AWS CDK workshop

From zero to hero

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Short intro

Laimonas Sutkus

Work experience

- CTO @ Biomapas
- Previously CTO @ iDenfy

Years experience

- ~10 years in IT industry (Cloud, SaaS, AWS, AI)
- ~5 years AWS experience

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Short intro

Biomapas

Expertise

- Clinical Operations
- Regulatory Affairs
- Pharmacovigilance
- Medical Information

Techical side

- AWS cloud
- Serverless architectures
- AI - NLP
- Best CI/CD practices

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https://github.com/Biomapas

Agenda

- AWS CDK intro
- Prerequisites
- Install tools
- Create & deploy sample project
- Build serverless architecture
  - Create API Gateway HTTP API
  - Create Lambda backends for CRUD actions
  - Create DynamoDB
  - Use Lambda Layers and PynamoDB ORM
- Write integration tests
- Create GitHub repo & push code
- Create CI/CD pipeline
- Summary

aws

Cloud Development Kit

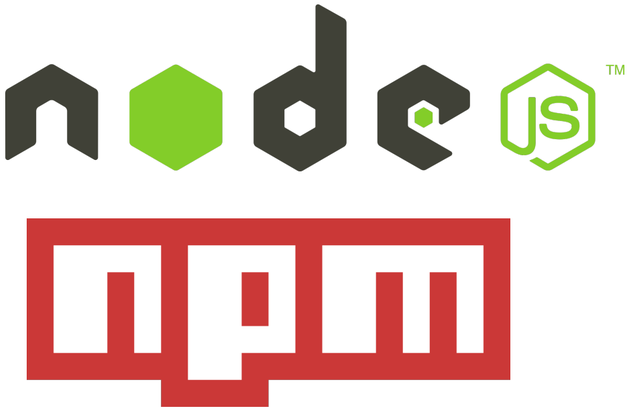
What is it?

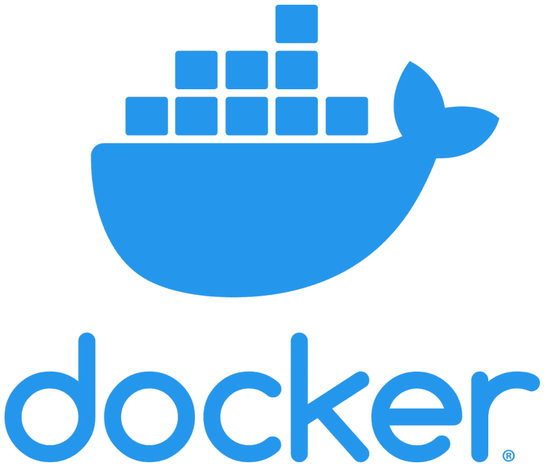
It is a framework that allows to define your infrastructure using a programming language. For example, using python you can define EC2 instances, RDS databases, IAM roles and so on. AWS CDK is just a wrapper for AWS CloudFormation, meaning AWS CDK produces CloudFormation templates. The actual deployment is being done by CloudFormation, not AWS CDK.

Alternatives?

Sort of. For example, the widely accepted Terraform has its own language. Troposphere is python-only. Chef is ruby-only. Ansible & Puppet are yaml / json / bash combination.

Prerequisites



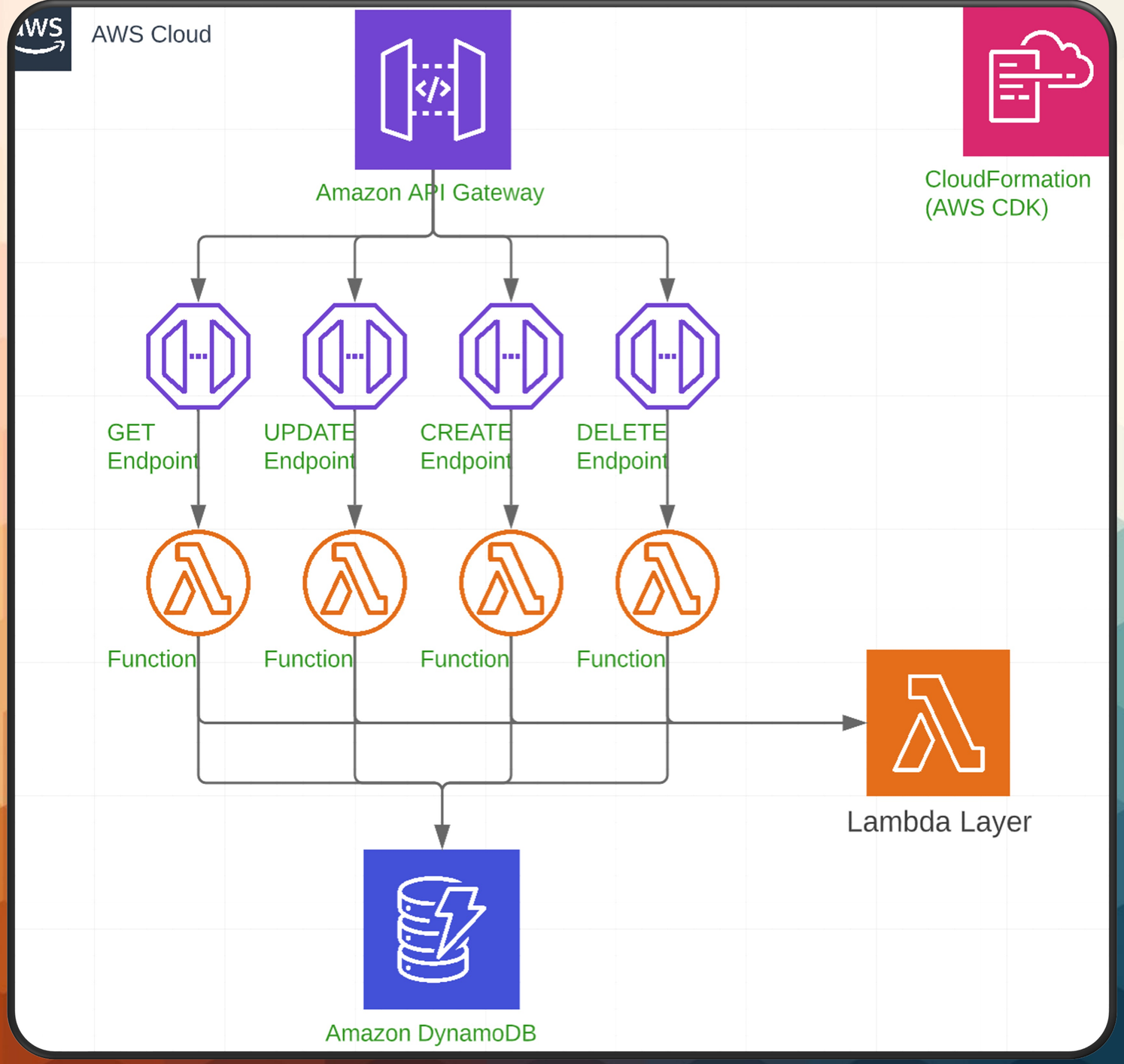


```
npm install -g aws-cdk@1.x
```

```
cdk init --language=python
```

```
cdk bootstrap
```

```
cdk deploy --all
```


AWS Cloud
Amazon API Gateway
CloudFormation
(AWS CDK)
GET
Endpoint
UPDATE
Endpoint
CREATE
Endpoint
DELETE
Endpoint
Function
Function
Function
Function
Lambda Layer
Amazon DynamoDB

Unit tests

Integration tests

GitHub Actions

Summary

- AWS CDK is a great tool to manage your infrastructure
- Write integration tests to test your infrastructure AND application
- Use open-source libraries (like Biomapas open-source) to boost productivity

Thank you!