Next, Event Source as AWS service. AWS service as EC2, Event type as EC2 Instance State-change Notification
- Select the target as Lambda Function and specify the function name.
- Now a rule is created. Let's put the cron job on this rule.

- Select the rule and click on Edit.
- Change the rule type as Schedule and define the Cron parameter.
    - 00 14 ? * * *
- Rule has been updated. So as per the rule EC2 instance will get auto stop at 2:00 PM CST.