Integration Testing in Serverless Architectures Using the CDK Provider Framework

Jannik Wempe

Agenda

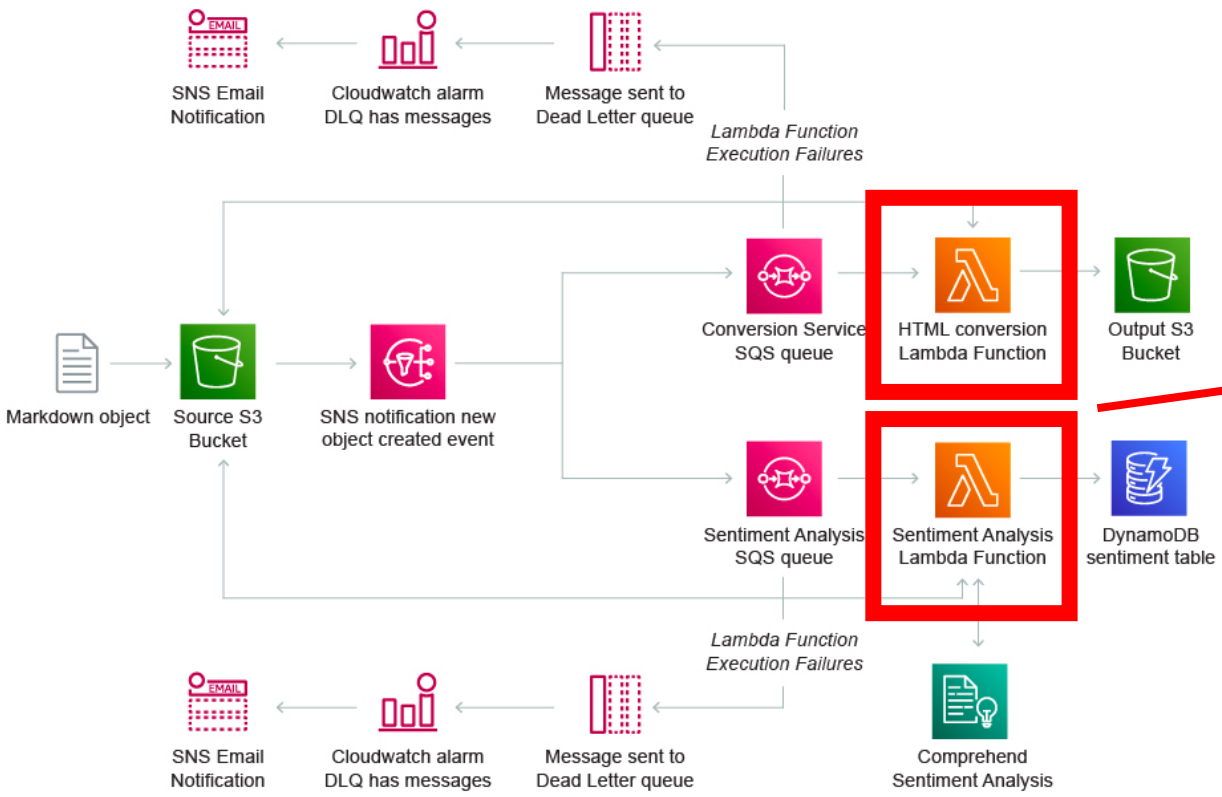
01. Integration Testing Serverless Architectures

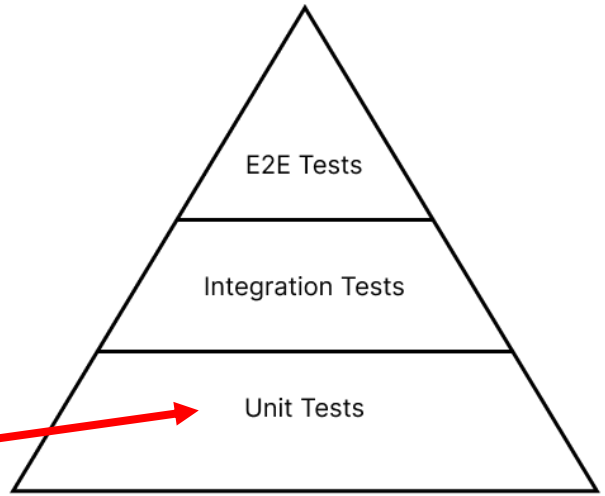
02. CloudFormation Custom Resources

03. CDK Provider Framework

04. Demo

Testing Serverless Applications



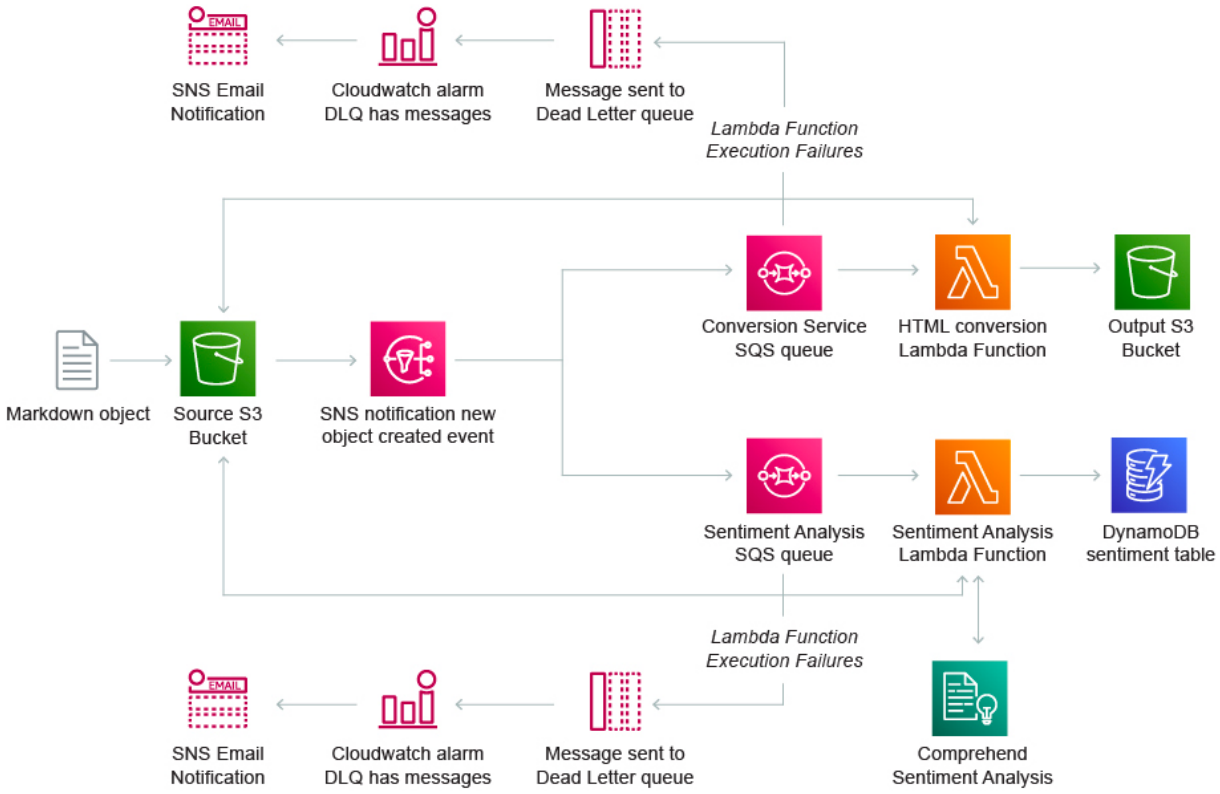


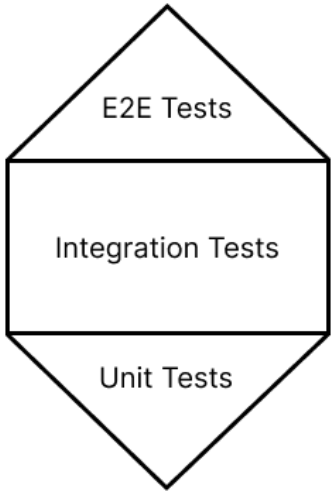
Testing Pyramid

Although there were plenty of unit tests with reasonable code coverage, these did not prove useful because code changes often **passed all the tests, only to fail when deployed** to the AWS environment.

–Serverless Architectures on AWS

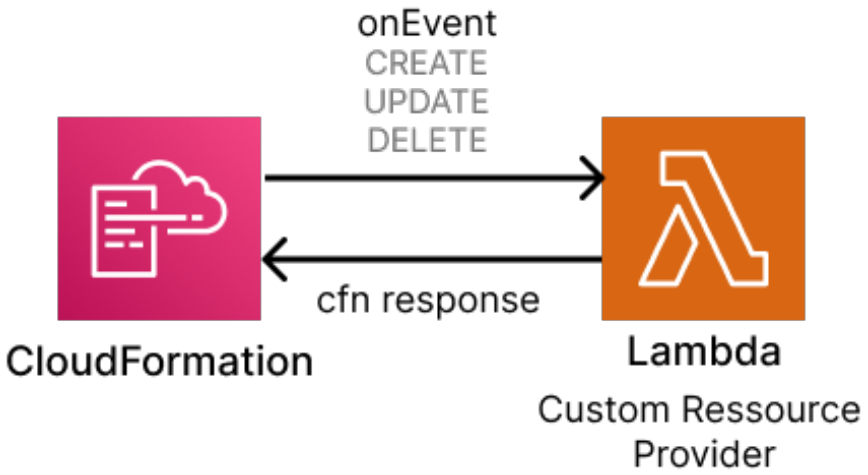
Testing Serverless Applications



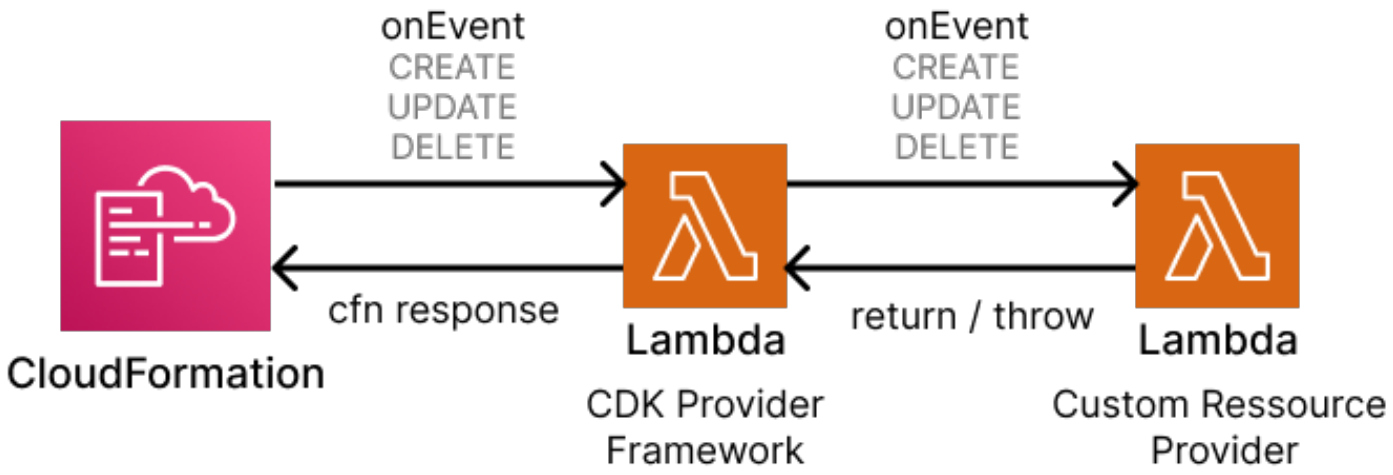


Testing Honeycomb

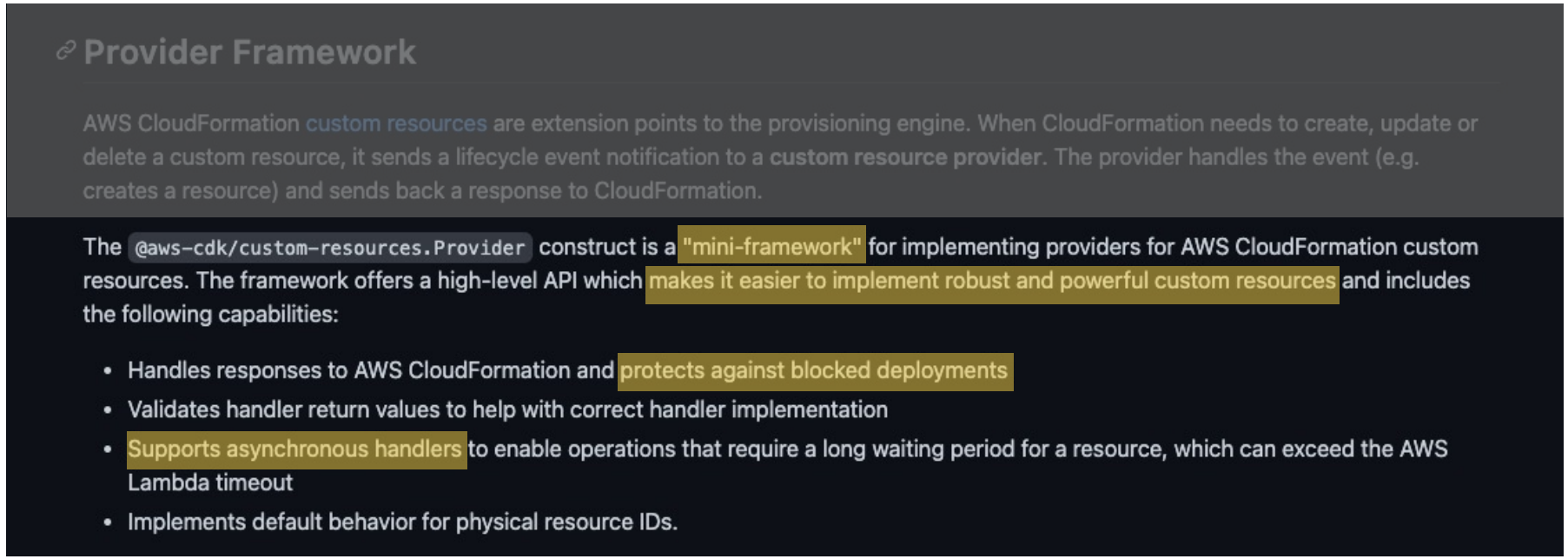
CloudFormation Custom Resource



CDK Provider Framework



CDK Provider Framework



Provider Framework

AWS CloudFormation custom resources are extension points to the provisioning engine. When CloudFormation needs to create, update or delete a custom resource, it sends a lifecycle event notification to a **custom resource provider**. The provider handles the event (e.g. creates a resource) and sends back a response to CloudFormation.

The `@aws-cdk/custom-resources.Provider` construct is a "mini-framework" for implementing providers for AWS CloudFormation custom resources. The framework offers a high-level API which makes it easier to implement robust and powerful custom resources and includes the following capabilities:

- Handles responses to AWS CloudFormation and protects against blocked deployments
- Validates handler return values to help with correct handler implementation
- Supports asynchronous handlers to enable operations that require a long waiting period for a resource, which can exceed the AWS Lambda timeout
- Implements default behavior for physical resource IDs.

Demo

Thank you

Code & Slides in my GitHub **aws-cdk-provider-tests** repository.

Happy to connect

@JannikWempe

/in/jannik-wempe

@JannikWempe

JannikWempe