AWS FOR FINANCIAL SERVICES

Prototyping and Cloud Engineering

FSI PACE

Financial Services Industry

OPA on AWS
Orchestrating and Managing CI/CD

OPA

Orchestrate Platform and Applications

FSI PACE

Platform Engineering Team

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Agenda

Brief CICD Primer

OPA's CICD Approach

CICD Primer

What is CICD?

1. An automated process for building code and preparing it for release

2. Continuous Integration / Continuous Delivery
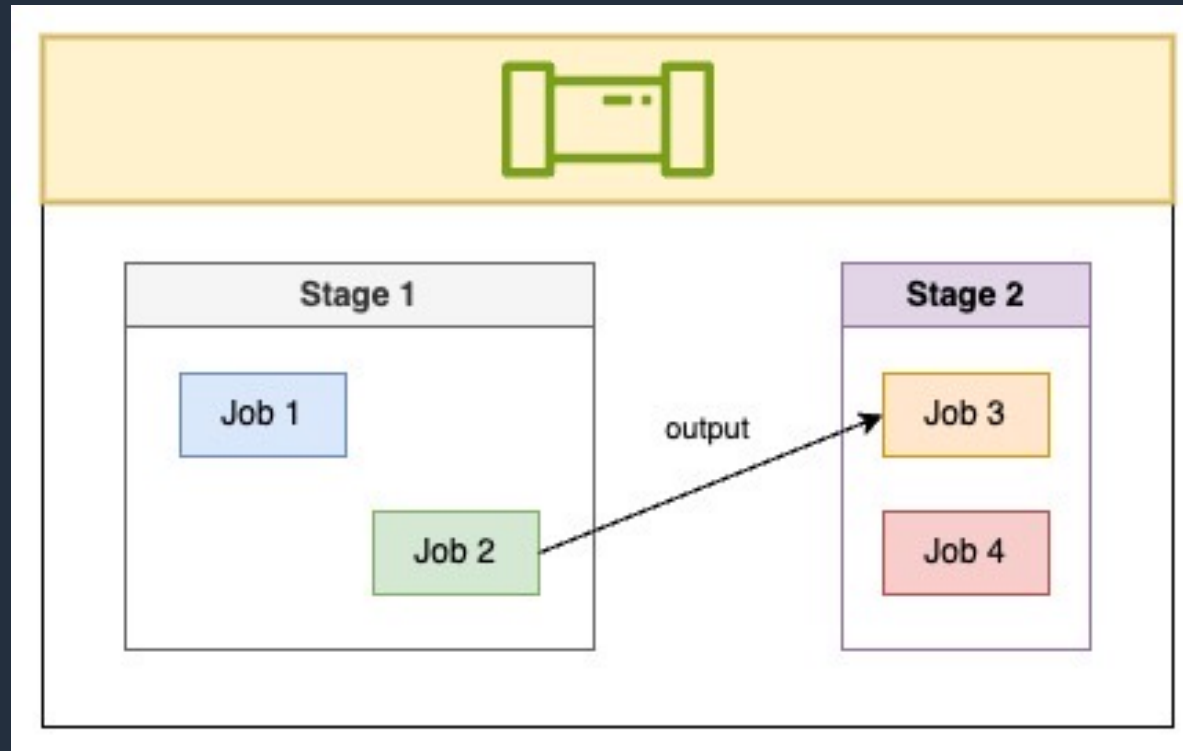
3. Why CICD?

CICD Building Blocks

1. Stage

2. Job

- Run commands or scripts

- Run concurrently or in a series

- Container Instance

- Code Retrieval
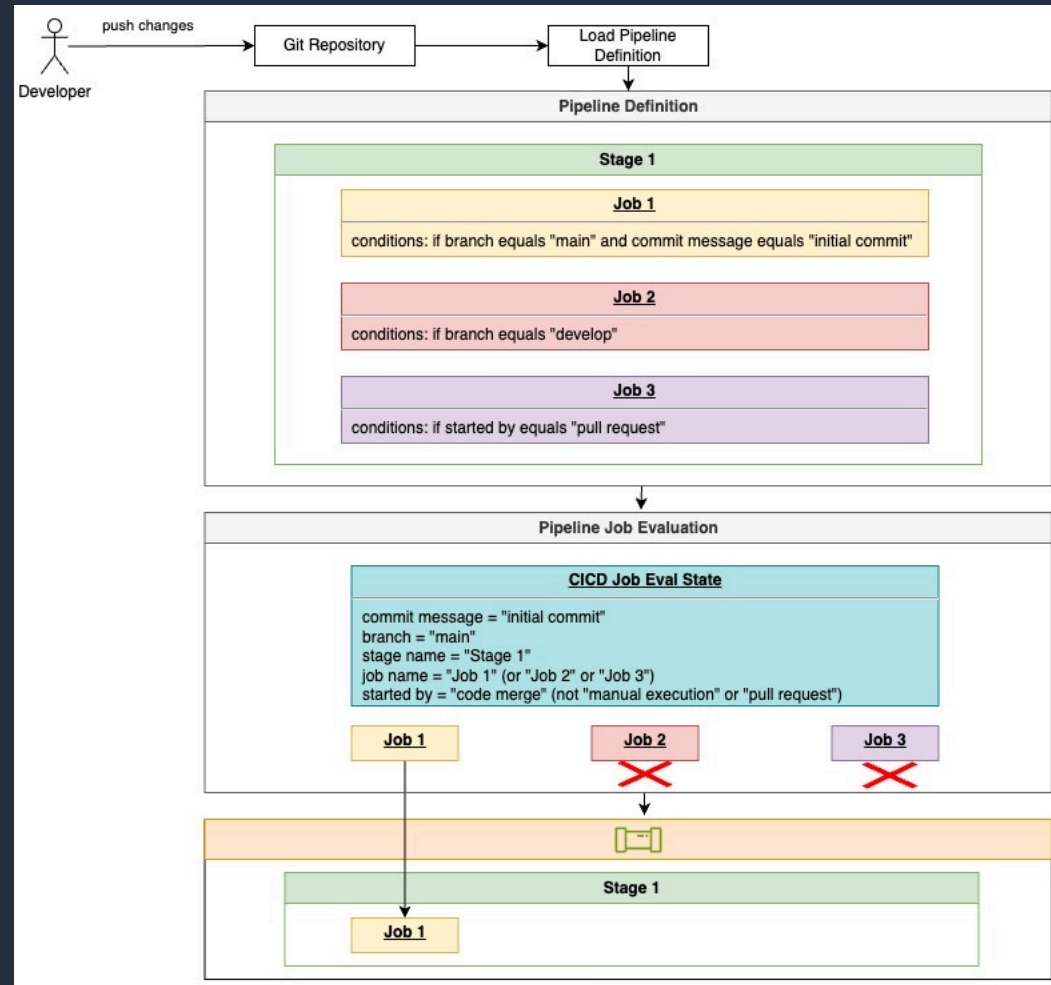
Example CICD Pipeline

CICD Vendors

1. AWS CodePipeline

2. GitHub Actions

3. GitLab CI

4. Jenkins

5. Circle CI

Not All Vendor Solutions are Equal

1. 1 or more branch?

2. Accepts input variables?

3. Jobs set statically or dynamically evaluated?

Pipeline as Event Handler

OPA CICD

OPA CICD Vendor: GitLab CI

Hosting GitLab

GitLab Resources

GitLab CI Documentation

https://docs.gitlab.com/ee/ci/yaml/

Backstage Integration:

https://backstage.io/docs/integrations/gitlab/discovery/

Backstage CICD Plugin

https://github.com/immobiliare/backstage-plugin-gitlab

GitHub Resources

GitHub Actions Documentation

https://github.com/features/actions

Backstage Integration:

https://backstage.io/docs/integrations/github/locations/

Backstage CICD Plugin

https://roadie.io/backstage/plugins/github-actions/

Using Something Other Than GitLab

Configure Backstage integration with Git vendor in app-config.yaml

Configure or write a CICD plugin, or hide CICD tab

Port or reimplement OPA pipeline code for applications and environment providers

Update application templates to publish to your Git vendor and create an access token for cloning the new repo

OPA Application Pipelines

OPA Application Pipelines
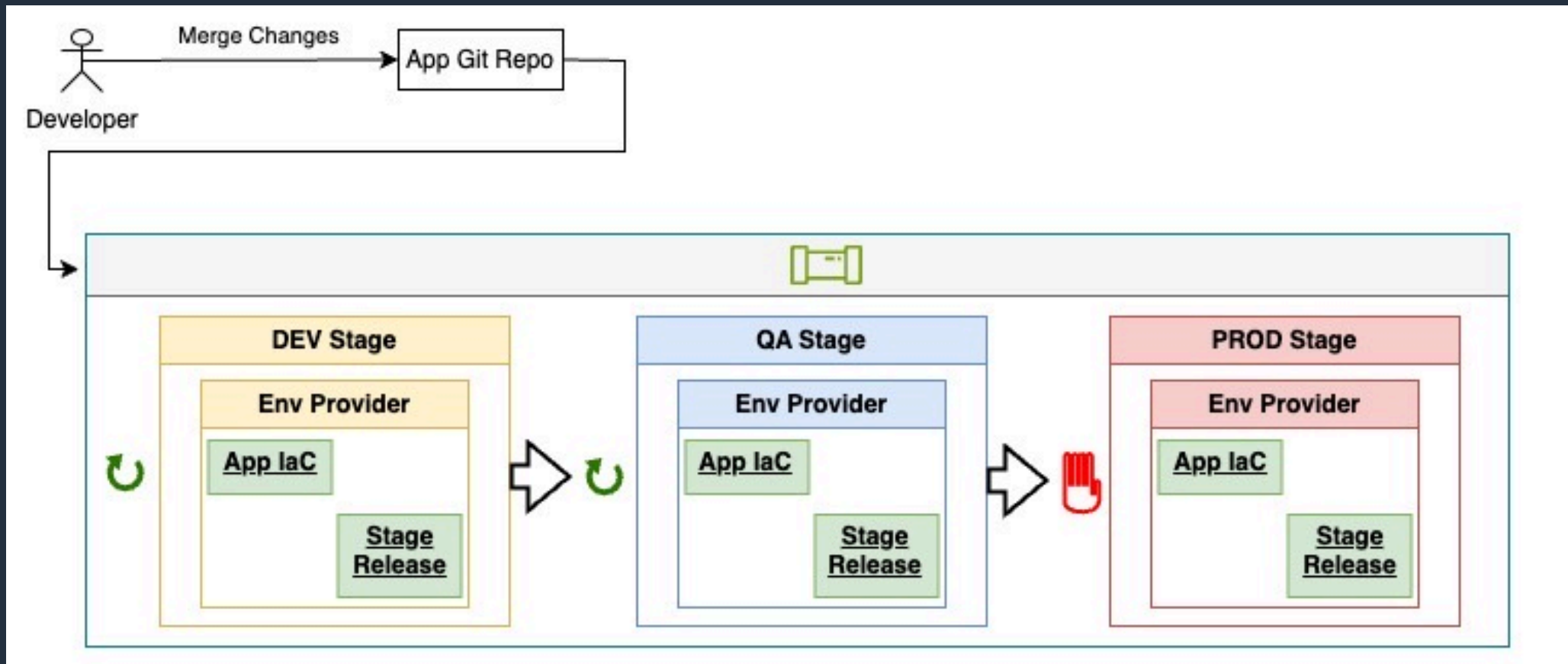
Branching Strategies and High-Level Flow

OPA Application Pipeline Design Choices

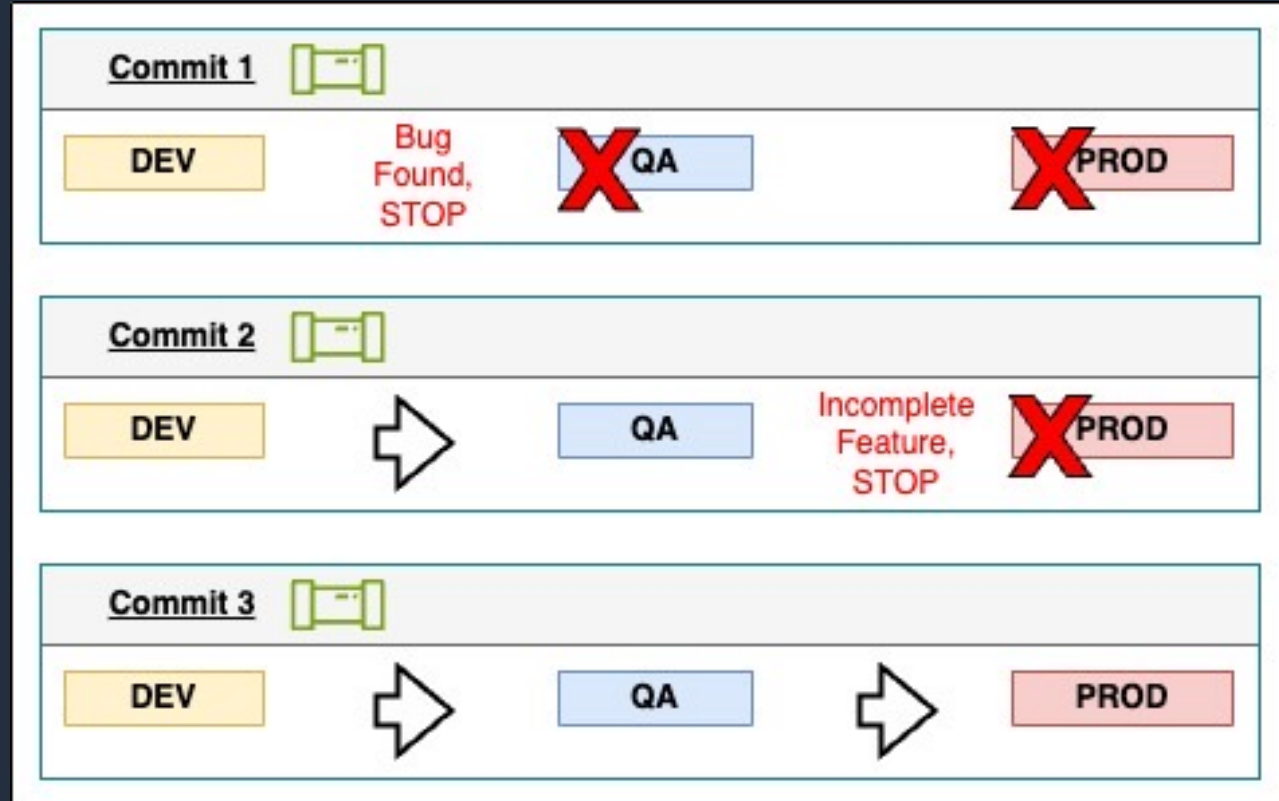1. One stage per environment

OPA Application Pipelines
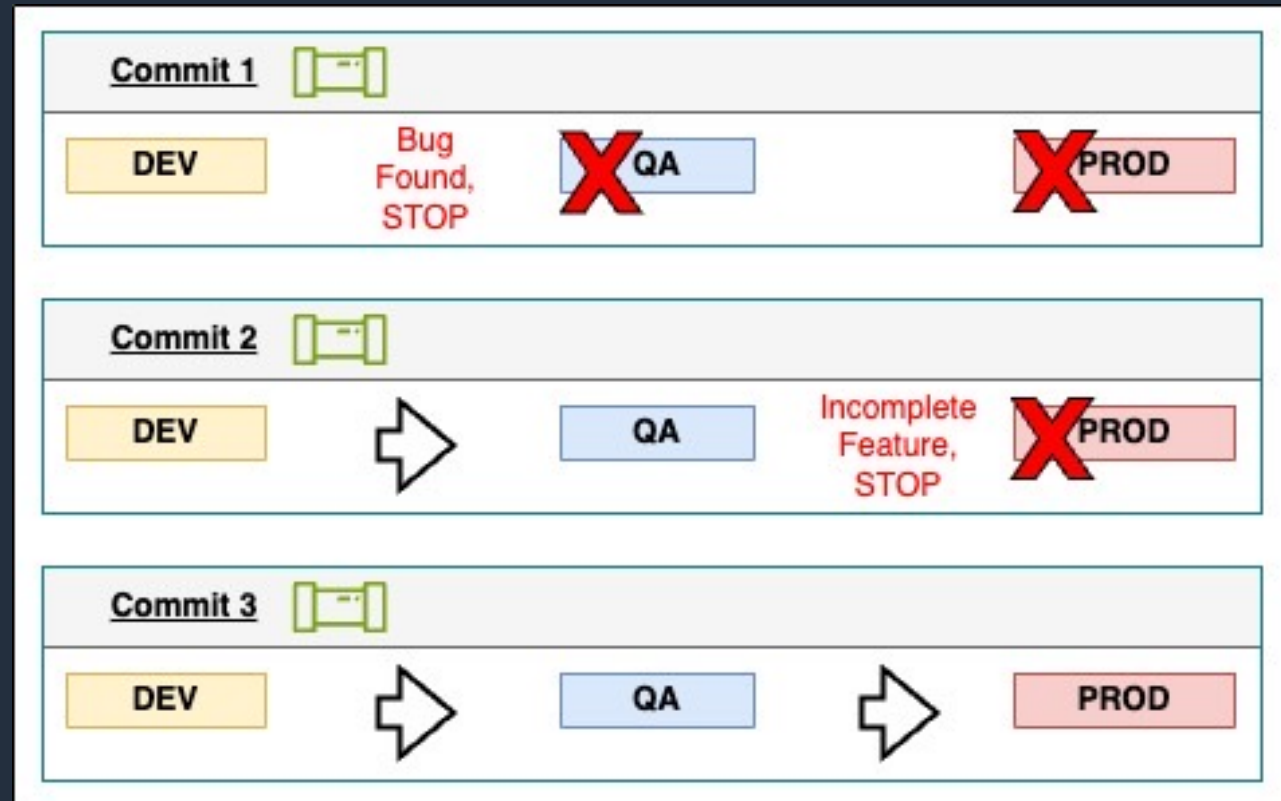
OPA Application Pipelines

OPA Application Pipelines
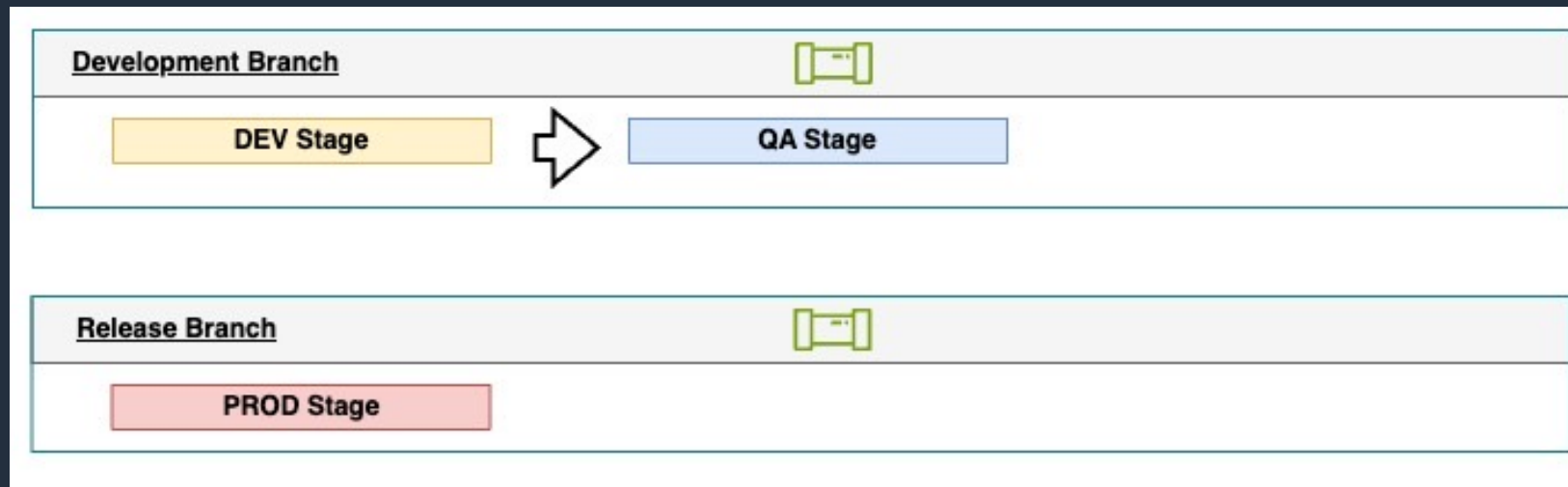
Customization Options
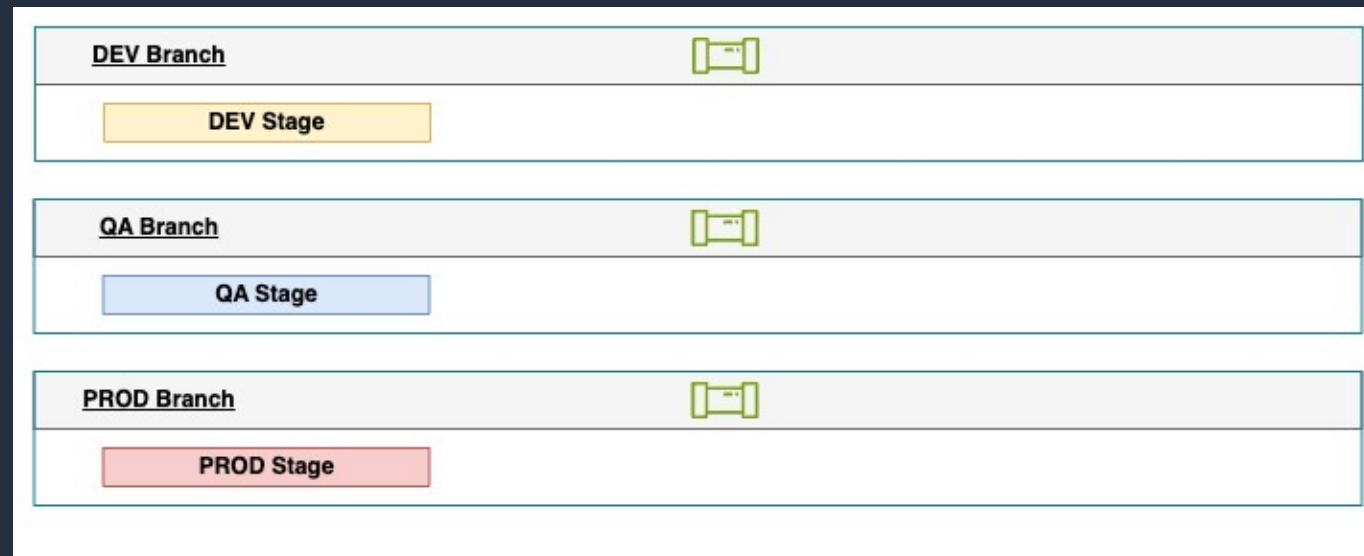
Selective Jobs Via Commit Message

Alternative Branching Strategies

1. 2 Branch Strategy

Alternative Branching Strategies
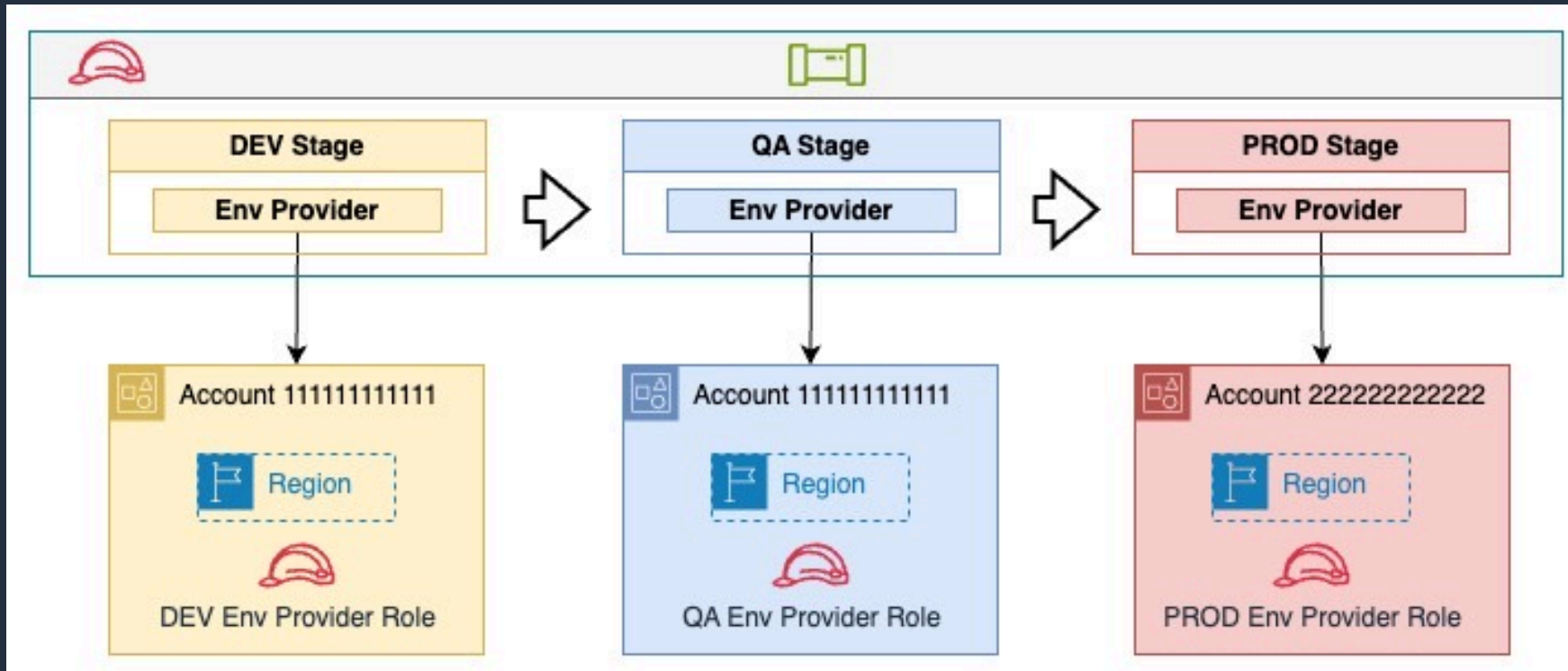
1. Branch Per Environment

OPA Application Pipelines

Deploying to Multiple AWS Accounts & Regions

App Deployment To Multiple AWS Accounts

.awsdeployment/providers/${ENV_NAME}-${ENV_PROVIDER_NAME}.properties

OPA Application Pipelines

Central Pipeline Management

Modular and centrally managed

```
include:
  - project: 'opa-admin/backstage-reference'
    ref: main
    file:
      - 'common/cicd/.gitlab-ci-job-defaults-cdk.yml'
      - 'common/cicd/.gitlab-ci-aws-base.yml'
      - 'common/cicd/.gitlab-ci-aws-iac-serverless-api.yml'
```
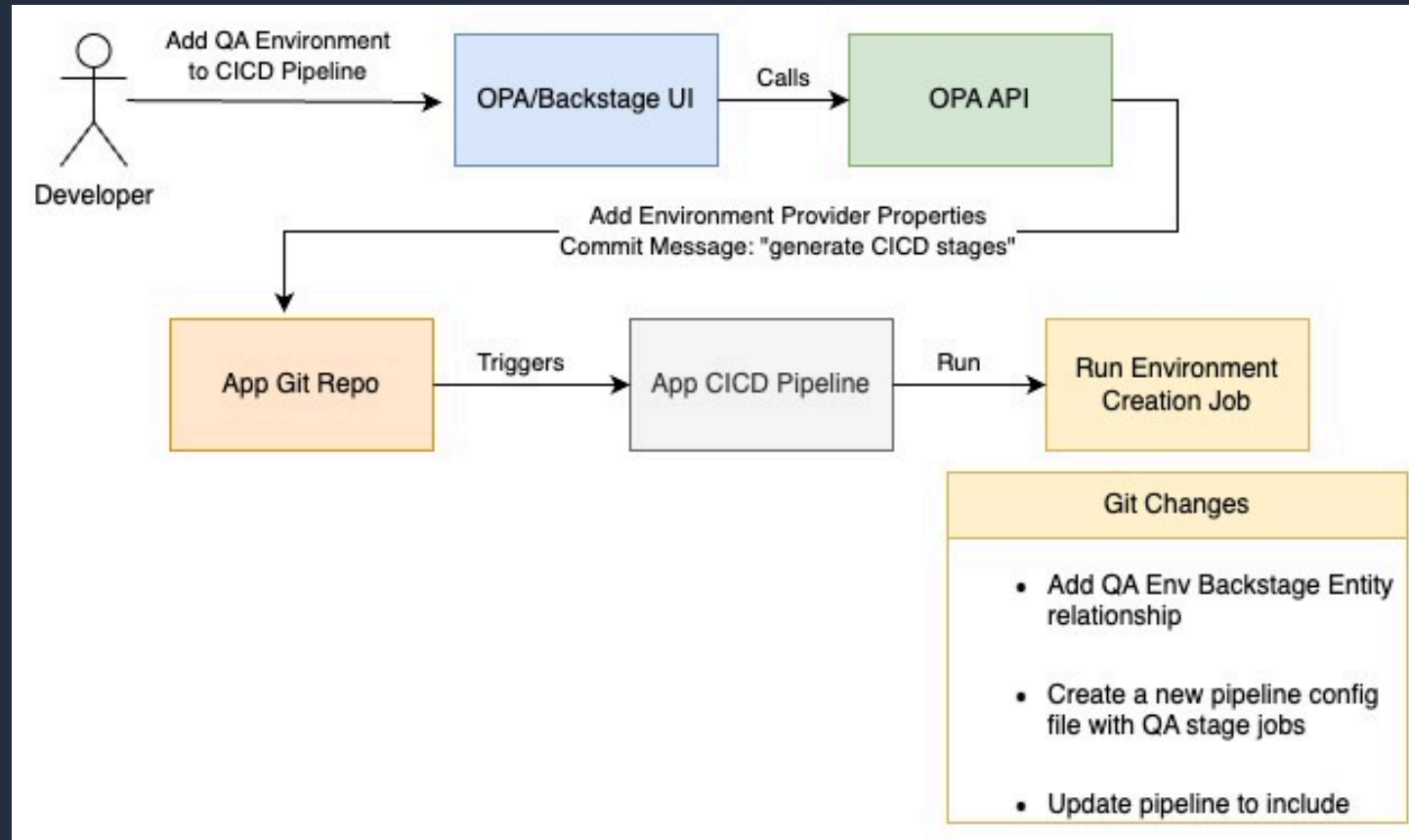
Where to Find Centrally Managed CICD Jobs

backstage-reference/common/cicd

OPA Application Pipelines

Event Processing

Adding a New CICD Environment Stage to an App

aws FOR FINANCIAL SERVICES

Thank you!

OPA

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