



Serverless Framework and Zappa

Cloud Computing research project 2019

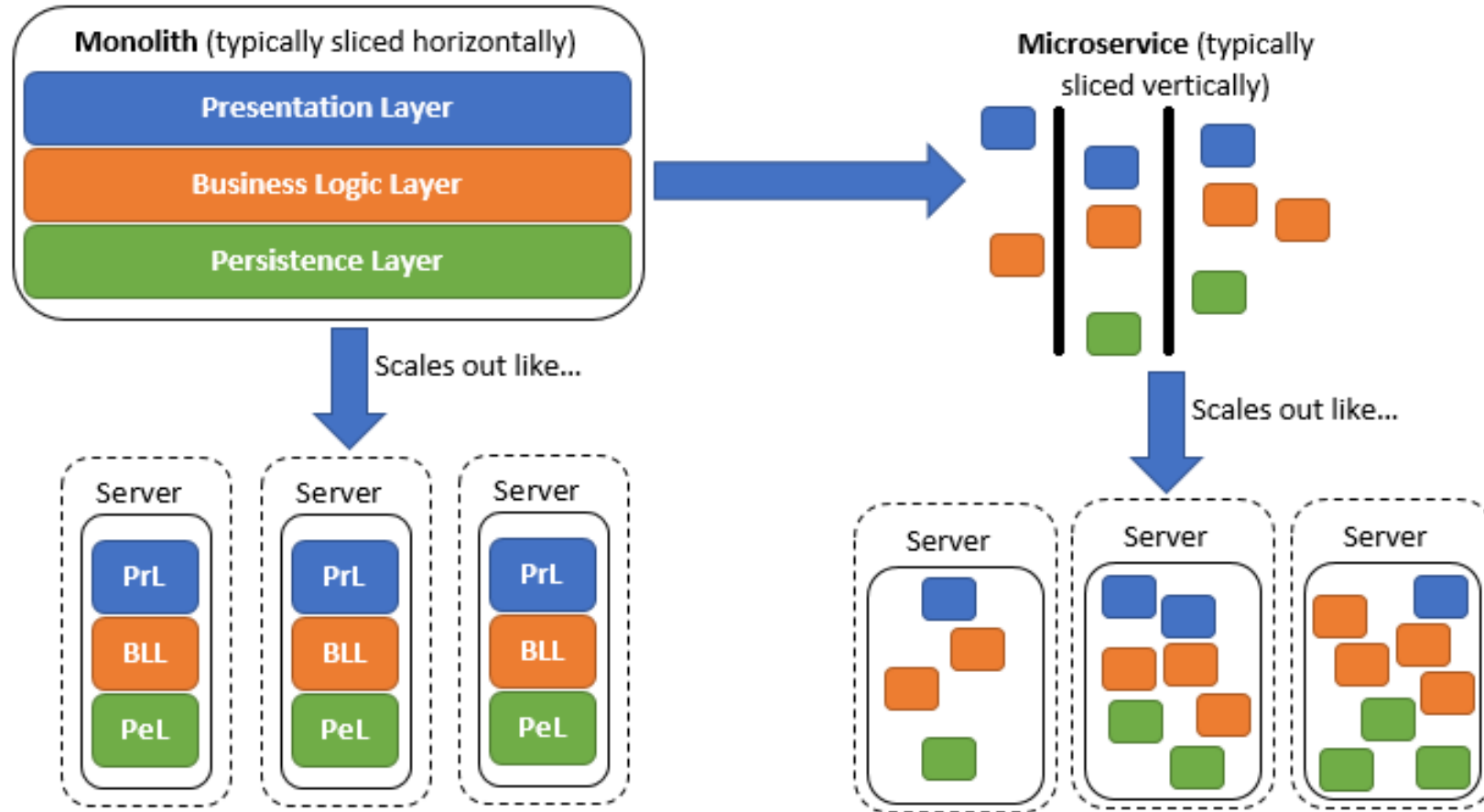
Edoardo Conte – Carlos Muñiz

<https://github.com/cmcuzaupc/CLOUD-COMPUTING-CLASS-2019>

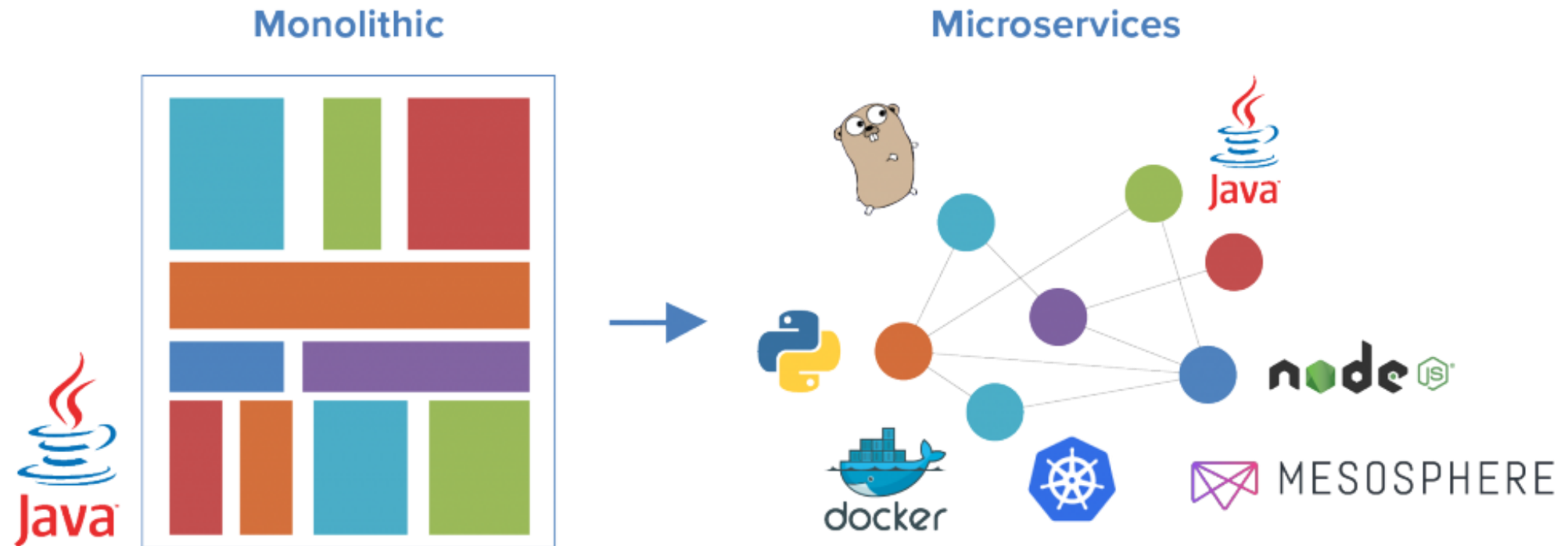
Serverless



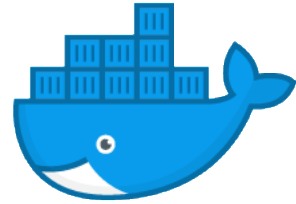
Monolith to Microservices



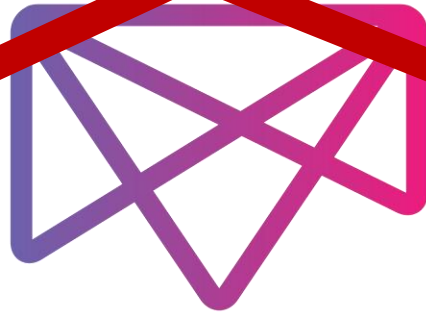
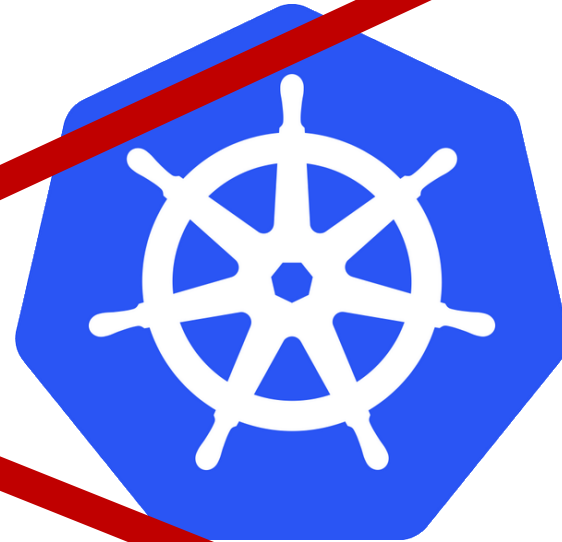
Complexity in Microservices



Benefits of Serverless

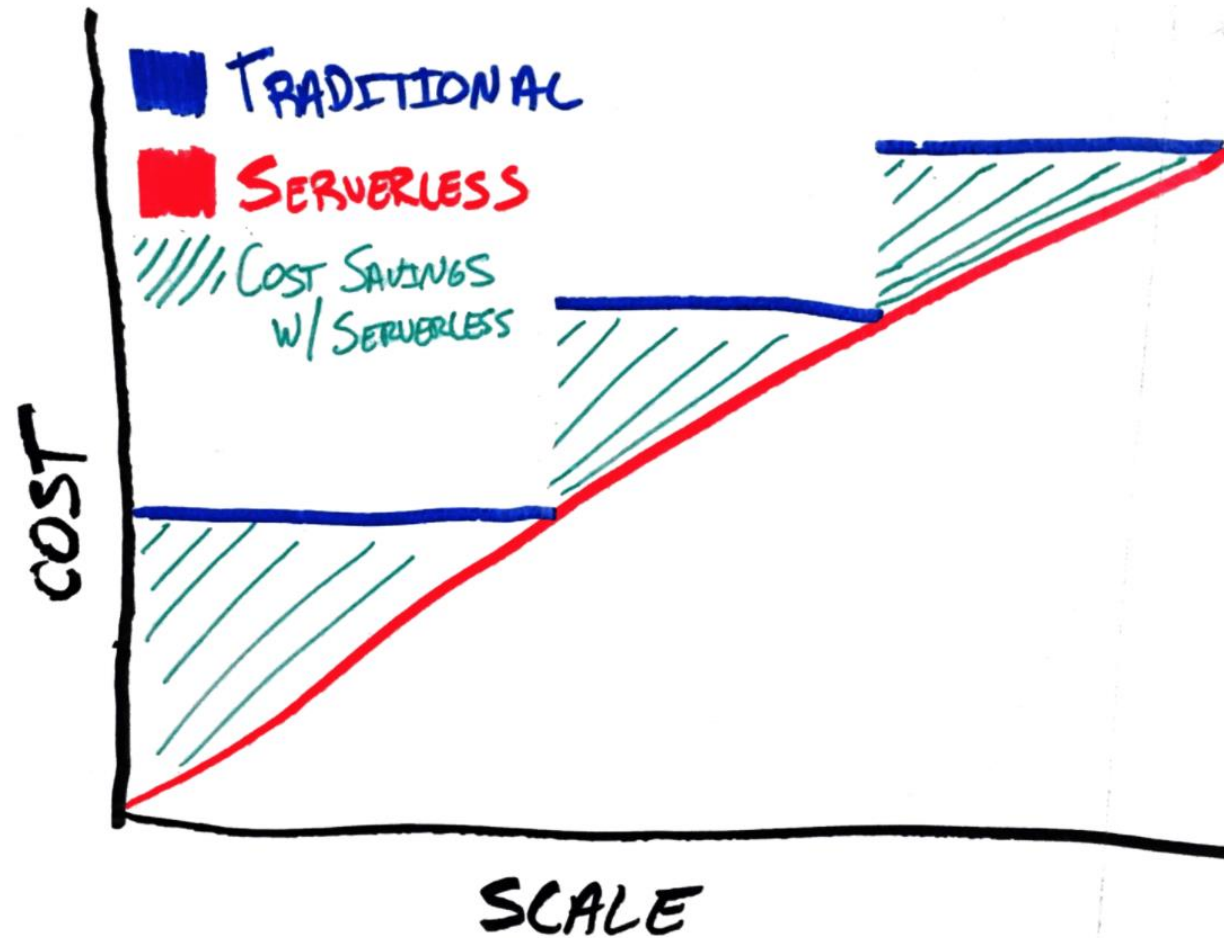


docker

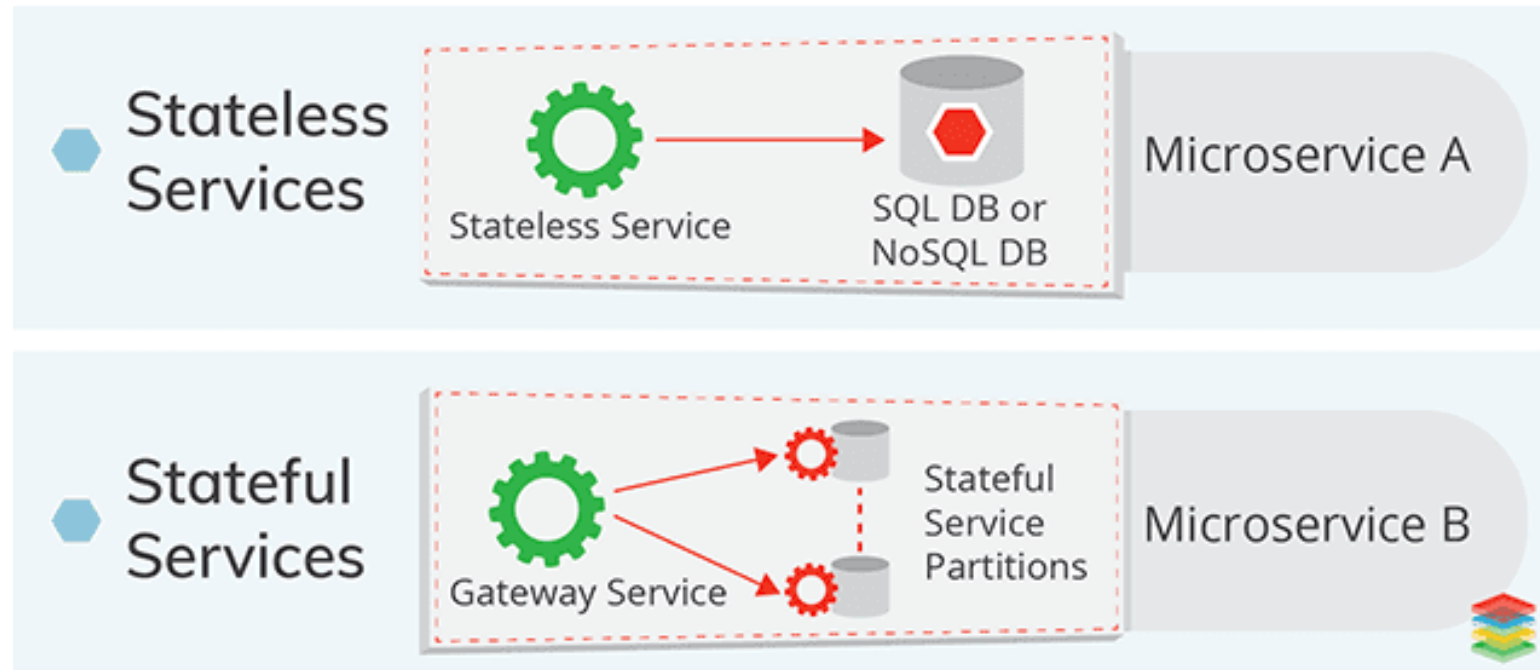


MESOSPHERE

Benefits of Serverless



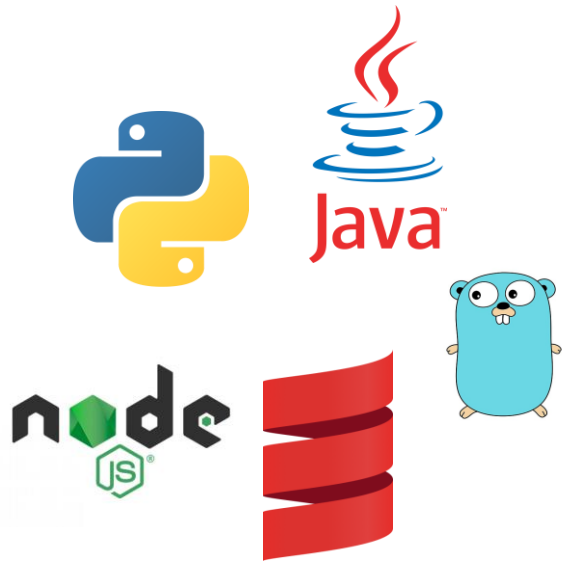
Downsides of Serverless



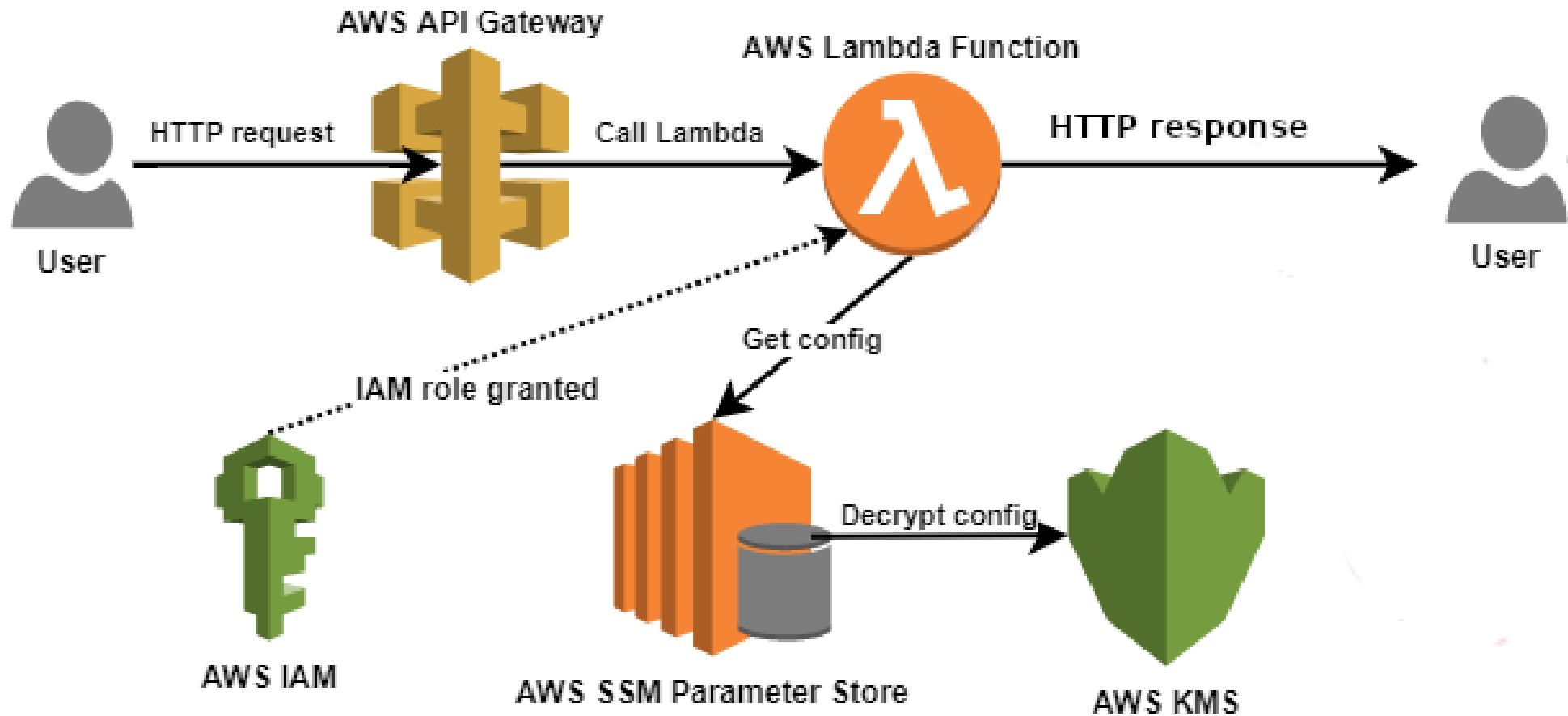
Downsides of Serverless



The Serverless Framework



Serverless Framework



Serverless Framework

```
def getSecret(event, context):  
    body = event['body']  
    aws_access_key = body['aws_access_key']  
    aws_secret_access_key = body['aws_secret_access_key']  
  
    session = boto3.Session(  
        region_name='eu-central-1',  
        aws_access_key_id=aws_access_key,  
        aws_secret_access_key=aws_secret_access_key  
    )  
  
    ssm_client = session.client('ssm')  
  
    my_password = ssm_client.get_parameter(Name='top_secrets_1', WithDecryption=True)  
  
    return my_password['Parameter']['Value']
```

Serverless Framework

```
service: using-kms
provider:
  name: aws
  runtime: python3.7
  region: eu-central-1
  iamRoleStatements:
    - Effect: "Allow"
      Action:
        - "ssm:Get*"
      Resource: "*"

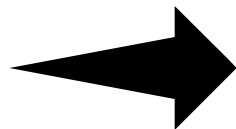
functions:
  getSecret:
    handler: handler.getSecret
    description: This function will return a secret stored using KMS
    events:
      - http:
          path: get-secret
          method: post
          integration: lambda
          cors: true
          response:
            headers:
              "Access-Control-Allow-Origin": "'*'"

```

Zappa



Flask



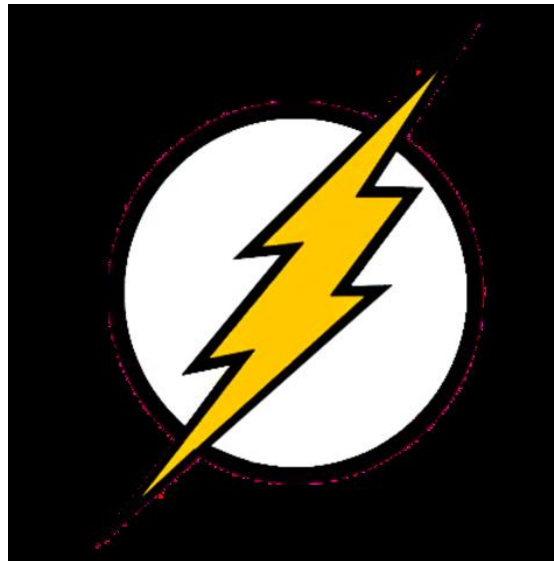
Zappa settings

```
{
  "dev": {
    "aws_region": "eu-west-1",
    "django_settings": "zappa_tutorial_1.settings",
    "profile_name": "default",
    "project_name": "zappa-tutorial-",
    "runtime": "python3.6",
    "s3_bucket": "zappa-fax6b6jp7",
    "vpc_config": {
      "SubnetIds": [ "subnet-1c1fb646", "subnet-a01668e8" ],
      "SecurityGroupIds": [ "sg-af579bdc" ]
    }
  }
}
```

Magic formula

zappa **deploy** <env>

zappa **update** <env>



Problems!



Static files on S3

```
INSTALLED_APPS = [  
    '...',  
    'django_s3_storage',  
]  
  
STATIC_URL = '/static/'  
  
YOUR_S3_BUCKET = "zappa-static-hugrave"  
  
STATICFILES_STORAGE = "django_s3_storage.storage.StaticS3Storage"  
AWS_S3_BUCKET_NAME_STATIC = YOUR_S3_BUCKET  
  
# These next two lines will serve the static files directly  
# from the s3 bucket  
AWS_S3_CUSTOM_DOMAIN = '%s.s3.amazonaws.com' % YOUR_S3_BUCKET  
STATIC_URL = "https://%s/" % AWS_S3_CUSTOM_DOMAIN
```

```
zappa manage <env> "collectstatic --noinput"
```

Database

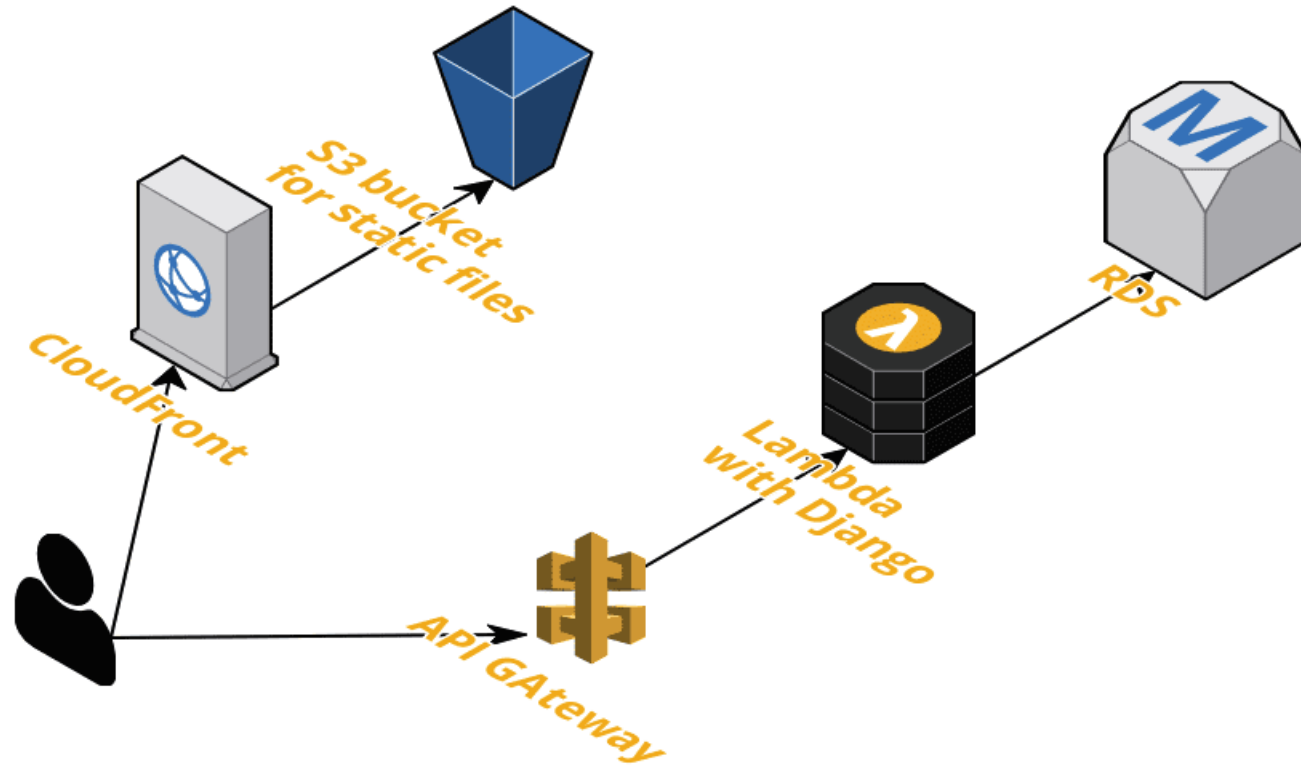
```
DATABASES = {  
    'default': {  
        'ENGINE': 'django.db.backends.postgresql_psycopg2',  
        'NAME': 'zappa_dev',  
        'USER': 'XXXXX',  
        'PASSWORD': 'XXXXX',  
        'HOST': 'postgresql-zappa.XXXXX.eu-west-1.rds.amazonaws.com',  
        'PORT': '5432',  
    }  
}
```

python manage.py makemigrations

zappa update <env>

zappa manage <env> migrate

Architecture



Security policies

