AWS Lambda Layers FTW! 🎉

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Working with AWS Lambda?

Don’t repeat yourself!

HELLO!

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DEPLOY

MyFunction 1

- Function code
- data.json
- External Library 1
- External Library 2

MyFunction 2

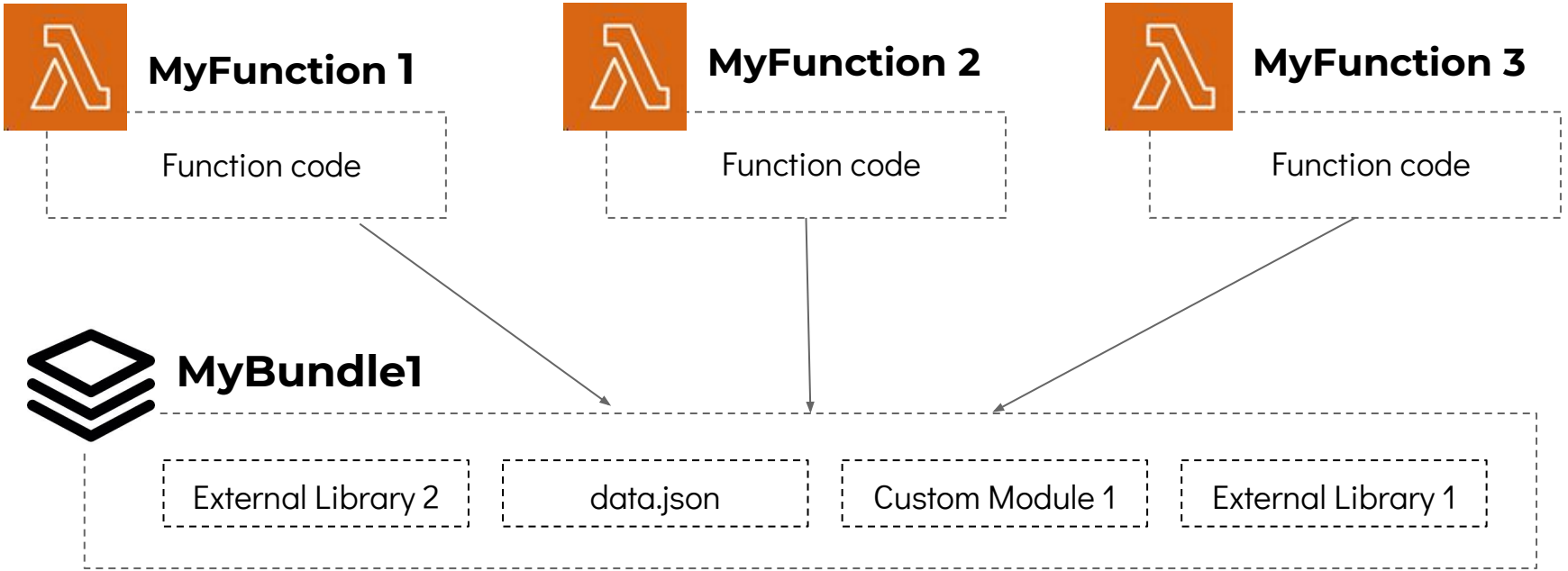
- Function code
- data.json
- External Library 1
- Custom Module 1

MyFunction 3

- Function code
- data.json
- Custom Module 1
- External Library 2

Non DRY!

DEPLOY (shared modules)



Lambda Layer

A collection of arbitrary code, third party libraries and data that can be referenced by many Lambda functions

Lambda Layer benefits

- Enforce separation of concerns
- Enable code reuse between functions
- Allow faster deployment, avoiding duplication

Using Lambda Layers

1. Put shared components and data in a ZIP package
2. Create a new layer version, uploading the ZIP package
3. Reference layer version from a function

Paths

Default paths for Lambda Layers unzipped

```
> Base dir
    /opt

> Node.js
    /opt/nodejs/node_modules
    /opt/nodejs/node8/node_modules

> Python
    /opt/python
    /opt/python/lib/python3.6/site-packages

> Java
    /opt/java/lib

> Ruby
    /opt/ruby/lib
    /opt/ruby/gems/2.5.0

> Binaries (PATH)
    /opt/bin
    /opt/lib
```

JS lambda_bikemi.js ×

node-demo ▸ src ▸ JS lambda_bikemi.js ▸ bikemi

```
1
2   const bikemi = require('bikemi')
3
4   exports.handler = async (event) => {
5       try {
6           let lat = parseFloat(event.queryStringParameters.lat);
7           let lng = parseFloat(event.queryStringParameters.lng);
8
9           const data = await bikemi.near(lat, lng);
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```
lambda-layer-FTW  master  unzip -l node-demo/build/layer.zip
Archive:  node-demo/build/layer.zip
  Length      Date    Time    Name
---------  ---------- -----   ----
        0  2019-02-11 12:46   nodejs/
        0  2019-02-11 12:46   nodejs/node_modules/
     3046  2019-02-11 12:46   nodejs/node_modules/bikemi.js
     1202  2019-02-11 12:46   nodejs/node_modules/mobike.js
---------                     -------
     4248                     4 files
lambda-layer-FTW  master
```

Lambda Layers limits

- Up to **5 layers** can be used per function
- Max extracted size per layer is **250MB**

Lambda Layers access

- Shareable across same account, different AWS accounts or public
- **When deleted, a layer could not be referenced by newer functions**
- AWS provides NumPy/SciPy layer for ML application

SAM

A SAM template with
Lambda and Layer,
use SAM CLI 0.9.0+

template.yml python-demo\template.yml\{} Resources\{} WordcloudLayer\{} Properties\abc ContentUri

```yaml
AWSTemplateFormatVersion: '2010-09-09'
Transform: AWS::Serverless-2016-10-31
Description: Python demo - Lambda Layers FTW!

Resources:

  WordcloudFunction:
    Type: AWS::Serverless::Function
    Properties:
      Timeout: 60
      Handler: wc.handler
      Runtime: python3.6
      CodeUri: build/code.zip
      Layers:
        - !GetAtt WordcloudLayer.Arn
      Environment:
        Variables:
          OUT_BUCKET: !Ref OutputBucket

  WordcloudLayer:
    Type: AWS::Serverless::LayerVersion
    Properties:
      ContentUri: s3://lambda-layer-ftw-deploy/layer-wordcloud.zi
      LicenseInfo: MIT
      RetentionPolicy: Retain
      CompatibleRuntimes:
        - python3.6

  OutputBucket:
    Type: AWS::S3::Bucket
```

DEMO

Code available on Github: **https://github.com/flerro/lambda-layers-FTW**

THANKS!

Any questions?