

# Code-to-Cloud



Insight DevOps Fellowship, New York

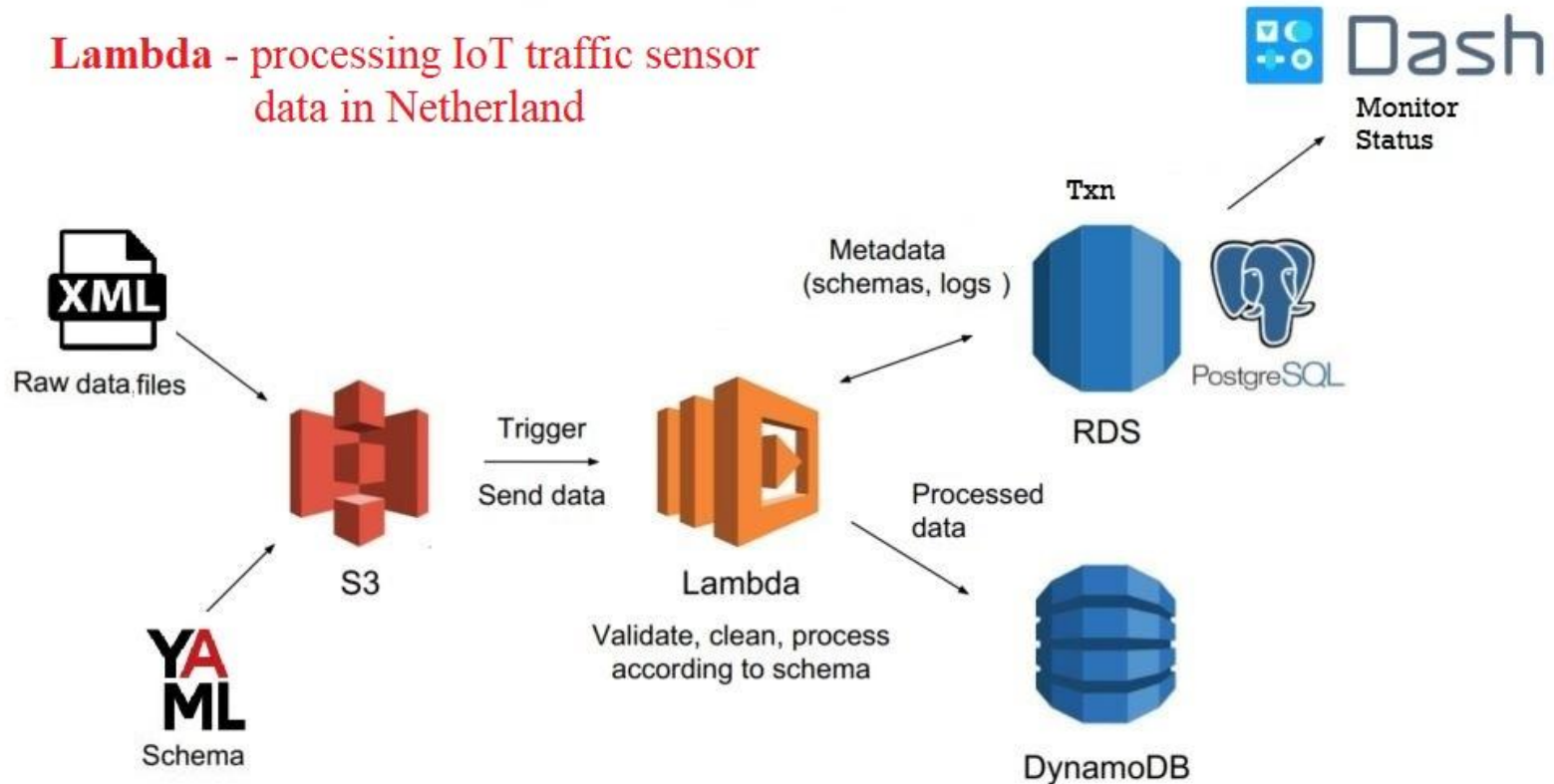
Wen Gong

# Business Problem

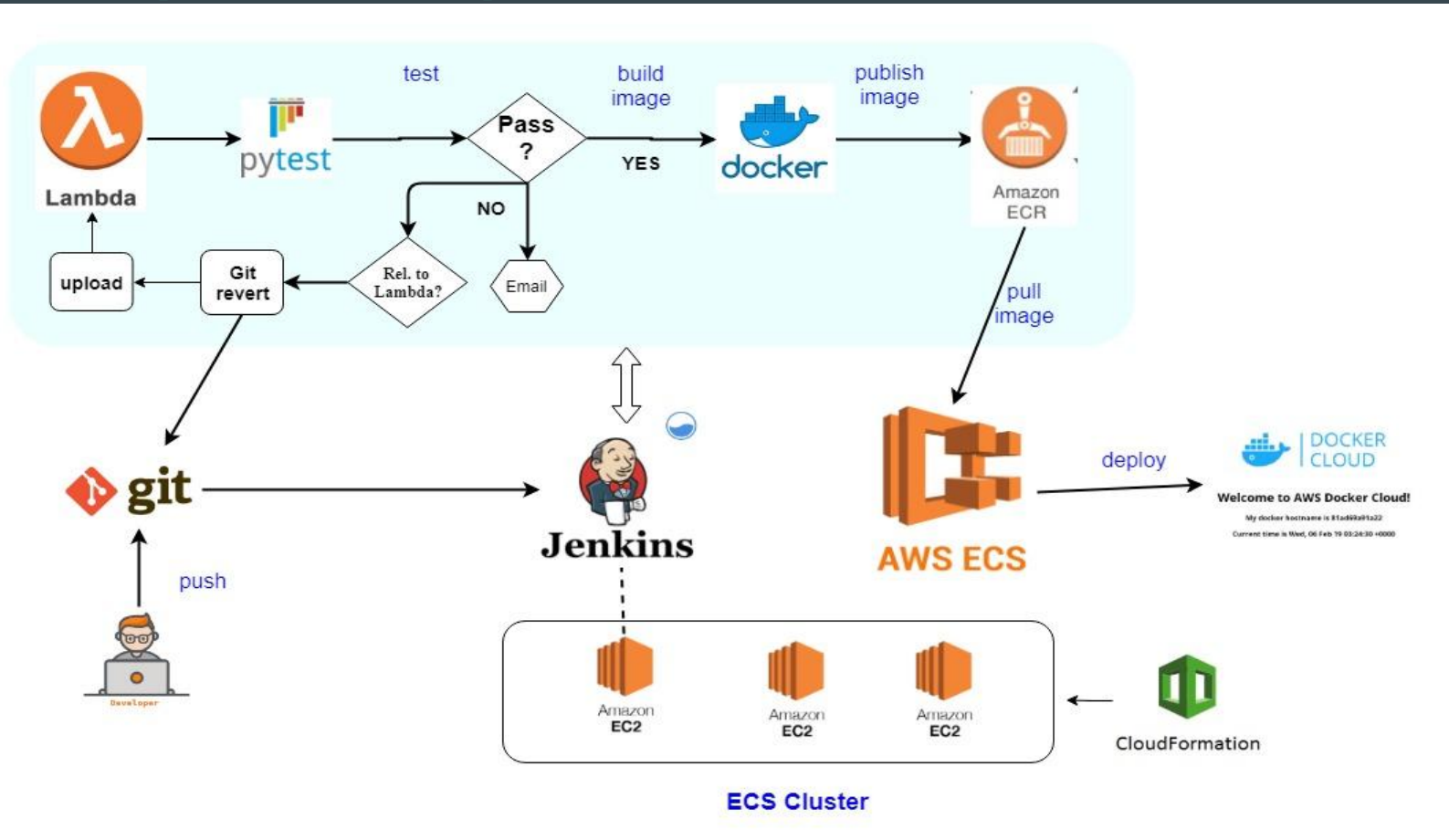
- Streamline processes: code > test > build > deploy to cloud  
=> Faster time-to-market speed
- Migrate business to cloud  
=> Gain productivity and save cost

# Data Engineering Pipeline

**Lambda** - processing IoT traffic sensor data in Netherland



# DevOps CI/CD Pipeline



# Challenges

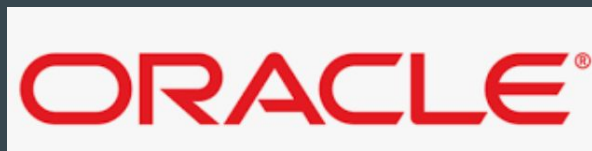
- Data Engineer's pipeline
  - => added new table and wrote new code to schema changes more robustly
  - => improved DE pipeline for dealing with parallel tests
- Jenkins plugin (Docker build and publish) not working in ECS
  - => Wrote workaround code in bash
- DB secrets when deploying DE pipeline to container
  - => used Vault in dev mode

# Demo

- DE pipeline (<https://youtu.be/qpPLTKGVnkc>)
- CI pipeline (<https://youtu.be/rKY6u4Z6AzM>)
- CD pipeline (<https://youtu.be/dxnUyEwXZhw>)

# Wen Gong

- 20 years of experience as Software Engineer / Consultant
  - => Built customer master, integration bridges, ETL & data quality tools
- Interested in new opty in DevOps
- Passionate about STEM edu
  - => Teach py4kids
  - => One student selected as 2019 Regeneron STS Scholar
- Ph.D. in nuclear physics



# Questions



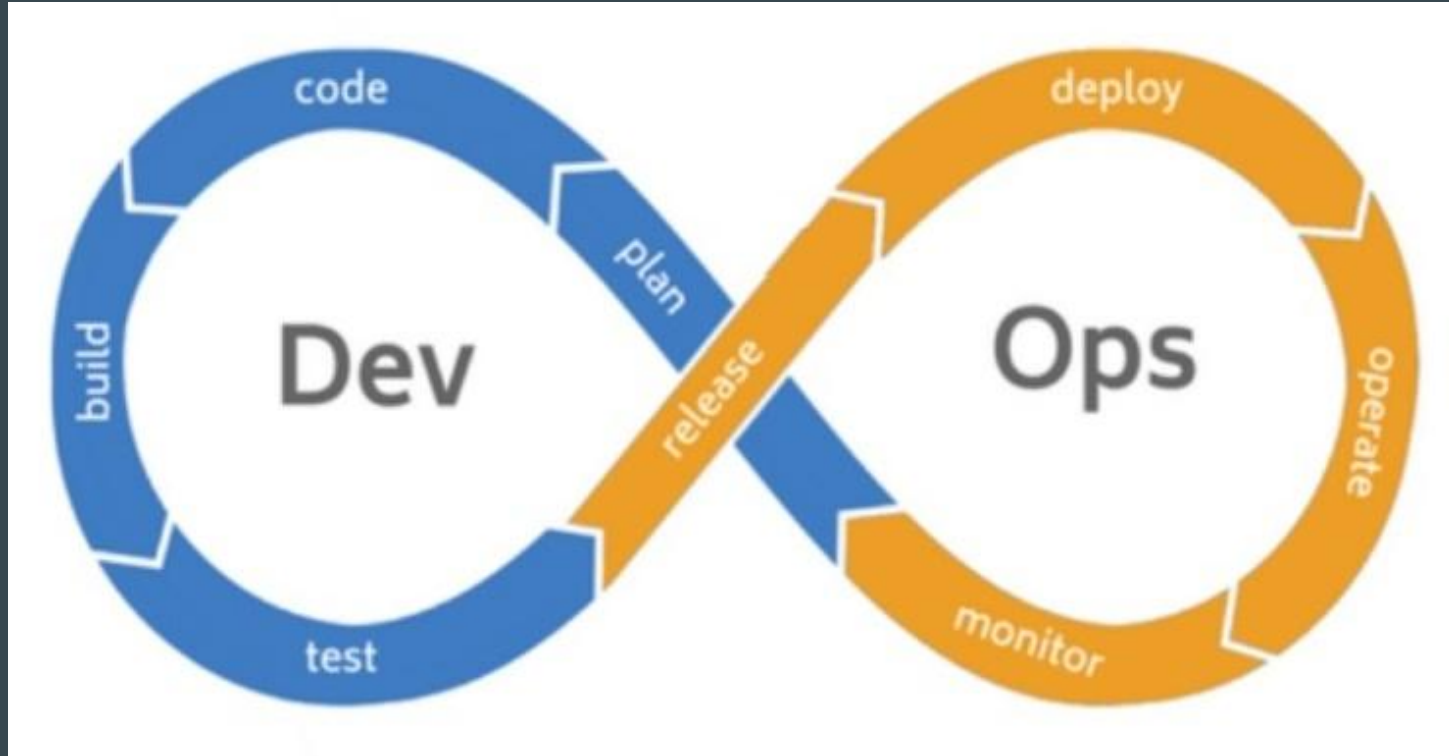




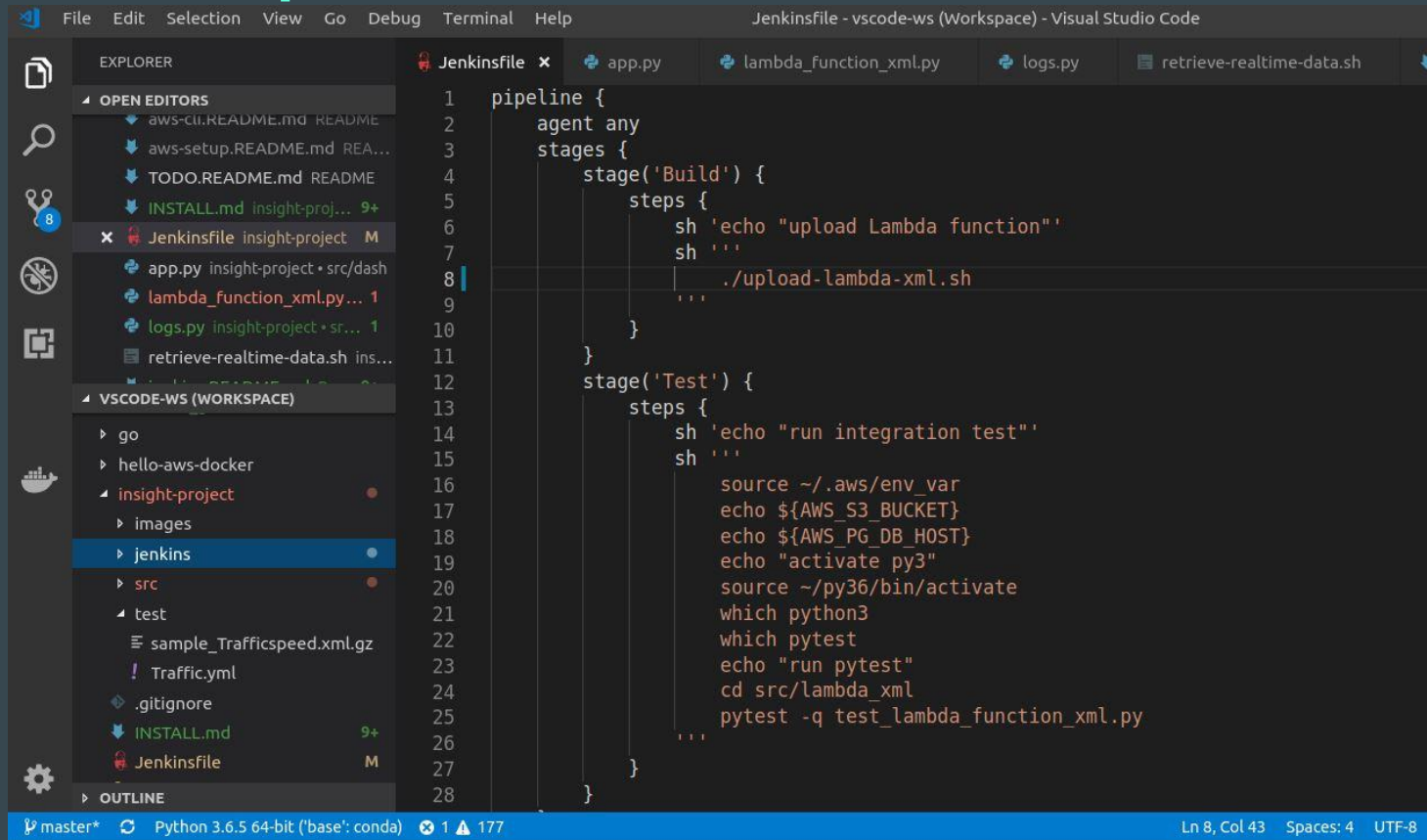
# Links

- <http://jenkins.s8s.cloud/>
- <https://github.com/wgong/code2cloud>

# Solution: Dev + Ops



# Jenkins: Pipeline/Jenkinsfile



```
1 pipeline {
2   agent any
3   stages {
4     stage('Build') {
5       steps {
6         sh 'echo "upload Lambda function"'
7         sh '''
8           ./upload-lambda-xml.sh
9         '''
10      }
11    }
12    stage('Test') {
13      steps {
14        sh 'echo "run integration test"'
15        sh '''
16          source ~/.aws/env_var
17          echo ${AWS_S3_BUCKET}
18          echo ${AWS_PG_DB_HOST}
19          echo "activate py3"
20          source ~/py36/bin/activate
21          which python3
22          which pytest
23          echo "run pytest"
24          cd src/lambda_xml
25          pytest -q test_lambda_function_xml.py
26        '''
27      }
28    }
29  }
```

master\* Python 3.6.5 64-bit ('base': conda) 177 Ln 8, Col 43 Spaces: 4 UTF-8

# Jenkins: Build Config

← → ↻ 🏠 ⓘ Not secure | ec2-52-3-227-246.compute-1.amazonaws.com/job/insight-project/configure 🔍 ☆ 📦 ⚙️ K 🔄 🌐 📄 Upd. 🗨️

Jenkins ▶ insight-project ▶

General

Branch Sources

**Build Configuration**

Scan Repository Triggers

Orphaned Item Strategy

Health metrics

Properties

JIRA

Pipeline Libraries

Vault Plugin

Pipeline Model Definition

---

## Build Configuration

Mode

by Jenkinsfile ▼

Script Path

Jenkinsfile ?

---

## Scan Repository Triggers

☐ Monitor Docker Hub/Registry for image changes ?

☒ Periodically if not otherwise run ?

Interval

2 hours ▼ ?

# Jenkins: Dashboard

✓ insight-project  
< 56

Pipeline

Changes

Tests

Artifacts

Logout

Branch: master

24s

No changes

Commit: —

9 hours ago

Push event to branch master

Start

Build

Test

Deploy

End

Test - 15s

[Restart Test](#)

✓

> echo "run integration test" — Shell Script <1s

✓

> pwd whoami which git git --version source ~/.aws/env\_var # echo \${AWS\_S3\_BUCKET} # ... — Shell Script 15s