

Automating Your App with Elastic Beanstalk and CloudFormation



Ryan Lewis

WEB ENGINEER

@ryanmurakami www.ryanhlewis.com

Summary

CloudFormation CloudFundamentals

A Stack of Resources

Jack and the Elastic Beanstalk

Pizza Beanstalk

CloudFormation Overview

CloudFormation

Service to provision resources using templates

Resources Created for Pizza Luvrs

VPC

RDS
Database

DynamoDB
Table

Subnet

EC2
Instance

IAM
Role

Security
Group

Launch
Configuration

Production

Pizza Luvrs Infrastructure

Resource

Resource

Resource

Resource

Development

Duplicate Infrastructure

Resource

Resource

Resource

Resource



CloudFormation Template

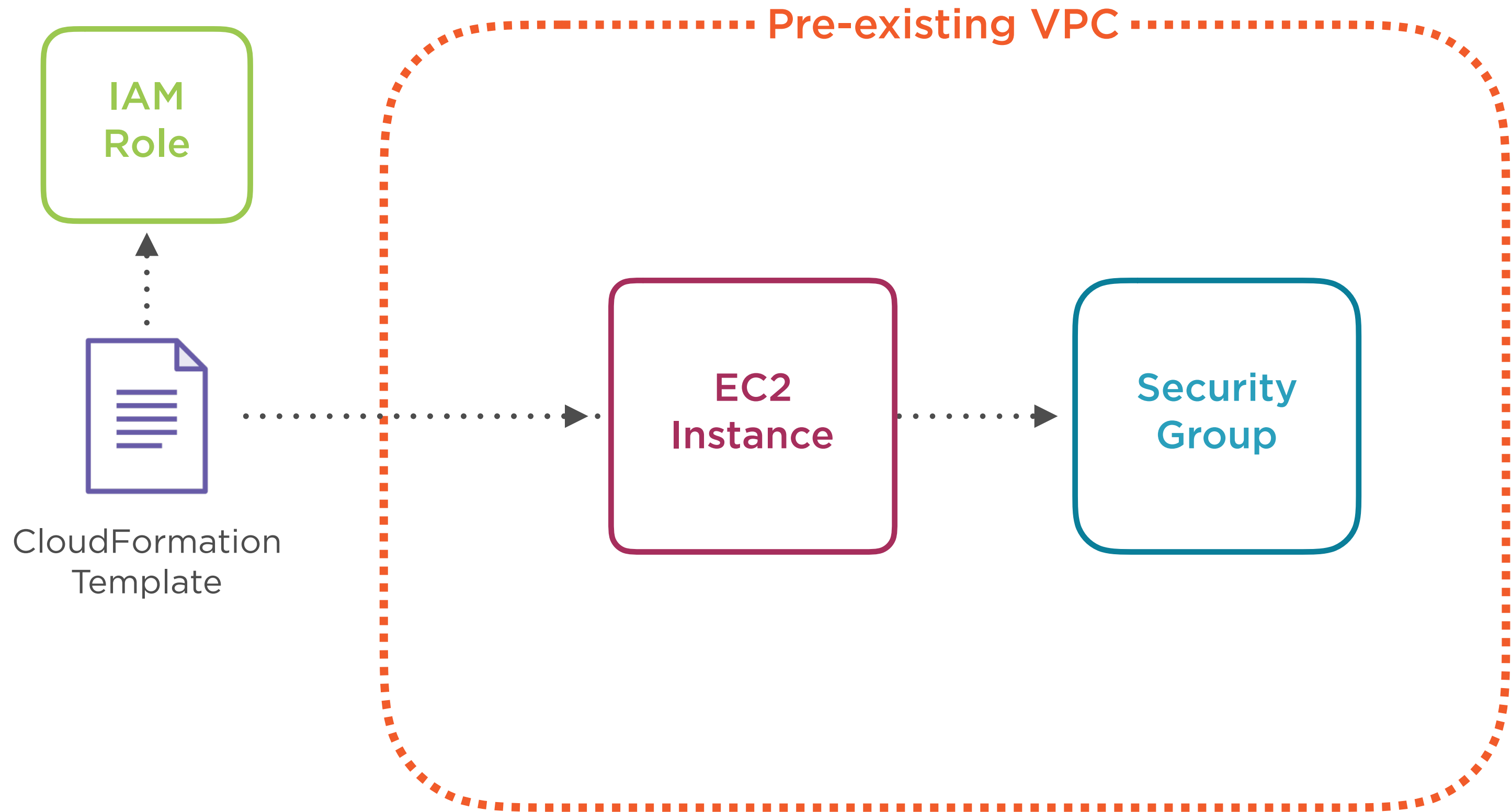


JSON Document

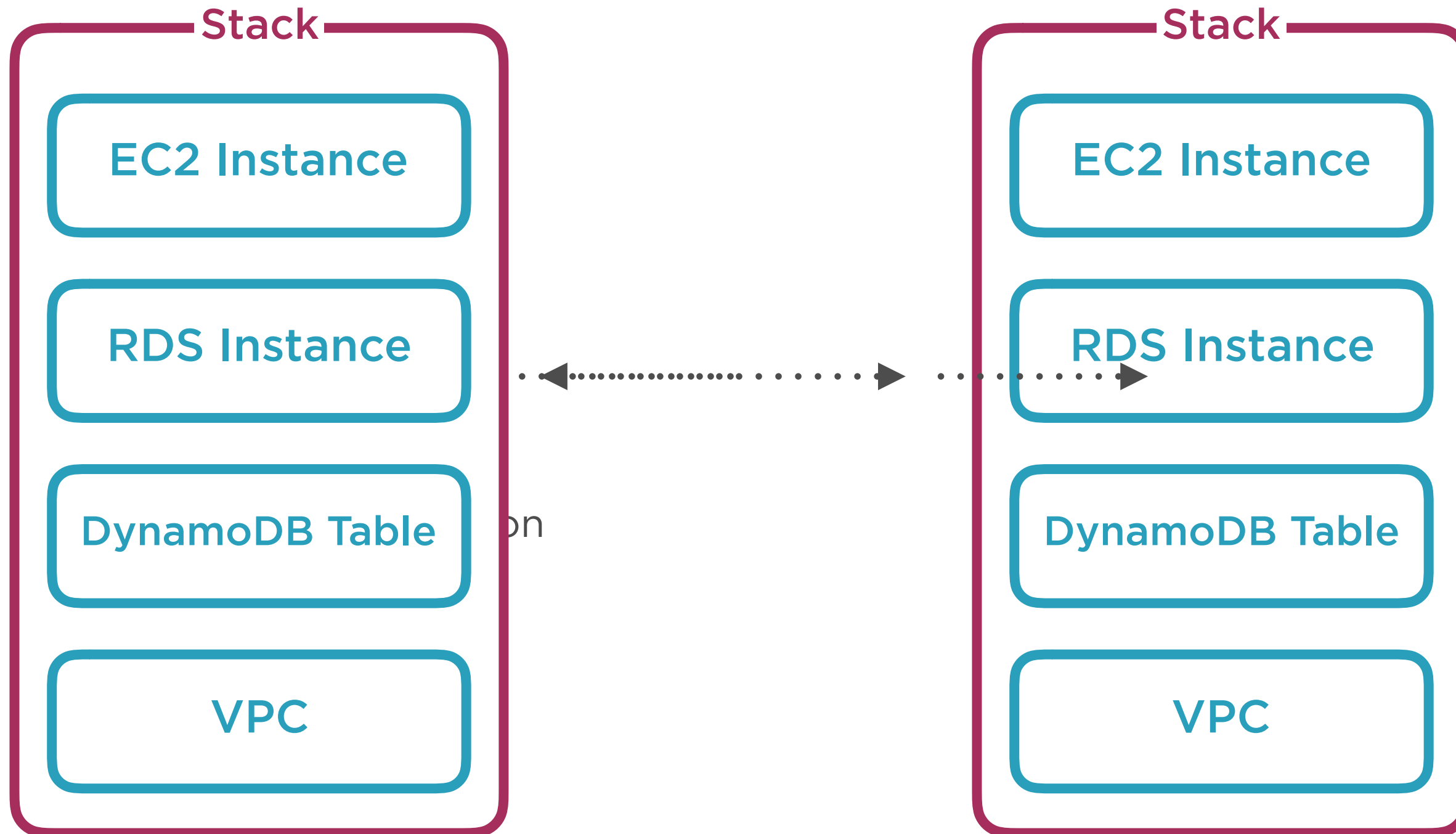
Contains configuration for resources

Can be used in Version Control

No limit to amount of resources



CloudFormation Stack



Other CloudFormation Operations

A solid green rectangular box.

Updating
a Stack

A solid blue rectangular box.

Deleting
a Stack

Updating a stack may
require resources to restart

Deleting a stack removes all
resources created in that
stack

CloudFormation only creates
the resources you explicitly
configure in the template

CloudFormer

**Creates a CloudFormation template based
on existing infrastructure**

Provisioning Resources with CloudFormation

Objective

Create, Test, and Delete Pizza Luvrs Infrastructure with CloudFormation

Objective

Customize CloudFormation with Your AMI ID

Use CloudFormation
to create your AWS
infrastructure

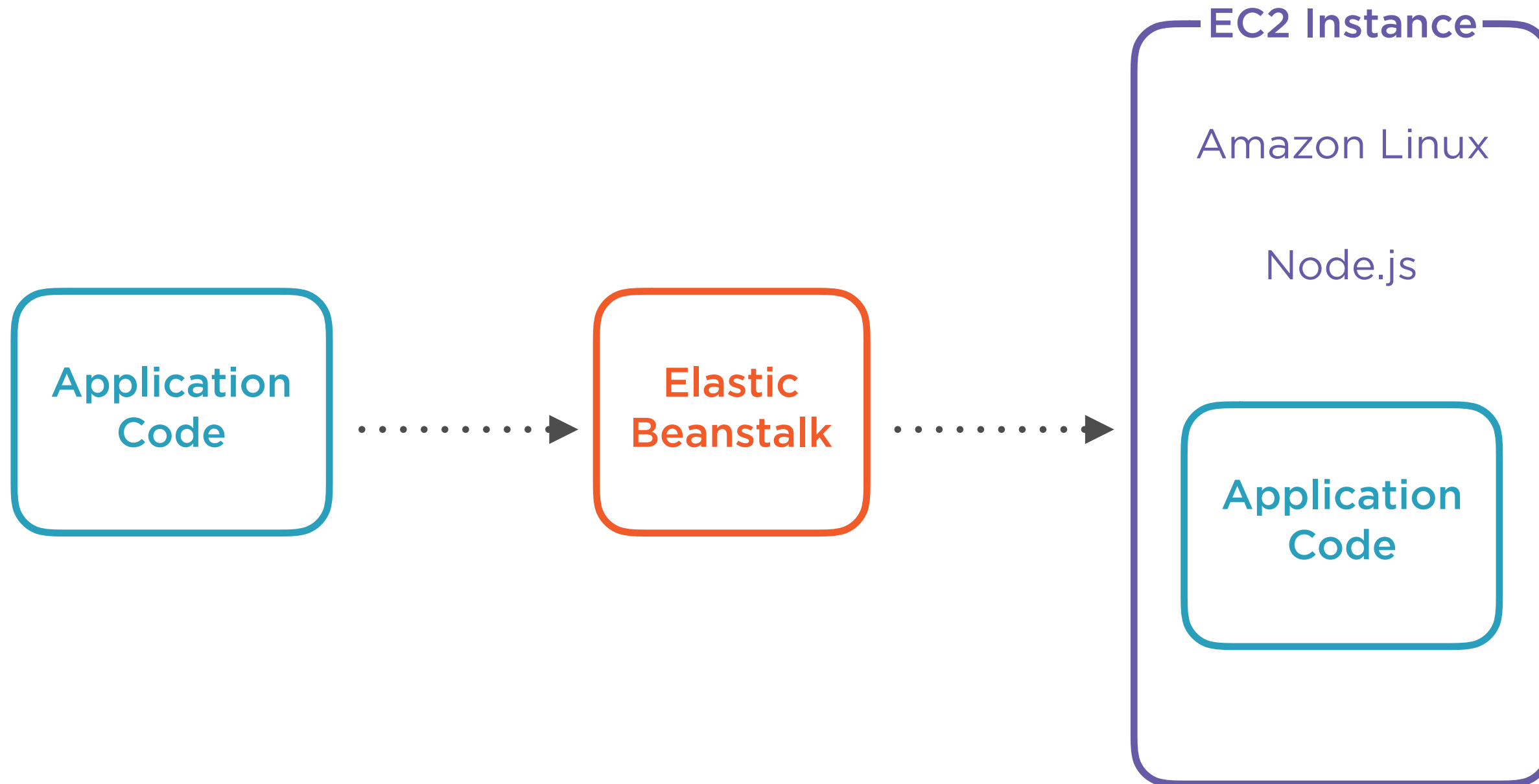
Elastic Beanstalk Overview

Elastic Beanstalk

Scaling

Monitoring

Resource Provisioning



CloudFormation

Only provisions
resources

Elastic Beanstalk

Provisions resources
and runs your
application

Elastic Beanstalk Application

Represents a logical application

Runs a single platform (eg. Node.js, Java)

Has one or more Application Versions

Elastic Beanstalk Application

Environment

AMI

EC2 Instances

Auto-Scaling Group

Application
Version

Environment

AMI

EC2 Instances

Auto-Scaling Group

Application
Version

Deploying an Application with Elastic Beanstalk

Application Deployment Steps

Manual

Upload new code to EC2 instance

Create AMI

Update Load Configuration

Update Auto-Scaling Group

Terminate out-of-date Instances

Elastic Beanstalk

Upload new code

Objective

Zip Pizza Luvrs Codebase to Deploy to Elastic Beanstalk

Objective

Add RDS & DynamoDB Policies to EC2 IAM Role

Configuring an Elastic Beanstalk Environment

Changes to an Elastic
Beanstalk environment
configuration may require
the instances to restart

Conclusion

Summary

Resourceful CloudFormation

Creating a Stack of Pizzas

Planting the Elastic Beanstalk seed

Automated Pizza Delivery

Up Next:

Speeding Up with CloudFront and ElastiCache

CloudFront & ElastiCache



Global
CDN
Service

In-Memory
Cache
Service