# Automate Your App with Elastic Beanstalk and CloudFormation

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# Overview

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

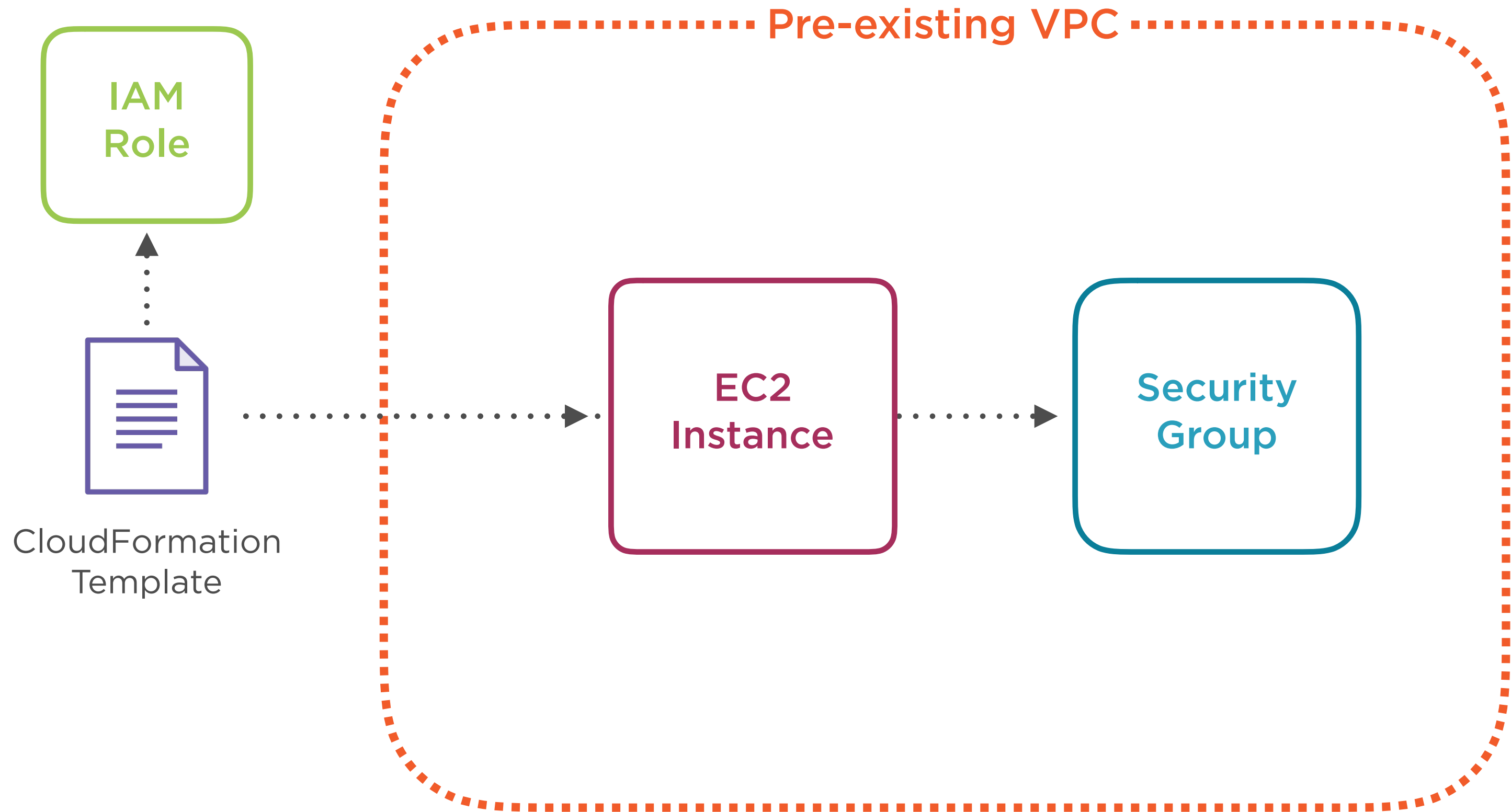Resource

Resource

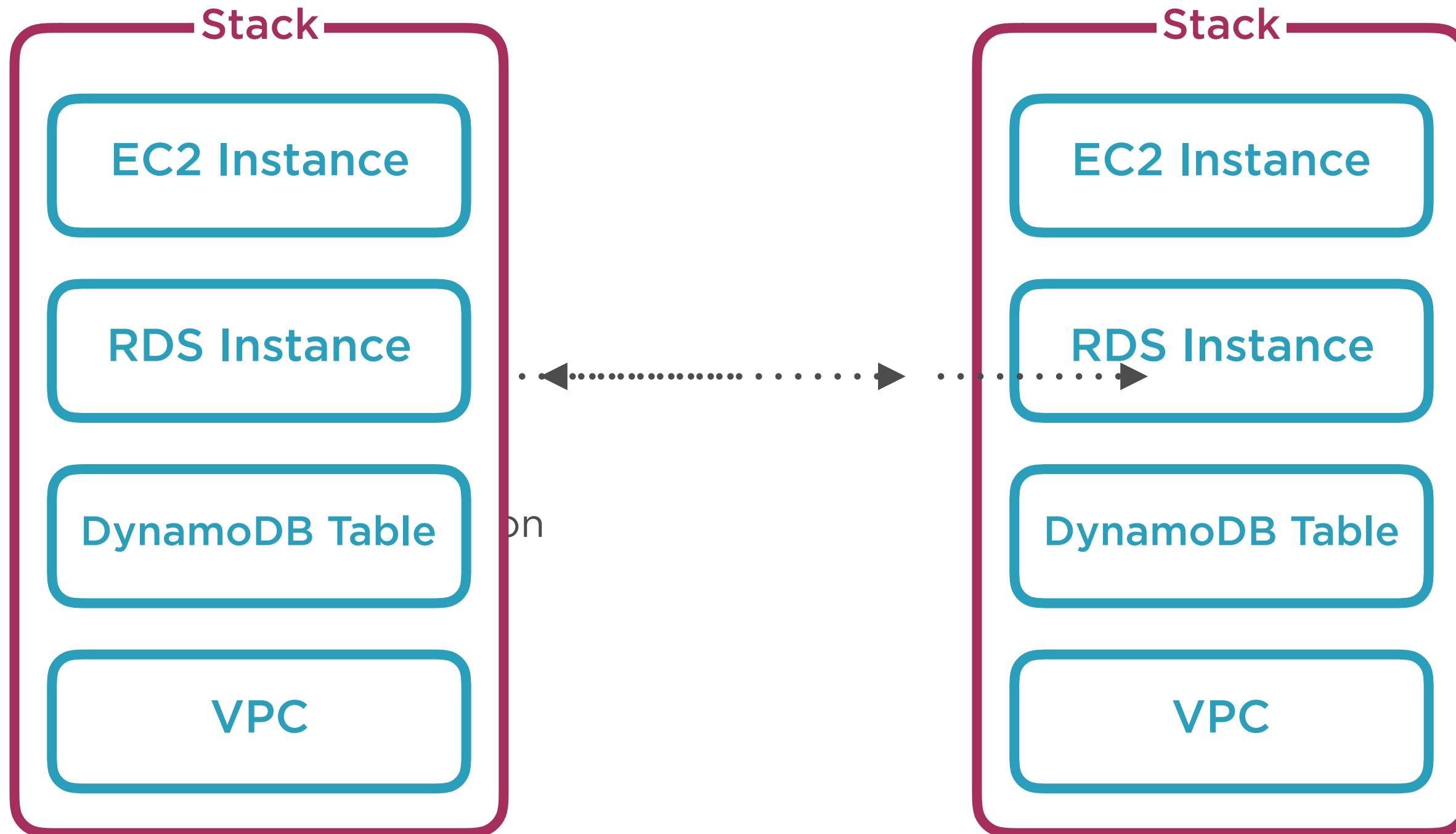Resource

# CloudFormation Template

JSON Document

Contains configuration for resources

Can be used in Version Control

No limit to amount of resources

IAM Role

CloudFormation Template

Pre-existing VPC

EC2 Instance

Security Group

# CloudFormation Stack

**Stack**

**EC2 Instance**

**RDS Instance**

**DynamoDB Table**

on

**VPC**

**Stack**

**EC2 Instance**

**RDS Instance**

**DynamoDB Table**

**VPC**

# Other CloudFormation Operations

**Updating a Stack**

**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

# Customize CloudFormation with Your AMI ID
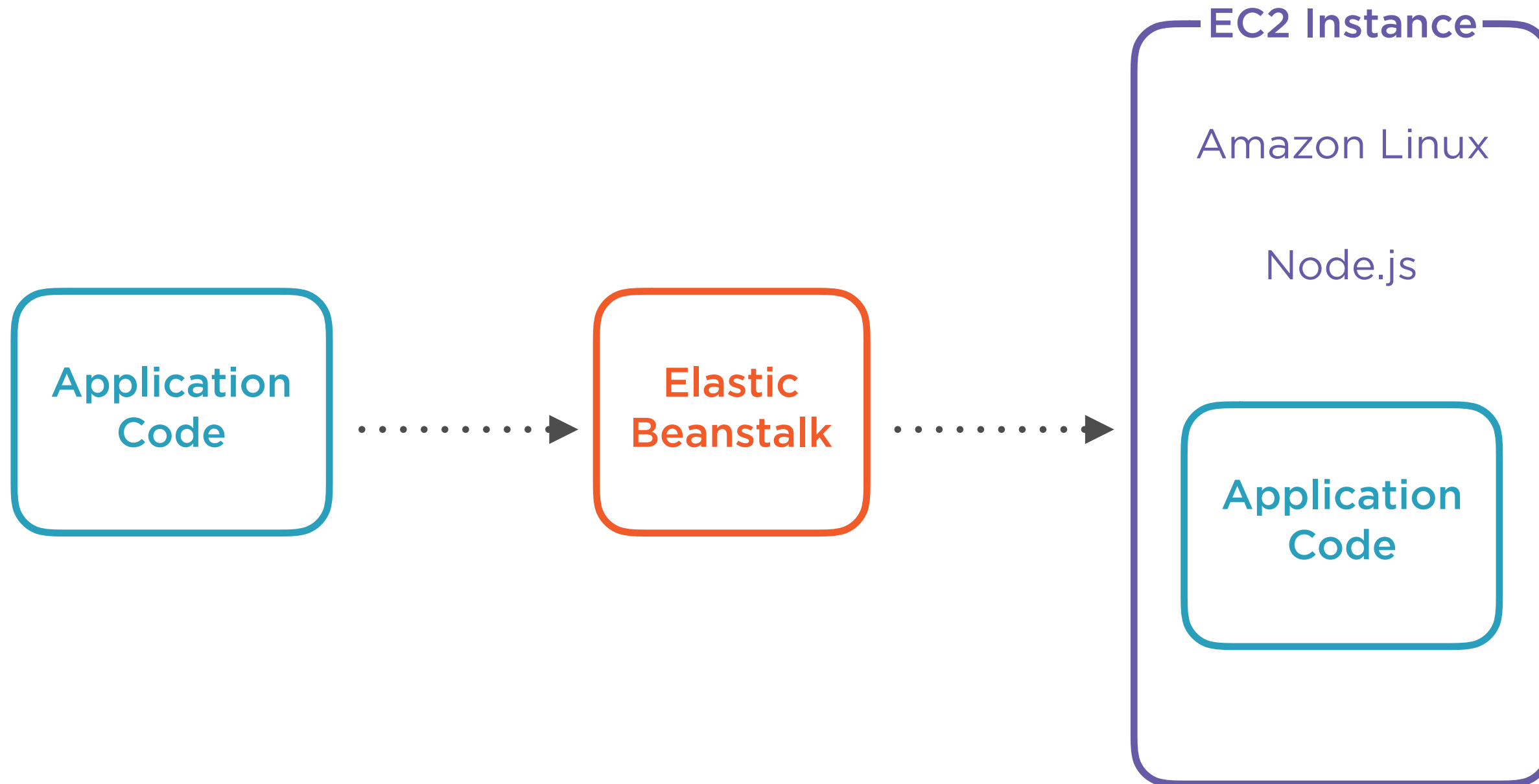
# Use CloudFormation to create your AWS infrastructure

# Elastic Beanstalk Overview

# Elastic Beanstalk

**Scaling**

**Monitoring**

**Resource Provisioning**

Application Code ┈┈┈▶ Elastic Beanstalk ┈┈┈▶ **EC2 Instance**

Amazon Linux

Node.js

Application Code

# 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

Zip Pizza Luvrs Codebase to Deploy to Elastic Beanstalk

Add EB, 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**