

Serverless Web Application Using Amazon Web Services

...

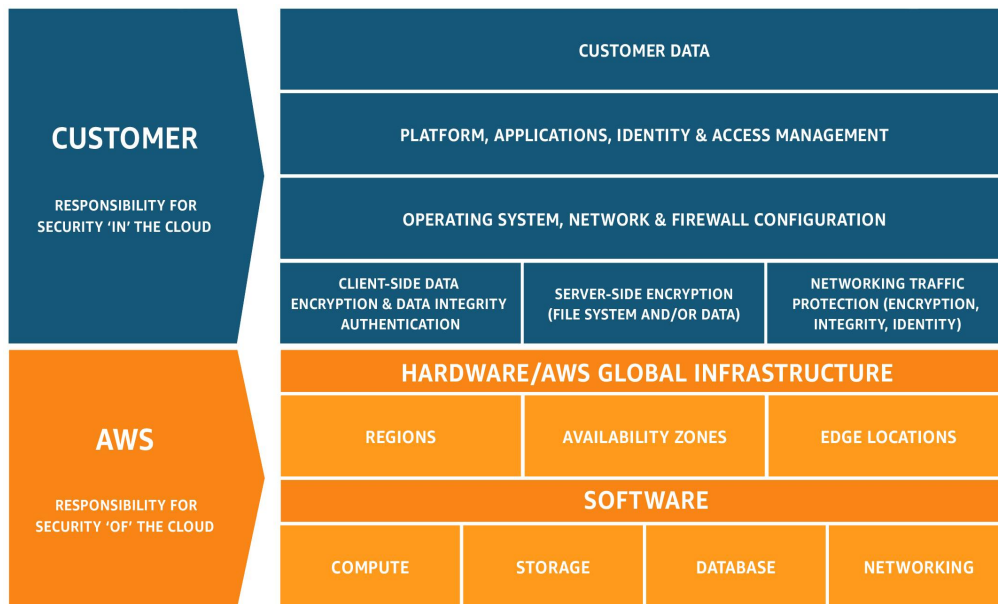
AWS and Serverless

Amazon Web Services (AWS)

- Cloud computing services
- Pro: Free tier, documentation
- Con: UI

“Serverless”

- Cloud provider manages →
- Pro: Trend, scalable
- Con: Difficult to migrate
- Serverless Framework
- Serverless Application Model (SAM)



Shared Responsibility Model - (AWS).

Major components



API Gateway

- Front door for client to backend services

Free: 1 million calls/month



Lambda

- Code executed on demand

Free: 1 million requests/month



S3 (Simple Storage Service)

- Object storage, store and retrieve

Free: 5 GB, 20k Get, 2k Put/month

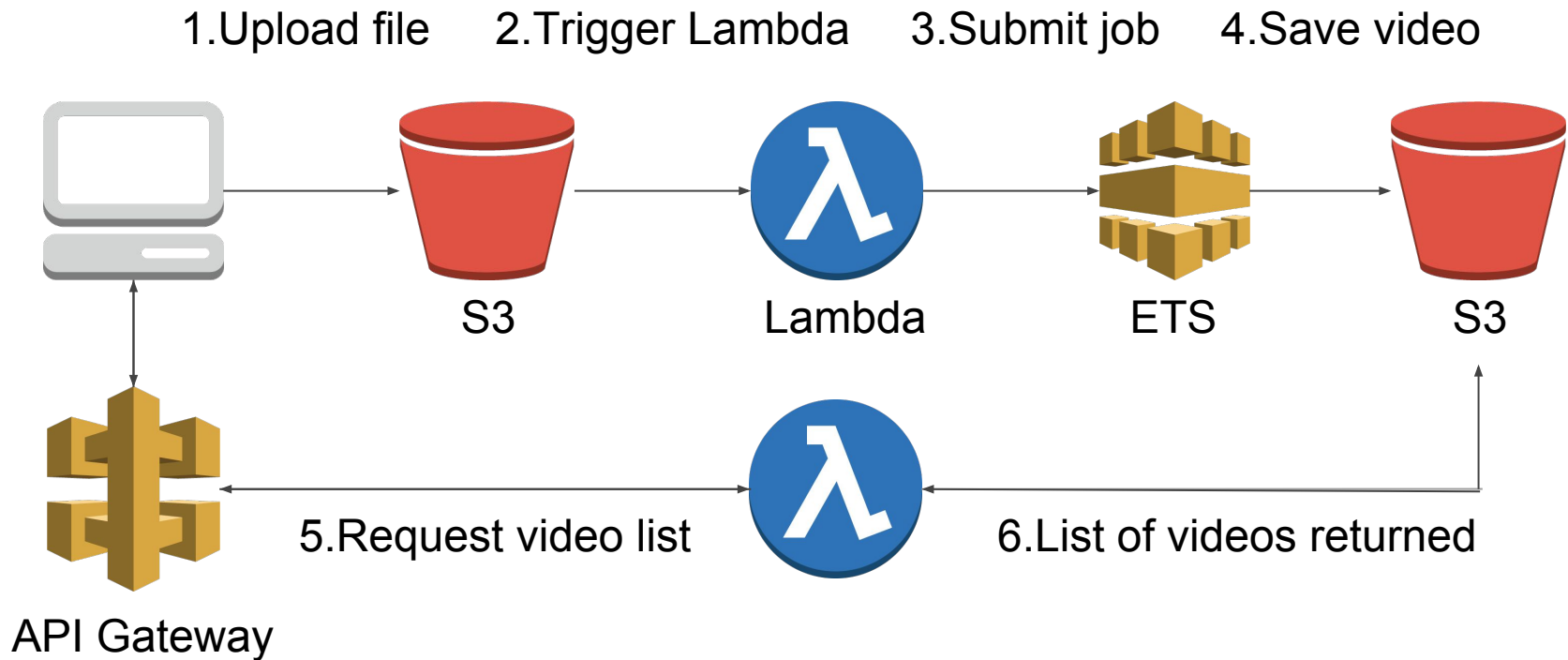


ETS (Elastic Transcoder)

- Converts media to other encodings

Free: 10 minutes of HD transcoding/month

AWS infrastructure & flow



Uploading to S3



Request header:

POST /**media-upload-sf** HTTP/1.1

Host: s3.amazonaws.com

Form fields:

Required:

- Key
- File

Optional:

- AWSAccessKeyID
- acl
- policy

Cross Origin Resource Sharing (CORS)

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <CORSConfiguration xmlns="http://s3.amazonaws.com/doc/2006-03-01/">
3   <CORSRule>
4     <AllowedOrigin>*/</AllowedOrigin>
5     <AllowedMethod>POST</AllowedMethod>
6     <MaxAgeSeconds>3000</MaxAgeSeconds>
7     <AllowedHeader>*/</AllowedHeader>
8   </CORSRule>
9 </CORSConfiguration>
```

Connecting to Lambda:

- Type of event
- Specify Lambda
- Event object

Lambda function



index.js

```
1  'use strict';
2  var AWS = require('aws-sdk');
3
4  var elasticTranscoder = new AWS.ElasticTranscoder({
5    region: 'us-east-1'
6  });
7
8  exports.handler = function(event, context, callback){
9
10     var key = event.Records[0].s3.object.key;
11
12     var sourceKey = decodeURIComponent(key.replace(/\+/g, ' '));
13
14     var outputKey = sourceKey.split('.')[0];
15
16     var params = {
17       PipelineId: '1518302898977-k8kvv3',
18       Input: {
19         Key: sourceKey
20       },
21       Outputs: [
22         {
23           Key: outputKey + '-720p' + '.mp4',
24           PresetId: '1351620000001-000010'
25         }
26       ]
27     };
28
29     elasticTranscoder.createJob(params, function(error, data){
30       if (error){
31         callback(error);
32       }
33     });
34  }
```

package.json

```
1  {
2    "name": "transcode-video",
3    "version": "1.0.0",
4    "main": "index.js",
5    "scripts": {
6      "test": "run-local-lambda --file index.js --event tests/event.json",
7      "deploy": "aws lambda update-function-code --function-name
8        arn:aws:lambda:us-east-1:856372763810:function:transcode-video
9        --zip-file fileb://Lambda-Deployment.zip",
10     "predeploy": "7z a Lambda-Deployment.zip -r * -xr!*.zip -xr!*.log -xr!*.git\\\\"
11   },
12 }
```

Permissions:

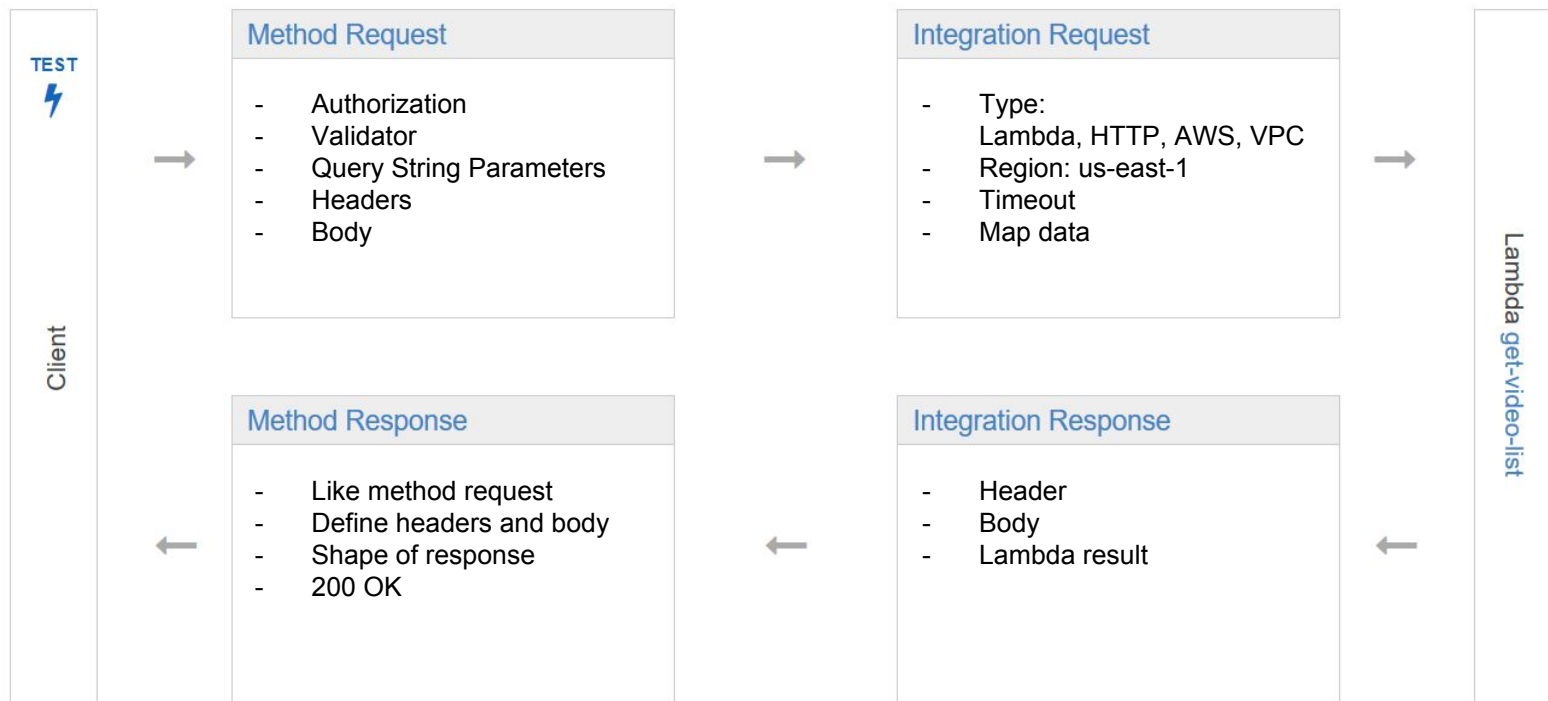
- Get objects from S3
- Submit jobs to ETS
- Identity Access Management (IAM) Role



API Gateway



/videos - GET - Method Execution



Demonstration

Q & A

Sources

API Gateways on AWS | Manning. (n.d.). Retrieved April 12, 2018, from <http://freecontent.manning.com/api-gateways-on-aws/>

AWS Simple Icons. (n.d.). Retrieved April 11, 2018, from <https://aws.amazon.com/architecture/icons/>

Cross-Origin Resource Sharing (CORS). (n.d.). Retrieved April 13, 2018, from <https://docs.aws.amazon.com/AmazonS3/latest/dev/cors.html>

POST Object. (n.d.). Retrieved April 13, 2018, from <https://docs.aws.amazon.com/AmazonS3/latest/API/RESTObjectPOST.html>

Shared Responsibility Model - Amazon Web Services (AWS). (n.d.). Retrieved April 14, 2018, from <https://aws.amazon.com/compliance/shared-responsibility-model/>

What Is IAM? (n.d.). Retrieved April 13, 2018, from <https://docs.aws.amazon.com/IAM/latest/UserGuide/introduction.html>