

# Project Objective:

Set up a **Three-Stage CI/CD Pipeline** to deploy an application across **multiple AWS Regions**.

## Core AWS Services Required

- **AWS CodeCommit** - Source code management & version control
- **AWS CodeBuild** - Build code and run tests
- **AWS CodePipeline** - Orchestrate the CI/CD pipeline
- **AWS CloudFormation** - Infrastructure provisioning & management
- **Amazon S3** - Artifact storage (one bucket per target region)
- **CloudWatch Events** - Trigger pipeline on code changes

## Pipeline Workflow Steps

### Stage 1: Source

1. **Developer pushes code** to CodeCommit repository
2. **CodeCommit triggers** CloudWatch event on code commit/update
3. **CloudWatch event starts** CodePipeline execution

### Stage 2: Build & Test (CodeBuild)

4. **CodeBuild performs:**
  - **Testing** of CloudFormation templates
  - **Packaging** of CloudFormation templates for each target region
  - **Uploads artifacts** to S3 buckets (one bucket per region)
  - **Prepares artifacts** for deployment phase

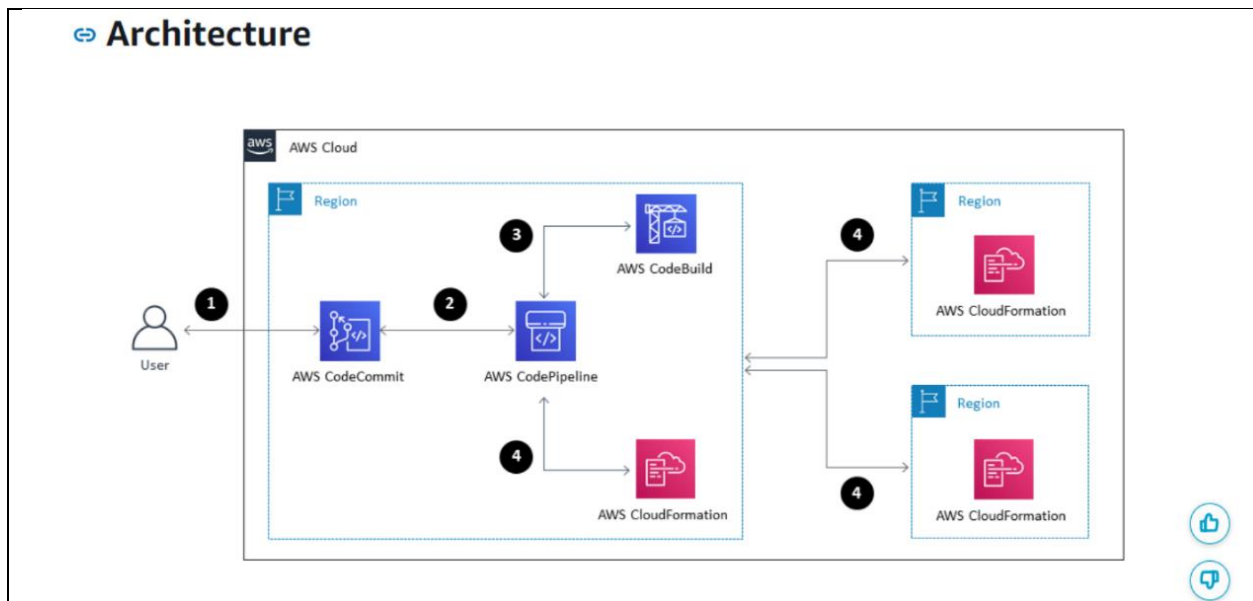
### Stage 3: Deploy (Multi-Region)

5. **Parallel deployment** to multiple AWS Regions:
  - **Two regions** for this demo project

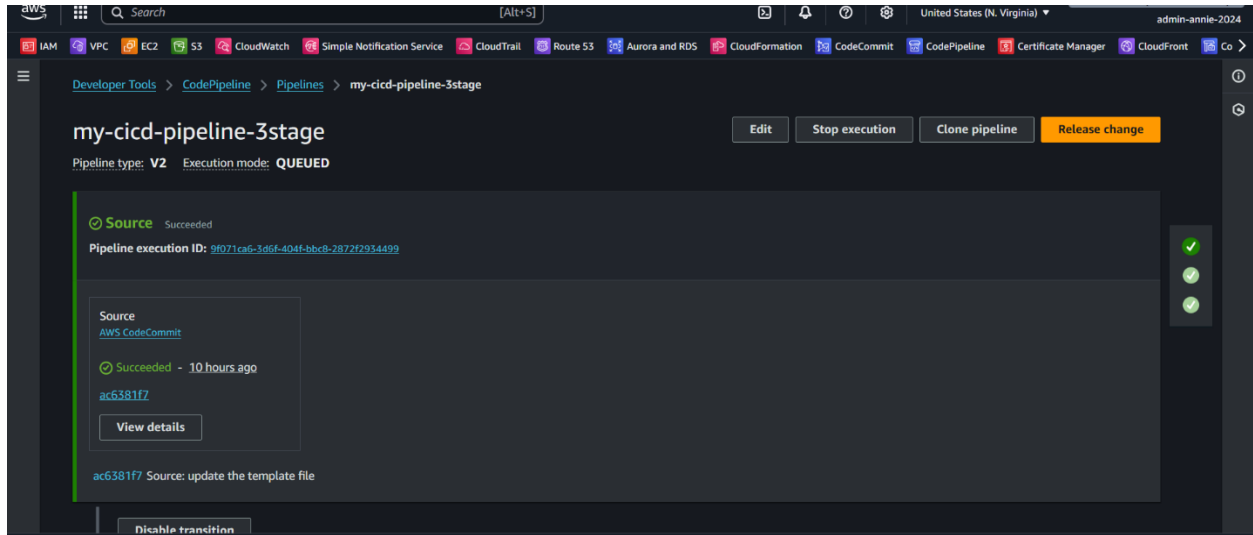
- **CloudFormation** provisions infrastructure in each region
- **CodePipeline** manages parallel deployment workflow

### Key Technical Requirements

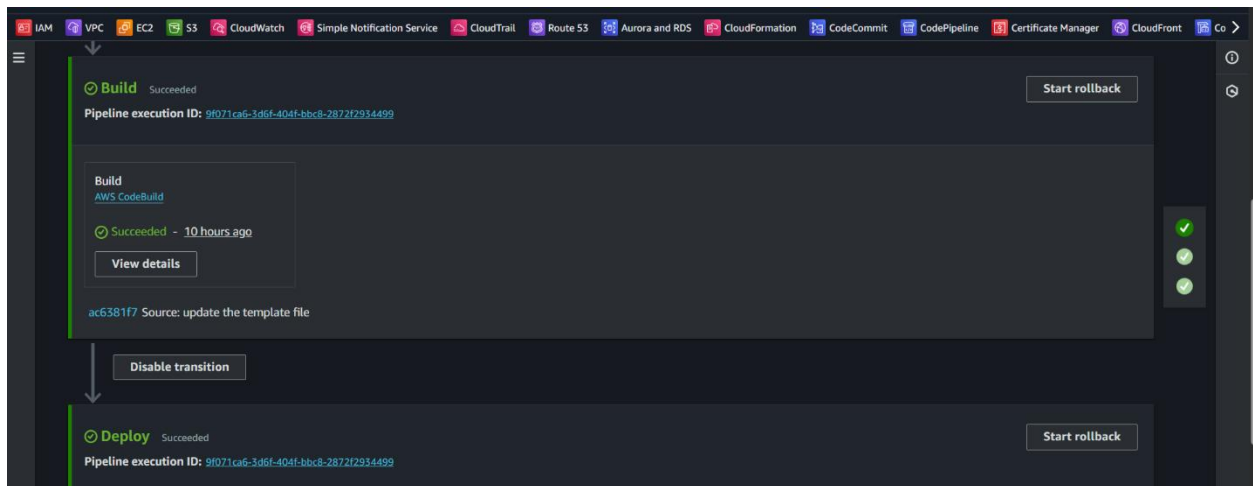
- **Multi-region deployment** capability
- **Artifact storage** in S3 buckets per region
- **CloudFormation template validation** during build phase
- **Parallel execution** of deployments across regions
- **Automated triggering** on code changes



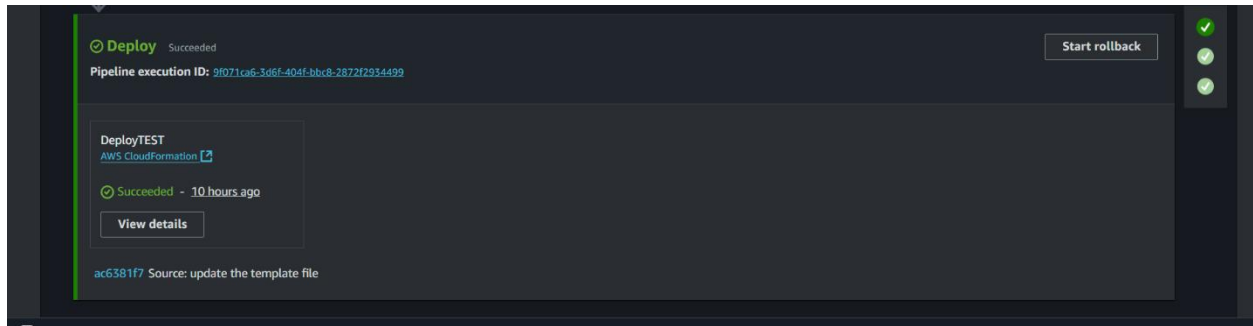
## AWS Console screenshot showing CI/CD pipeline-1



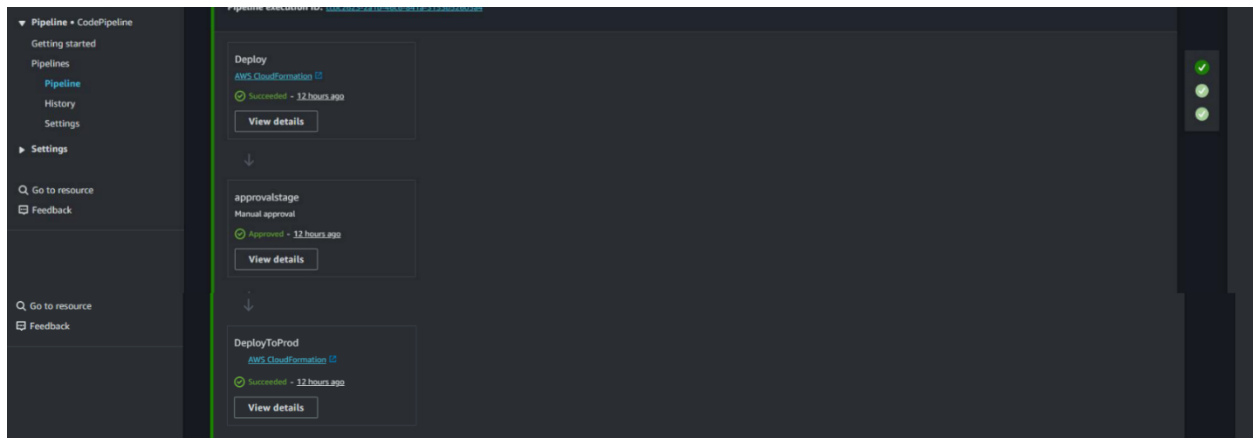
## AWS Console screenshot showing CI/CD pipeline-2



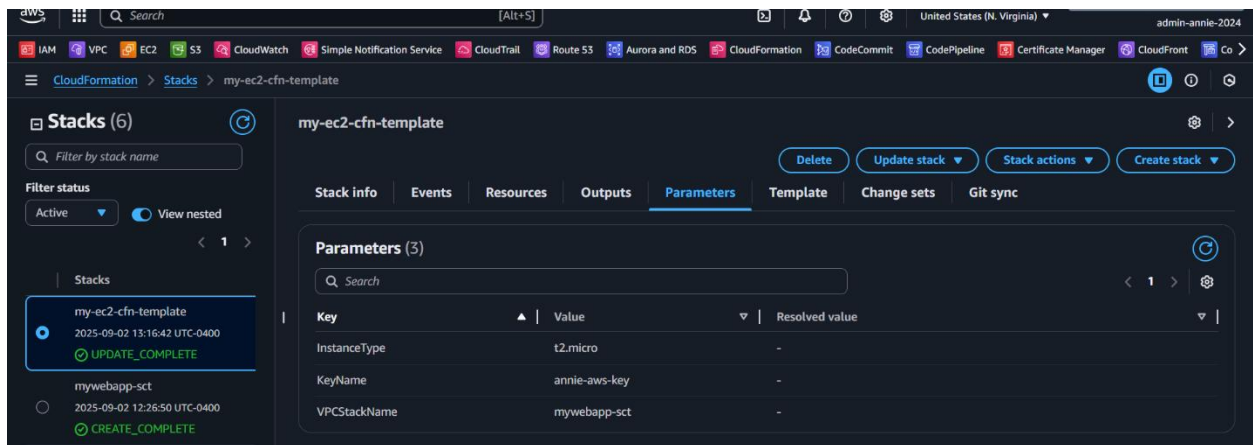
## AWS Console screenshot showing CI/CD pipeline-3



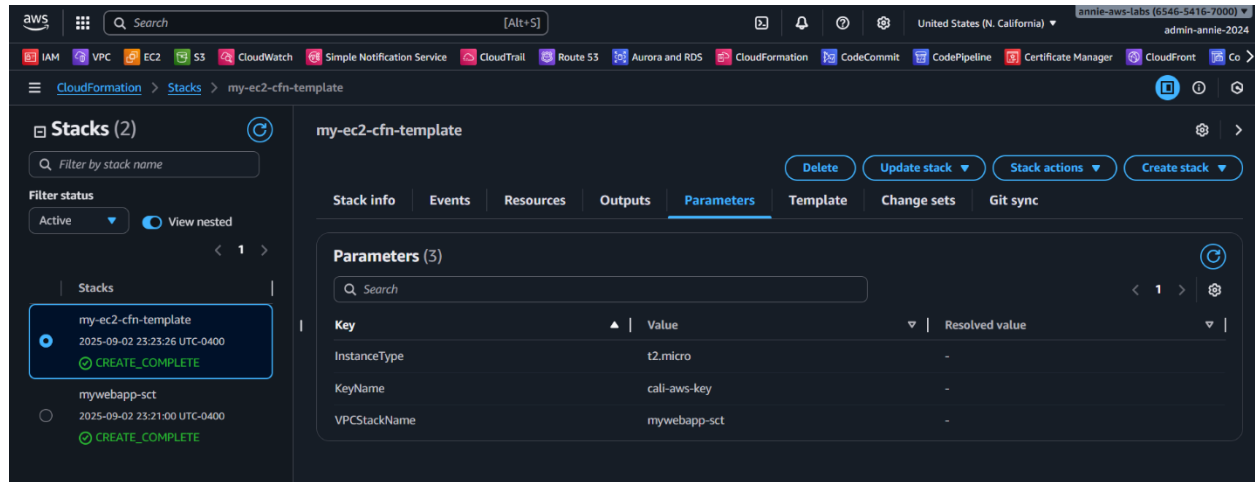
## AWS Console screenshot showing CI/CD pipeline-4



## First Stack creation completed in (US-East-1)



## Second Stack creation completed in (US-West-1)



## Application successfully deployed to us-east-1

