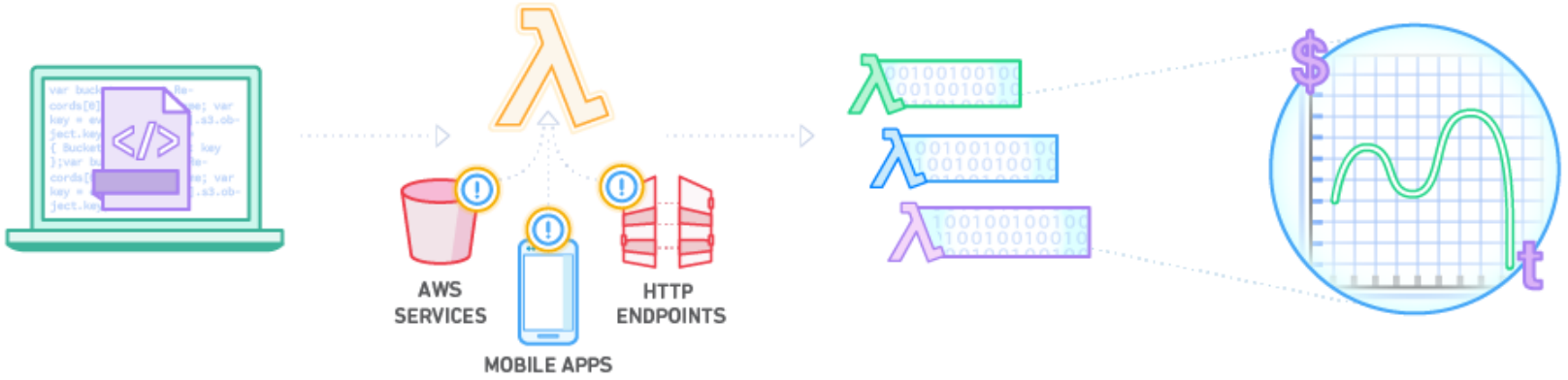
AWS Lambda Services

What is AWS Lambda?

- AWS Lambda is a service that is offered by Amazon where it's possible to run a coding project that works in tandem with other Amazon Cloud Services such as S3, DynamoDB, etc. It also allows for the running of code without the need for a server



Upload your code to AWS Lambda

Set up your code to trigger from other AWS services, HTTP endpoints, or in-app activity

Lambda runs your code only when triggered, using only the compute resources needed

Pay just for the compute time you use

What can it do?

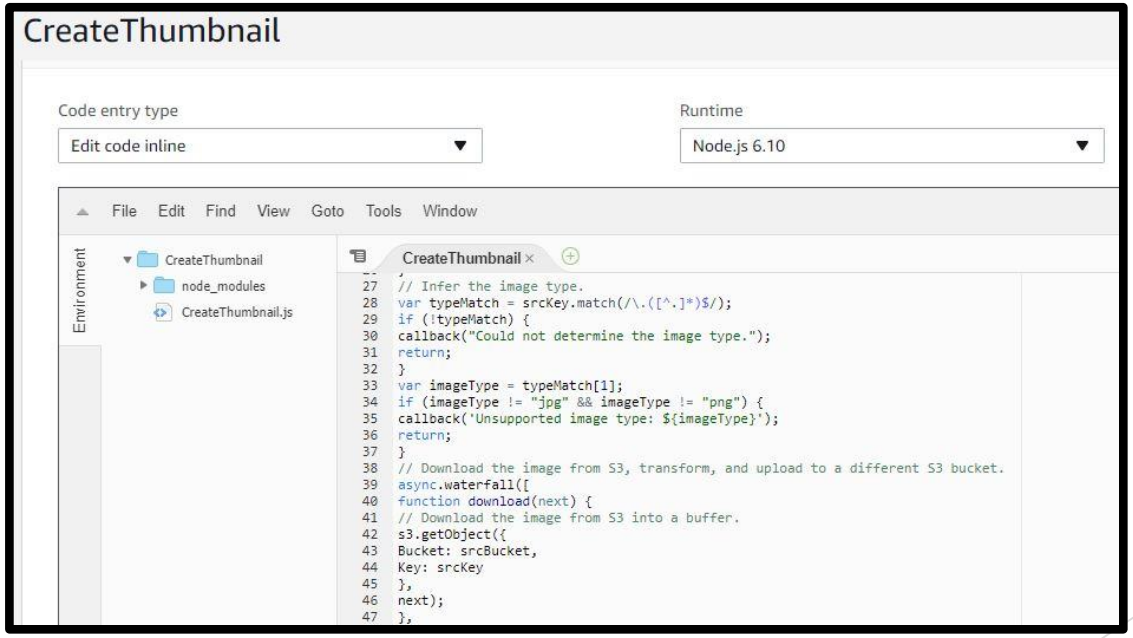
- There's all sorts of practical applications for Lambda
  - Real-Time File Processing
    - Thumbnailing images, transcoding videos, indexing files, processing logs, etc.
  - Stream Processing
    - Social Media Trend data, transaction order processing, metrics generation, etc.
  - Data Warehousing
  - Back-End Systems
  - Web Applications
  - Serverless Applications

What goes into a Lambda function?

- Lambda functions can be made in the 3 following languages
  - NODE.JS(JavaScript)
  - Java 8
  - Python
- A Node.Js function just requires the source code and any Node.Js libraries that the function depends on all wrapped up in a zip file
- A Java function is similar, but requires a bit more time and effort to actually build as you need to build a JAR file or a ZIP file through Maven
- Python is relatively simple, since Lambda already includes AWS SDK for Python you only need to include your source code

Is Any One Language Necessarily Better Than The Others?

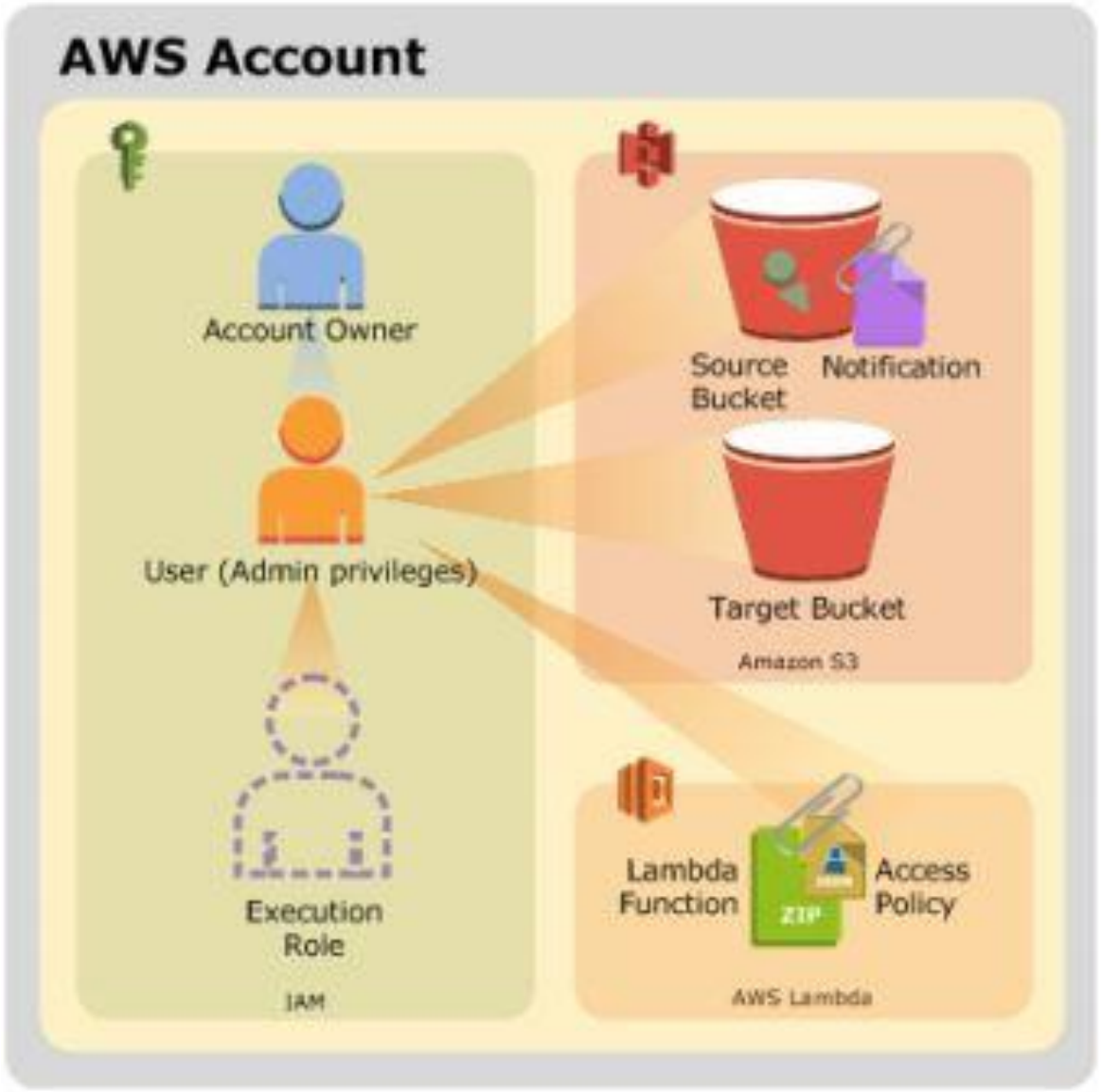
- This comes down entirely to personal preference and what you can handle.
  - Java Lambda functions can be rather large and unwieldy compared to Node.js and Python in my opinion. Not to mention Node.JS and Python functions can be edited while logged into the AWS management console allowing for quick code changes on the fly



The Project

- For this project, I was asked to create a Lambda function which converted images in a S3 bucket into thumbnail-sized images.
- To accomplish this, I created a Node.JS JavaScript function which creates a new image that is a resized version of any JPG or PNG that is added to the bucket. The bucket is hosted on my account, which a user with admin privileges is given access to.
- The S3 bucket that contains the images to be transferred has an event handler attached to it, which runs the Lambda function whenever an object is added to the account

The Project Pt. 2



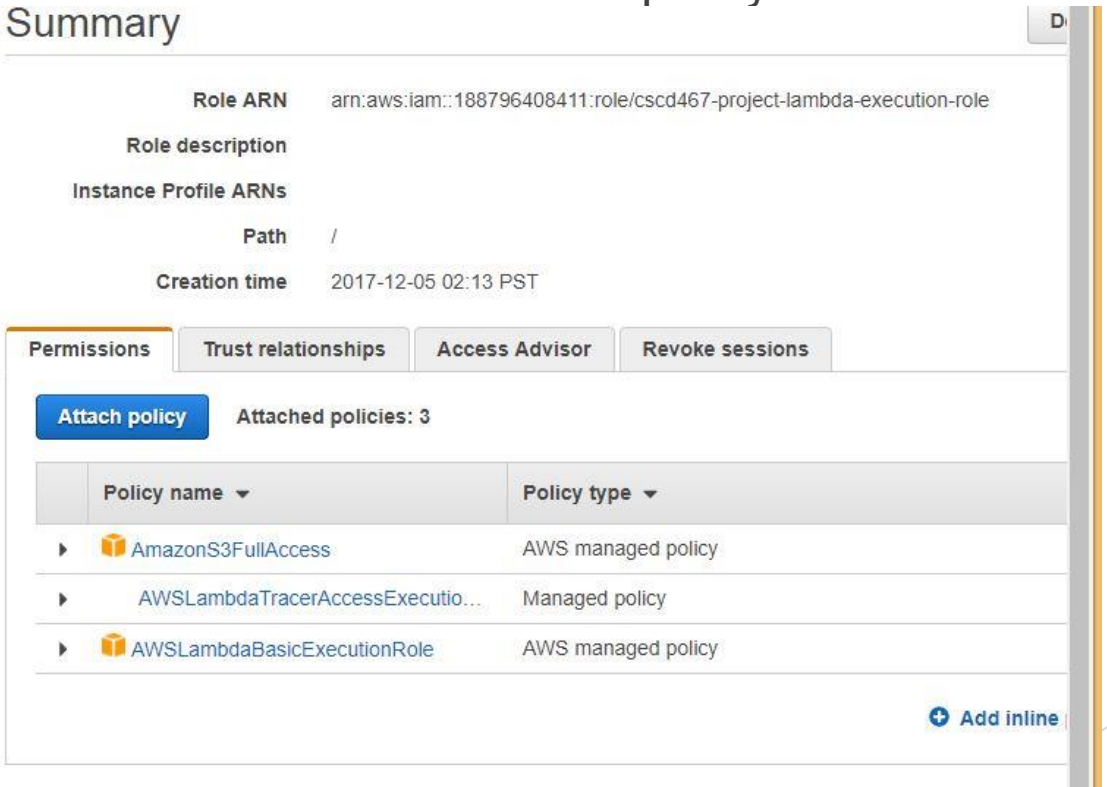
Comparing the image sizes

Original Image

Resized Image

Problems with the Project

- For some reason at the start, the Lambda function couldn't access the S3 bucket whenever the ObjectCreated event fired.
- To fix this, I added the AmazonS3FullAccess policy to the execution role



Applications of the Project

- This function is very similar to how websites handle the creation of profile pictures, taking an image and resizing it so it can be used by the specific needs for the website

Applications Part 2

- Not to mention, a program like this would make it easier to generate image sizes for various screen sizes (like tablets and mobile phones)