Introduction to Amazon Lambda

**Lab Details:**

1. This lab walks you through how to user AWS Serverless service called Lambda. In this lab we will create a sample lambda function which trigger on S3 Object upload event and make a copy of that object on another S3 Bucket.
2. Duration: 00:30:00 Hrs
3. AWS Region: US East (N. Virginia)

**Tasks:**

1. Login to AWS Management Console.
2. Create two S3 buckets one for source and one for destination.
3. Create a Lambda function to copy the object from one bucket to another bucket.
4. Test the Lambda Function.

**Steps:**

1. Launch your lab environment by clicking on **Start Lab** button.
2. Once your lab environment is created successfully your **Console Login** button will be active, Now click on **Console Login** button, this will open your **AWS Console** Account for this lab in a new tab.
3. Navigate to S3 by clicking on the “services” menu in the top,then click on “S3” (in the “Storage” section).
4. **Create the Amazon S3 Buckets**

**Create Source Bucket**

* 1. Click on Create Bucket (Source Bucket)
  2. Bucket Name: Enter a source bucket name.
  3. Region: US East (N. Virginia)
  4. No need to change anything just click on Create Bucket button.
  5. Now once your bucket created successfully, Select your bucket from the list.
  6. Once you select your bucket a Pop-Up will appear with bucket details from left side of screen, In the pop-up click on **Copy Bucket ARN** button.
  7. Save the source bucket ARN in a text file for later use.

**Create Destination Bucket**

* 1. Click on Create Bucket (Destination Bucket)
  2. Bucket Name: Enter a destination bucket name.
  3. Region: US East (N. Virginia)
  4. No need to change anything just click on Create Bucket button.
  5. Now once your bucket created successfully, Select your bucket from the list.
  6. Once you select your bucket a Pop-Up will appear with bucket details from left side of screen, In the pop-up click on **Copy Bucket ARN** button.
  7. Save the destination bucket ARN in a text file for later use.

1. Now we have two buckets to test the Lambda function.
2. **Create a Lambda Function**
   1. **Prerequisite for creating Lambda function-:**
   2. We need to create a user role with custom policy.
   3. Go to Services and select IAM.
   4. Now in left menu click on **Policies**.
   5. Click on **Create Policy** button.
   6. Click on json tab and copy paste the below policy statement in the editor only need to change source and destination bucket ARN-:
   7. {
   8. "Version": "2012-10-17",
   9. "Statement": [
   10. {
   11. "Effect": "Allow",
   12. "Action": [
   13. "s3:GetObject"
   14. ],
   15. "Resource": [
   16. "Your Source Bucket ARN/\*"
   17. ]
   18. },
   19. {
   20. "Effect": "Allow",
   21. "Action": [
   22. "s3:PutObject"
   23. ],
   24. "Resource": [
   25. "Your Destination Bucket ARN/\*"
   26. ]
   27. }
   28. ]
   29. }

* 1. Click on review policy
  2. Now click on Save button.
  3. Now in left menu click on **Roles**.
  4. Click on **Create Role** button.
  5. Select **Lambda** from AWS Services list.
  6. Now click on Next:Permissions.
  7. Now you can see a list of policies , search for your policy by name.
  8. Select your policy and click on Next:review button.
  9. Now enter Role name, Role Description and click on Create Role button.
  10. You have successfully created a IAM role.

* 1. Now Go to services menu, click on Lambda
  2. Do not chagne the region , you must be on US East (N. Virginia).
  3. Click on **Create Function** button.
  4. Choose "Author from scratch"
  5. Name : Enter a lambda function name.
  6. Runtime: Select NodeJs 6.10
  7. Role: Choose an existing role.
  8. Existing role: Select the role you created earlier.
  9. Now click on **Create Function**
  10. Configuration: Here we need to configure our lambda function.
  11. Function code: Here we need to write a NodeJs function which copies the object from source bucket and paste it in to the destination bucket, For sample exercies copy the below code and paste it in to your lambda index.js file.
  12. var AWS = require("aws-sdk");
  13. exports.handler = (event, context, callback) => {
  14. var s3 = new AWS.S3();
  15. var sourceBucket = "Source Bucket Name";
  16. var destinationBucket = "Destination Bucket Name";
  17. var objectKey = event.Records[0].s3.object.key;
  18. var copySource = encodeURI(sourceBucket + "/" + objectKey);
  19. var copyParams = { Bucket: destinationBucket,
  20. CopySource: copySource, Key: objectKey };
  21. s3.copyObject(copyParams, function(err, data) {
  22. if (err) {
  23. console.log(err, err.stack);
  24. } else {
  25. console.log("S3 object copy successful.");
  26. }
  27. });

};

* 1. You need to change source and destination bucket name in the code before paste into index.js lambda function.
  2. Now Save the function from top right corner Save button.
  3. **Add triggers** : Goto left menu of Designer, scroll down the list and select **S3** from the trigger list.
  4. Now once you selected S3 one form will appears in below trigger **Configure triggers**, Fill out the form as follows.
  5. **Bucket** : Select your source bucket.
  6. **Event type** : PUT
  7. Click on **Add button**.
  8. Now Save the function from top right corner **Save** button.

1. **Test Lambda function**
   1. Download below image on your computer for uploading to souce S3 bucket-:  
      [Download Me](https://play.whizlabs.com/site/download_file?file=smiley.jpg)
   2. Now Goto S3 Bucket list and click on your souce bucket from the list.
   3. Upload your downloaded smiley.jpg image to your source S3 bucket.
   4. Now Go back to S3 bucket list and open your destination bucket.
   5. You can see a copy of your uploaded souce bucket image.
2. You have successfully completed the lab.