



Prototyping and Cloud Engineering



Financial Services Industry

# OPA on AWS

## Multi-Environment Applications



Orchestrate Platform and Applications

FSI PACE

Platform Engineering Team

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# What We'll Cover

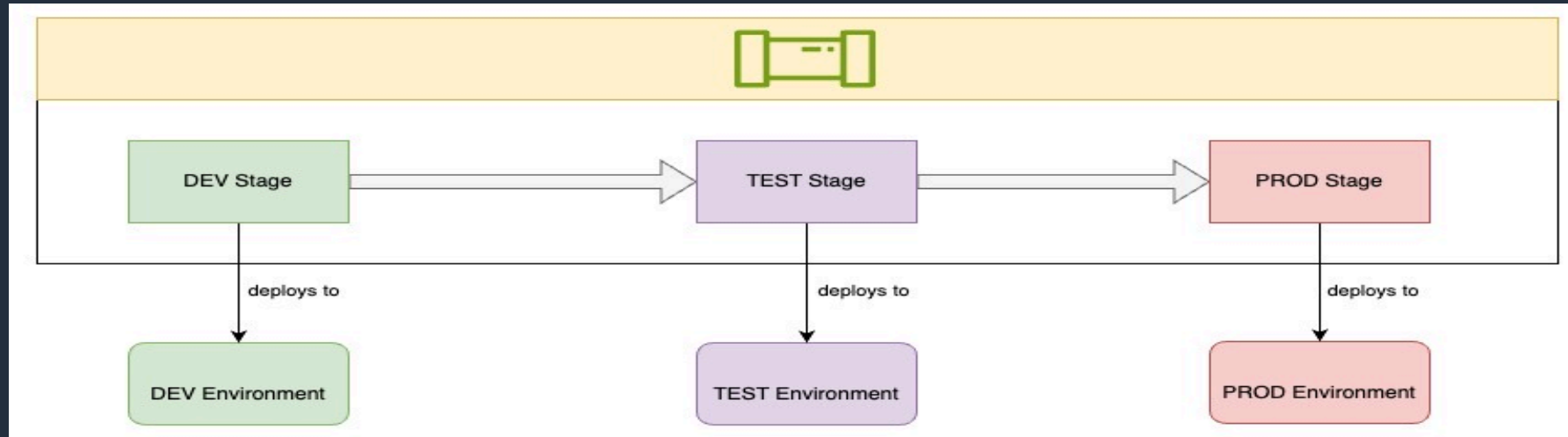
Demo OPA Support for Application Environments

What is an OPA Application Environment?

# Developer Experience Demo



# Environment Ordering and CI/CD



1 2 3

Platform Engineer

# Moments Later...



# Commentary on New environment

## 1. Placeholder for notes

# Demo Takeaways

1. An application can be associated with as many environments as needed
2. No developer coding is needed to add an environment
3. New environments can be set up at any time

# Exploring OPA Environments





# Traditional Definition of “Environment”

1. An isolated location where a version of an application runs
2. Has a unique purpose
3. Purpose drives capacity, scale, resiliency and access, frequency of deployment

# Common Environments

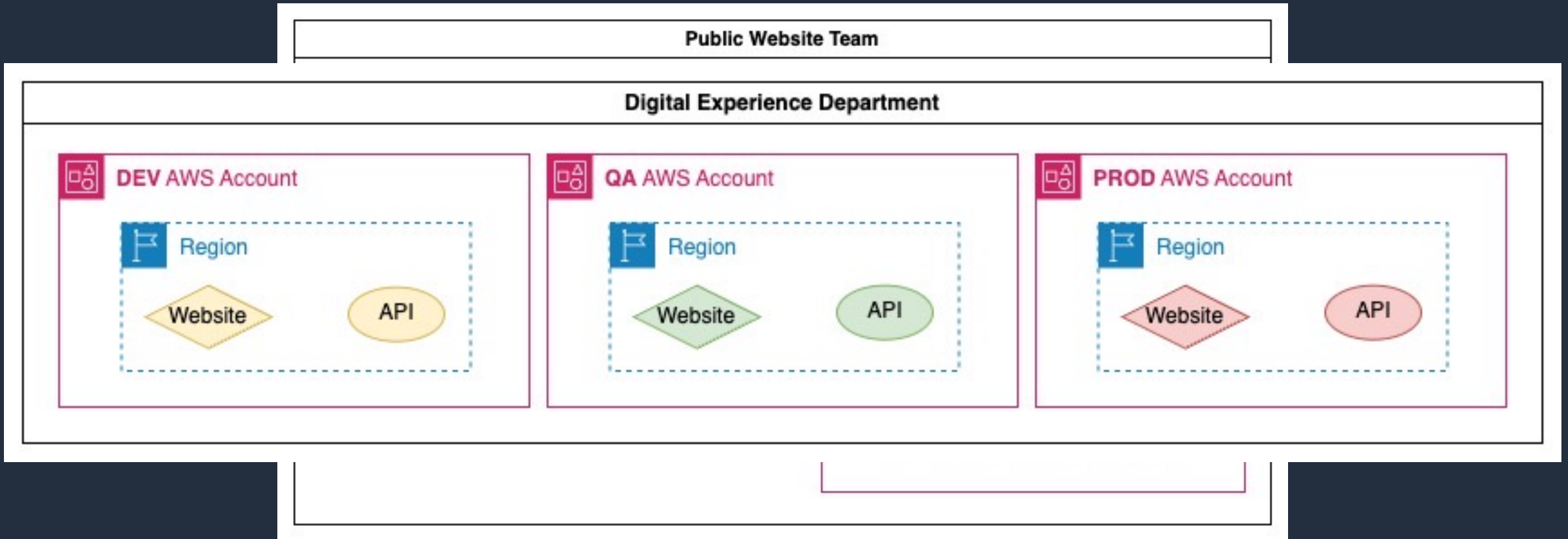
1. LOCAL – developer laptop or workstation
2. SANDBOX – used for experiments and learning
3. DEV – the latest integrated code
4. QA – feature complete code that is ready for testing
5. PROD – end user access

# How Are OPA Environments Different?

1. Account/Region
2. Can be spun up in minutes
3. OPA Environments imply a specific tech stack
4. Customizable, Flexible, Reusable



# OPA Environments & AWS Accounts



# Physical Implementation Details



# Application Environment

### Node.js Express Web App

1 Provide basic component information

2 Provide environment information for the application

AWS Environment \*  
US-AML-dev

The AWS Environment where the application is created

Back Next step

3 Choose a git repository location

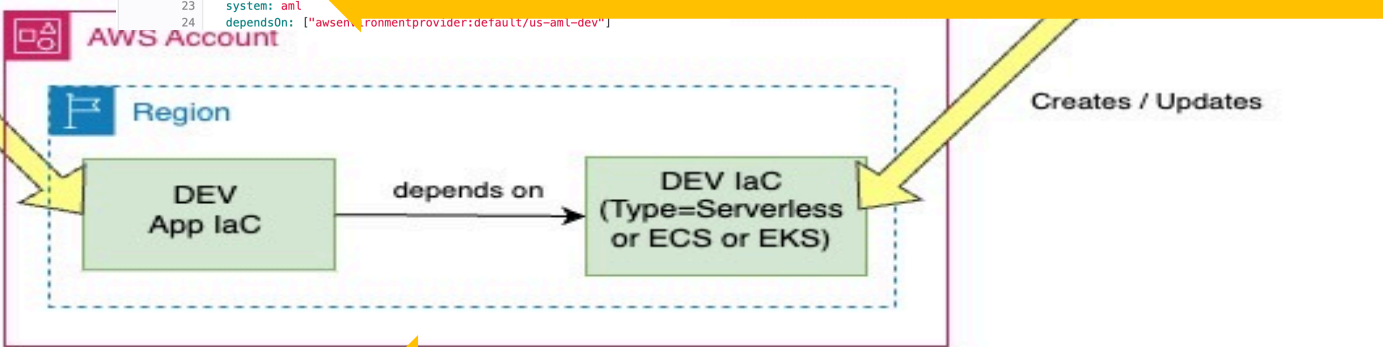
```
catalog-info.yaml 1.69 KiB
1  apiVersion: backstage.io/v1alpha1
2  kind: Component
3  metadata:
4    name: "user-data-enrichment-service"
5    description: "Microservice to enrich user data from a profile database"
6  tags:
7    - aws
8    - nodejs
9  annotations:
10   aws.amazon.com/opa-repo-secret-arn: "arn:aws:secretsmanager:us-east-1:111111111111:secret:aws-apps-user-dv"
11  iac-type: cdk
12  repo-secret-arn: "arn:aws:secretsmanager:us-east-1:111111111111:secret:aws-apps-user-dv"
13  appData:
14   US-AML-dev:
15     us-aml-dev:
16       EcrRepositoryUri: $${SS5555555555.dkr.ecr.us-east-1.amazonaws.com/user-data-enrichment-service}
17       EcrRepositoryArn: arn:aws:ecr:us-east-1:555555555555:repository/user-data-enrichment-service
18       EcsServiceArn: arn:aws:ecs:us-east-1:555555555555:service/aml-us-aml-dev-cluster
19       EcsTaskDefinitionArn: arn:aws:ecs:us-east-1:555555555555:task-definition/user-data-enrichment-service
20       ALBEndpoint: http://user-userd-111111111111-1111111111.us-east-1.elb.amazonaws.com
21       TaskLogGroup: /aws/apps/US-AML-dev/us-aml-dev/user-data-enrichment-service
22       TaskExecutionRoleArn: user-data-enrichment-service-ecs-resources-us-aml-dev/user-data-enrichment-service-ecs-resources-us-aml-dev
23       AppResourceGroup: arn:aws:resource-groups:us-east-1:555555555555:group/user-data-enrichment-service-ecs-resources-us-aml-dev
24       StackName: user-data-enrichment-service-ecs-resources-us-aml-dev
25  spec:
26   type: aws-app
27   owner: "group:default/developers"
28   lifecycle: experimental
29   dependsOn: ["awsenvironment:default/US-AML-dev"]
```

```
catalog-info
1  apiVersion: backstage.io/v1alpha1
2  kind: Component
3  metadata:
4    name: "user-data-enrichment-service"
5    description: "Microservice to enrich user data from a profile database"
6  tags:
7    - aws
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9  annotations:
10   aws.amazon.com/opa-repo-secret-arn: "arn:aws:secretsmanager:us-east-1:111111111111:secret:aws-apps-user-dv"
11  iac-type: cdk
12  repo-secret-arn: "arn:aws:secretsmanager:us-east-1:111111111111:secret:aws-apps-user-dv"
13  appData:
14   US-AML-dev:
15     us-aml-dev:
16       EcrRepositoryUri: $${SS5555555555.dkr.ecr.us-east-1.amazonaws.com/user-data-enrichment-service}
17       EcrRepositoryArn: arn:aws:ecr:us-east-1:555555555555:repository/user-data-enrichment-service
18       EcsServiceArn: arn:aws:ecs:us-east-1:555555555555:service/aml-us-aml-dev-cluster
19       EcsTaskDefinitionArn: arn:aws:ecs:us-east-1:555555555555:task-definition/user-data-enrichment-service
20       ALBEndpoint: http://user-userd-111111111111-1111111111.us-east-1.elb.amazonaws.com
21       TaskLogGroup: /aws/apps/US-AML-dev/us-aml-dev/user-data-enrichment-service
22       TaskExecutionRoleArn: user-data-enrichment-service-ecs-resources-us-aml-dev/user-data-enrichment-service-ecs-resources-us-aml-dev
23       AppResourceGroup: arn:aws:resource-groups:us-east-1:555555555555:group/user-data-enrichment-service-ecs-resources-us-aml-dev
24       StackName: user-data-enrichment-service-ecs-resources-us-aml-dev
25  spec:
26   type: environment
27   lifecycle: experimental
28   owner: "group:default/developers"
29   system: aml
30   dependsOn: ["awsenvironmentprovider:default/us-aml-dev"]
```

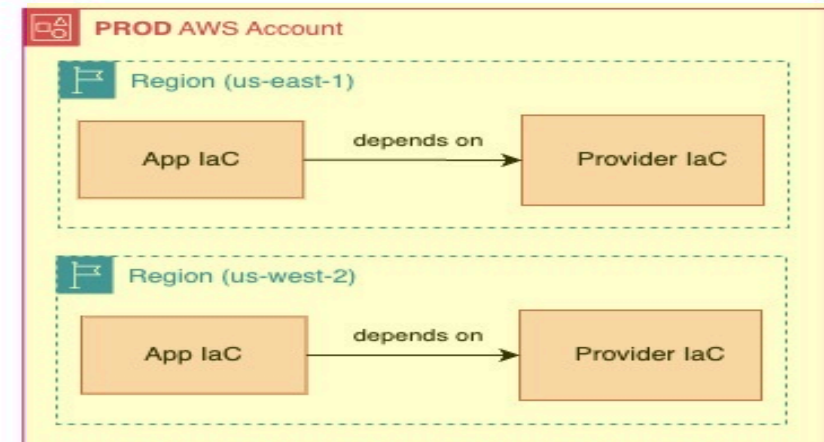
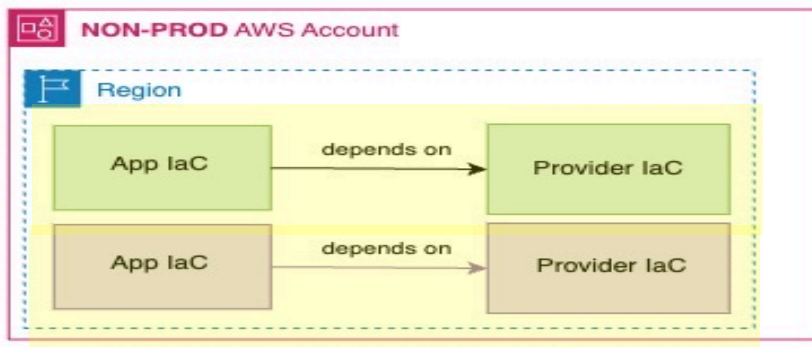
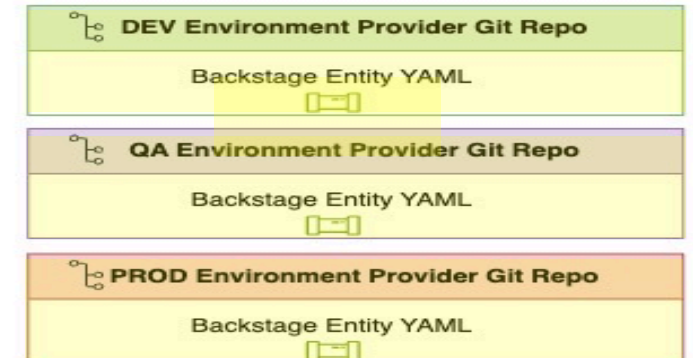
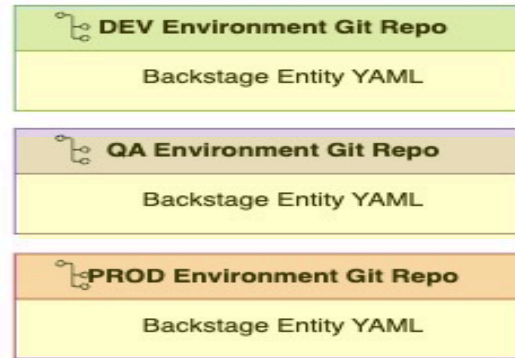
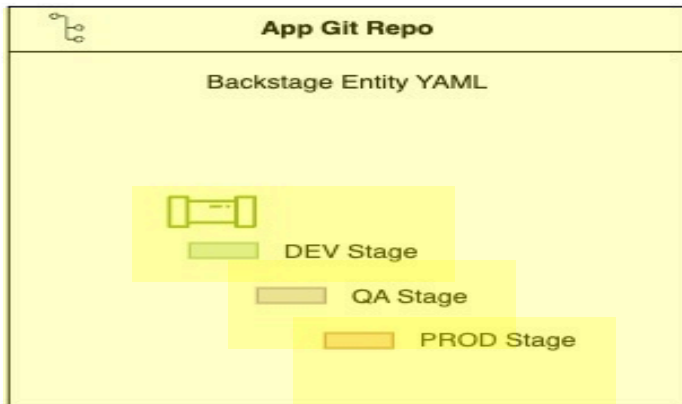
```
catalog-info.yaml 750 B
1  apiVersion: aws.backstage.io/v1alpha1
2  kind: AWSEnvironmentProvider
3  metadata:
4    name: "us-aml-dev"
5    prefix: "aml"
6    description: "US AML app development provider"
7  tags:
8    - aws
9    - aws-environment-provider
10   - ecs
11  env-type: ecs
12  aws-account: "555555555555"
13  aws-region: us-east-1
14  environment_role: "arn:aws:iam::555555555555:role/opa-envprovisioning-role"
15  vpc: "/aml/us-aml-dev/vpc"
16  cluster-name: "/aml/us-aml-dev/ecs-cluster"
17  operation-role: "/aml/us-aml-dev/operations-role-arn"
18  provisioning-role: "/aml/us-aml-dev/provisioning-role-arn"
19  audit-table: "/aml/us-aml-dev/us-aml-dev-audit"
20  stack-name: "ECS-ENV-aml-us-aml-dev-Stack"
21  spec:
22   type: environment-provider
23   lifecycle: experimental
24   owner: "group:default/dev-ops"
```

Creates/Updates

Creates / Updates



# App Deployed to Multiple Environments & Accounts





# Thank you!



Orchestrate Platform and Applications

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