
AWS
re:Invent

CON210

Developing CI/CD pipelines with Amazon ECS and AWS Fargate

Hsing-Hui Hsu

Software Development Engineer, AWS Elastic Container Service

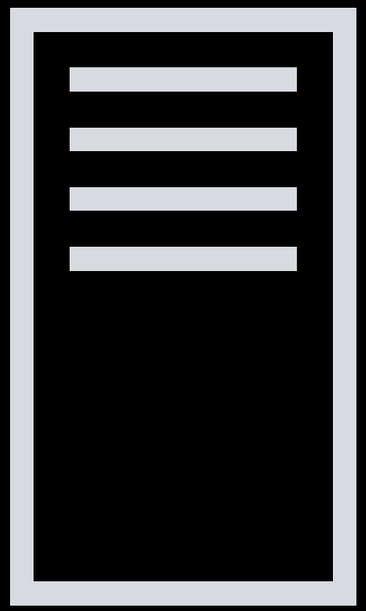
AWS

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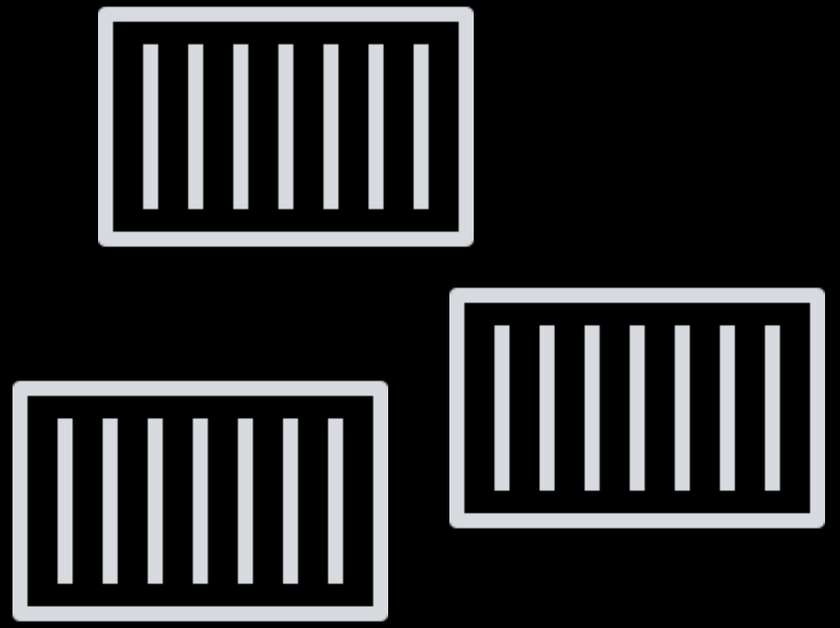
Containers and CI/CD

Monolith

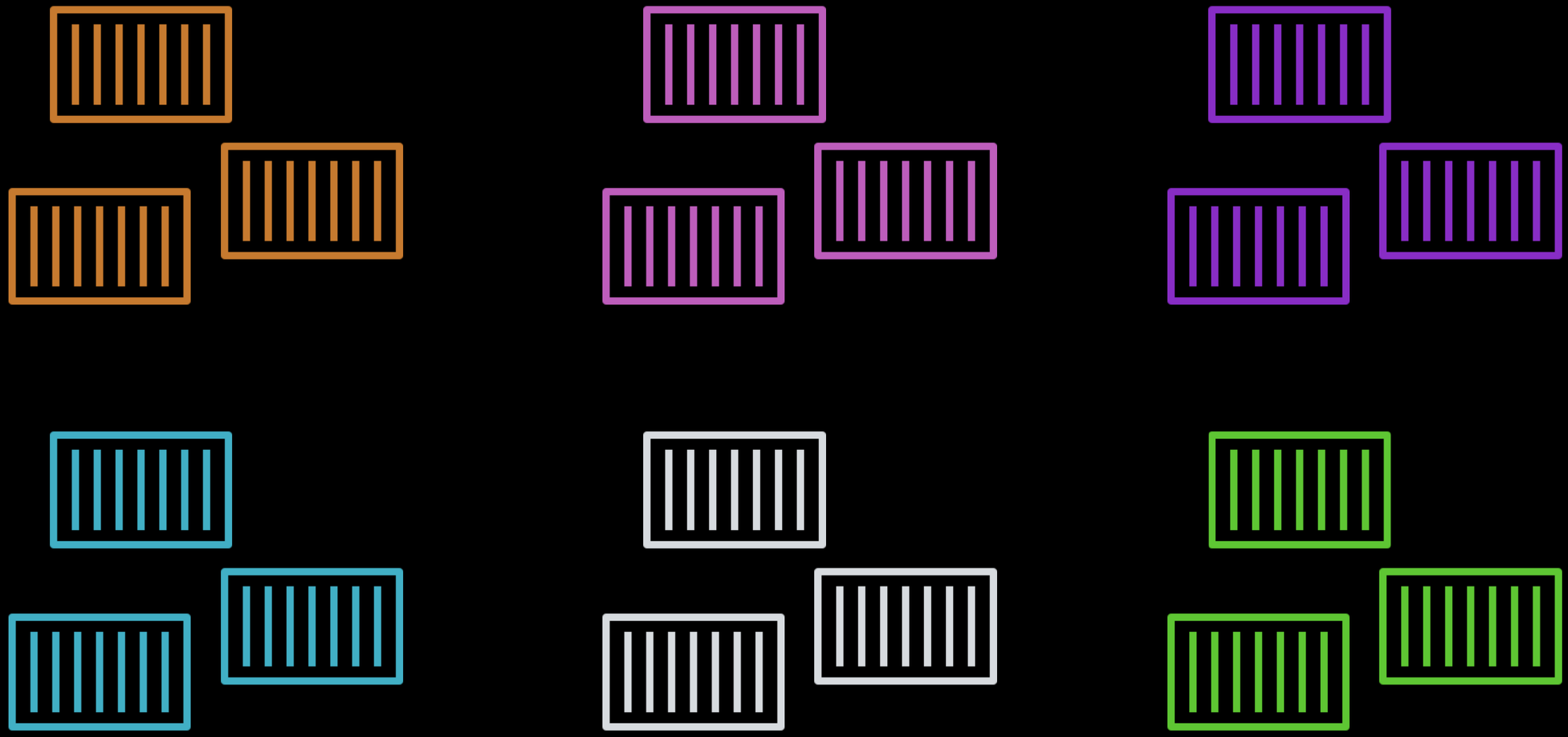




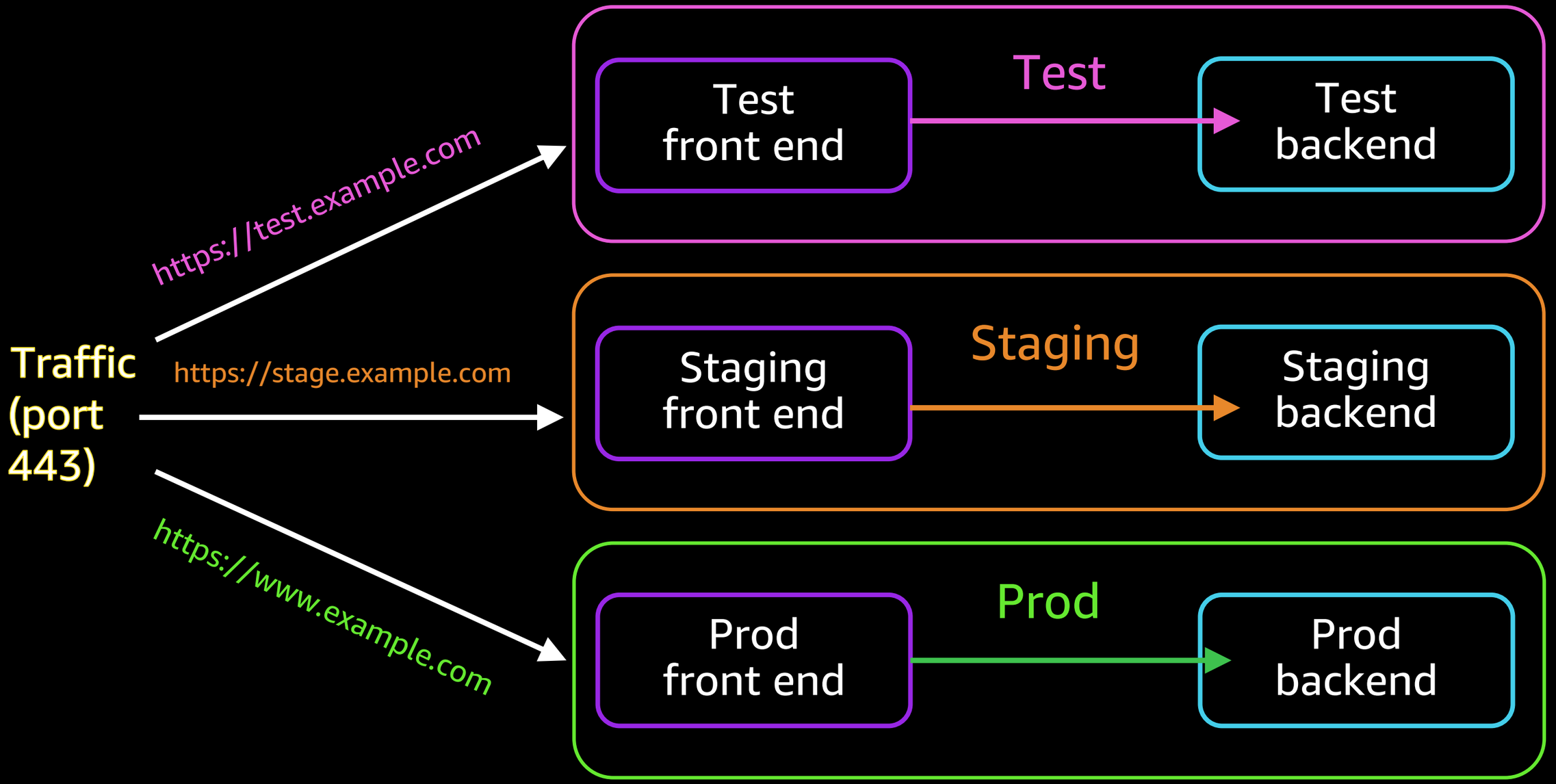
Microservices



Containers and CI/CD



Containers and CI/CD



CI/CD tools for Amazon ECS

- Jenkins
- AWS CodePipeline
- Spinnaker
- GitHub Actions

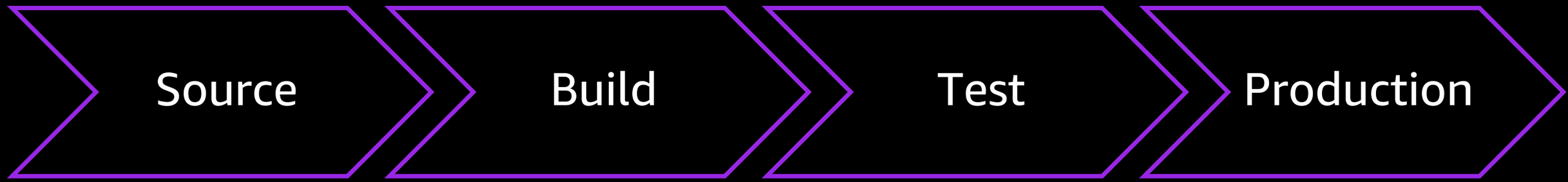




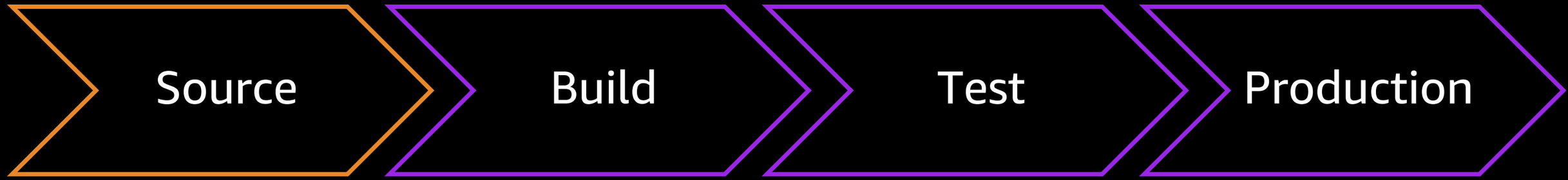
Approaches to CI/CD

- Code-only pipeline
- Infrastructure-as-code pipeline
- CI/CD with AWS Copilot
- CI/CD with the AWS Cloud Development Kit (AWS CDK)

Release process stages

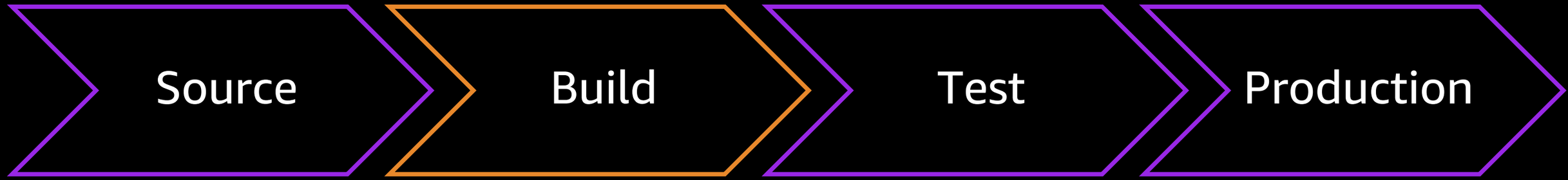


Release process stages



- Check in source code such as .java files and Dockerfiles
- Peer-review new code

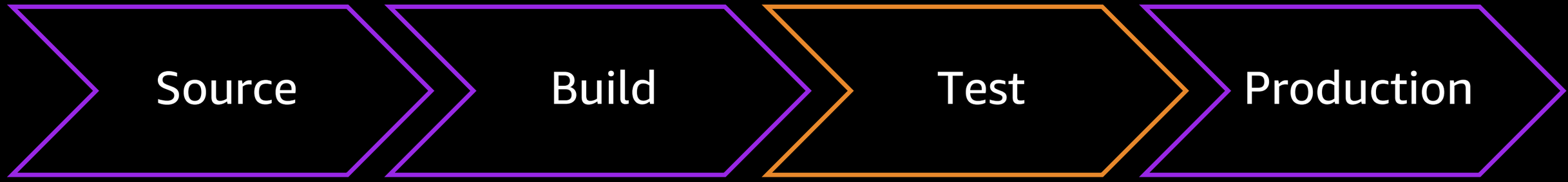
Release process stages



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- Compile code
- Test units
- Style checkers
- Create container images

Release process stages

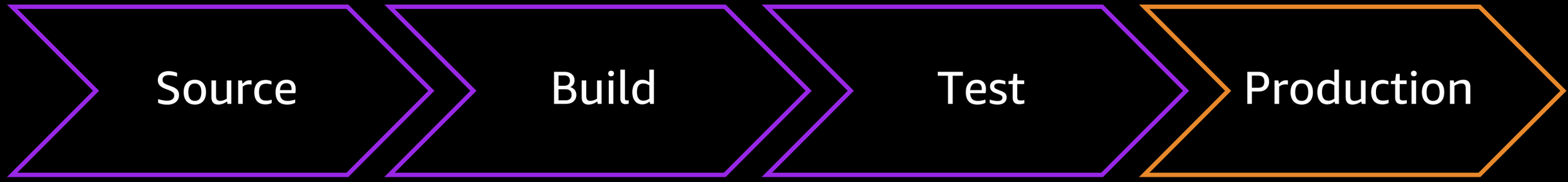


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- Run integration tests with other systems
- Do load testing
- Run UI tests
- Do security testing

Release process stages



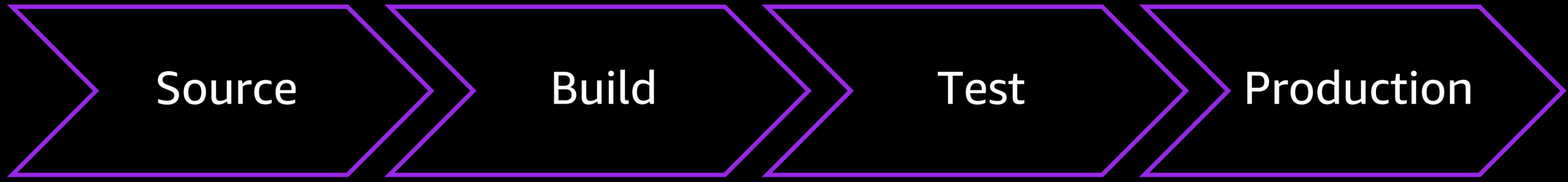
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- Deploy to production environments
- Monitor code in production in order to quickly detect errors

Release process stages



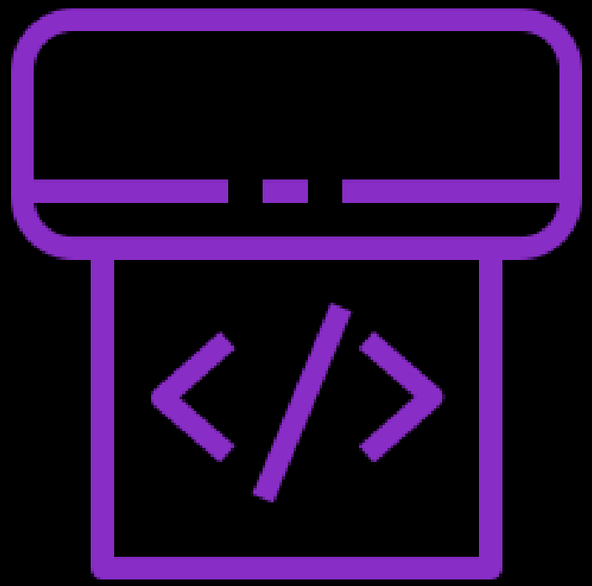
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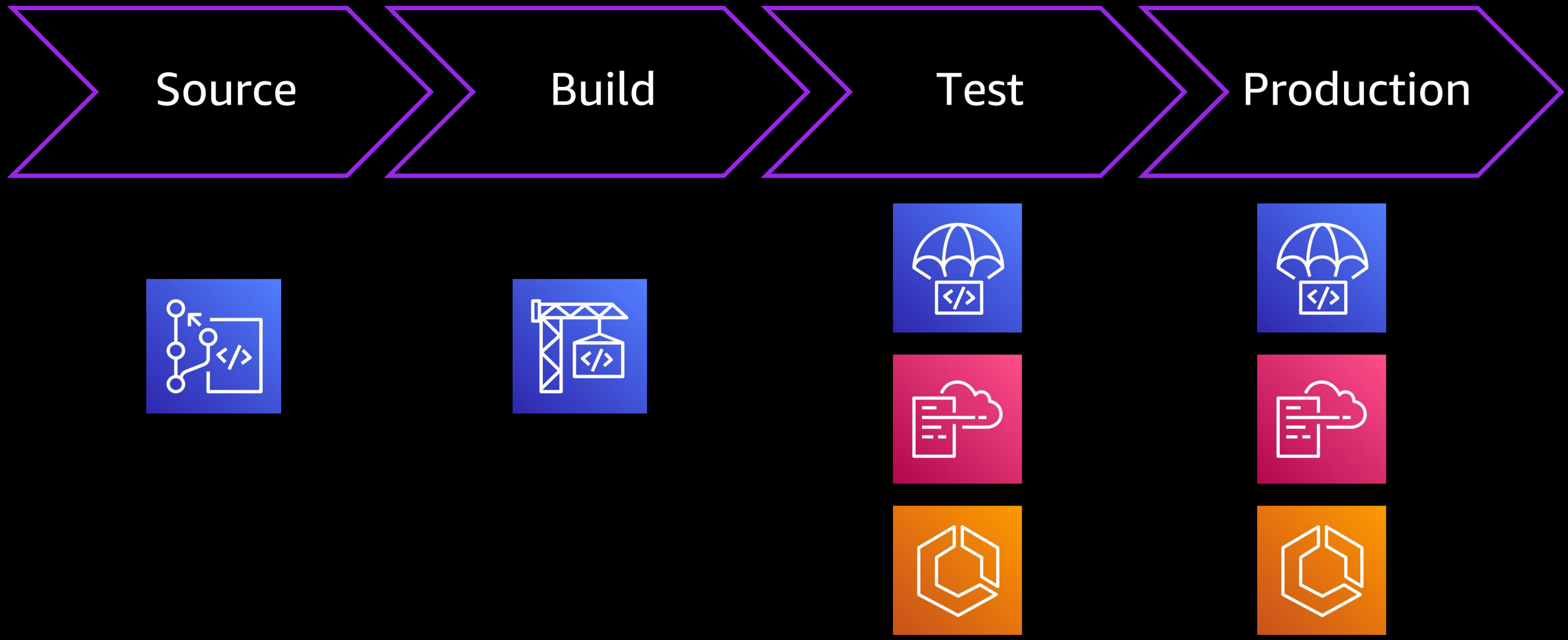
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AWS CodePipeline

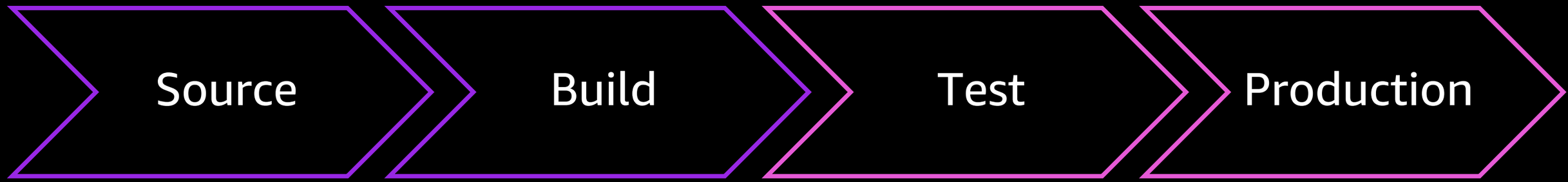


- Continuous delivery service for fast and reliable application updates
- Models and visualizes your release process
- Builds, tests, and deploys your code every time there is a code change
- Integrates with third-party tools and AWS services, including Amazon ECS

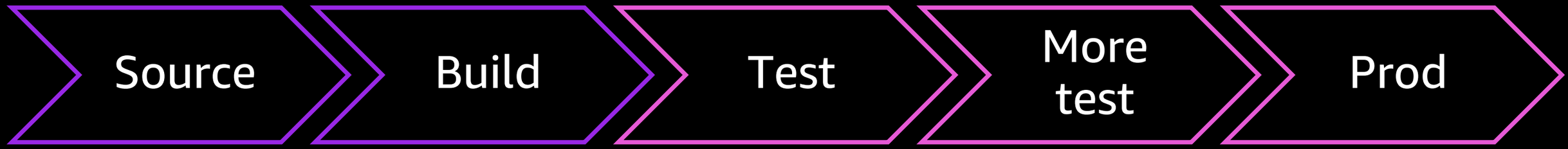
CodePipeline stages



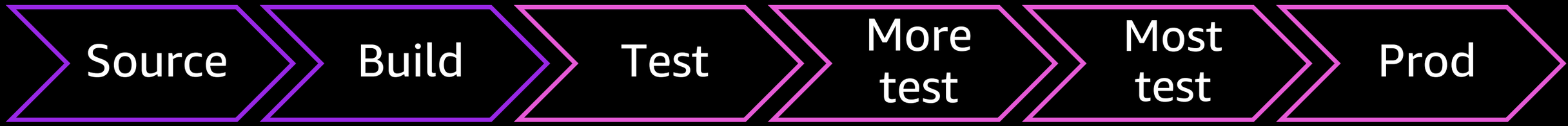
Pipeline stages



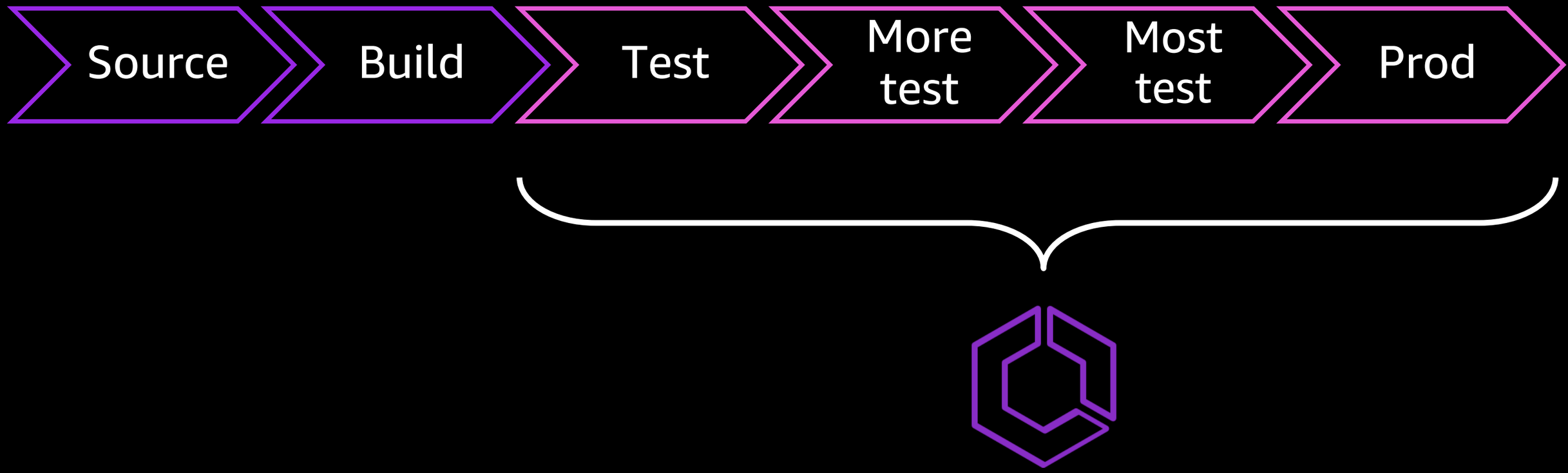
Release process stages



Release process stages



Release process stages



Environment infrastructure for ECS



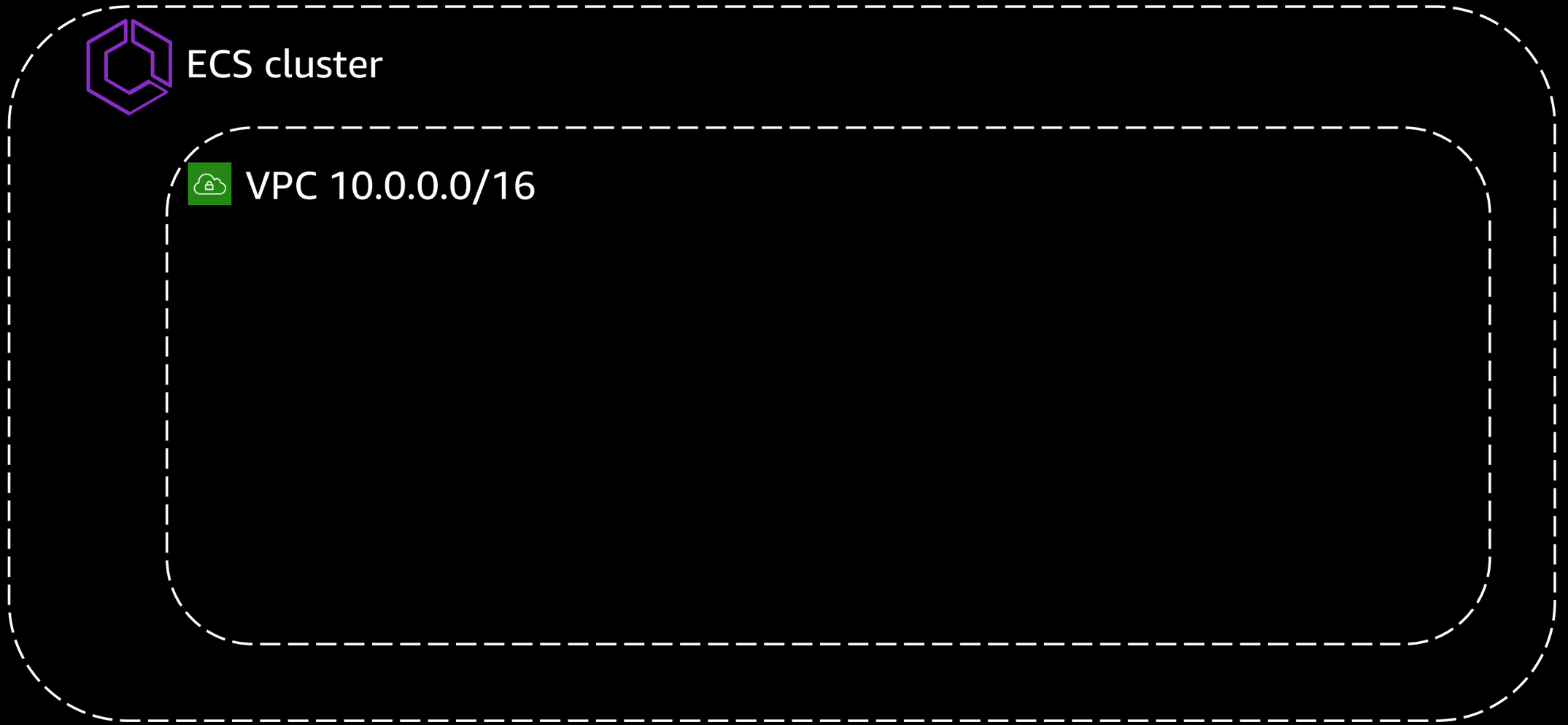
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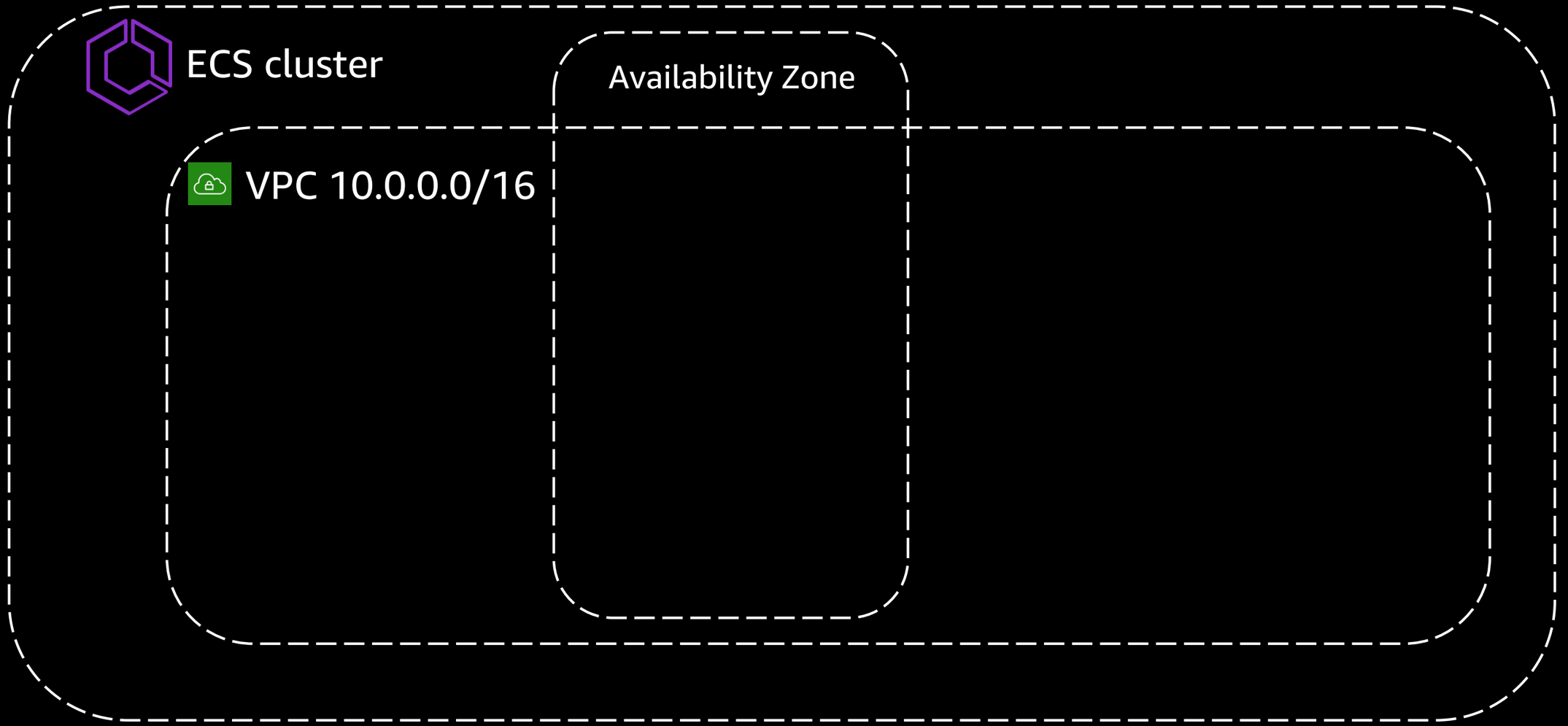
Environment infrastructure for ECS



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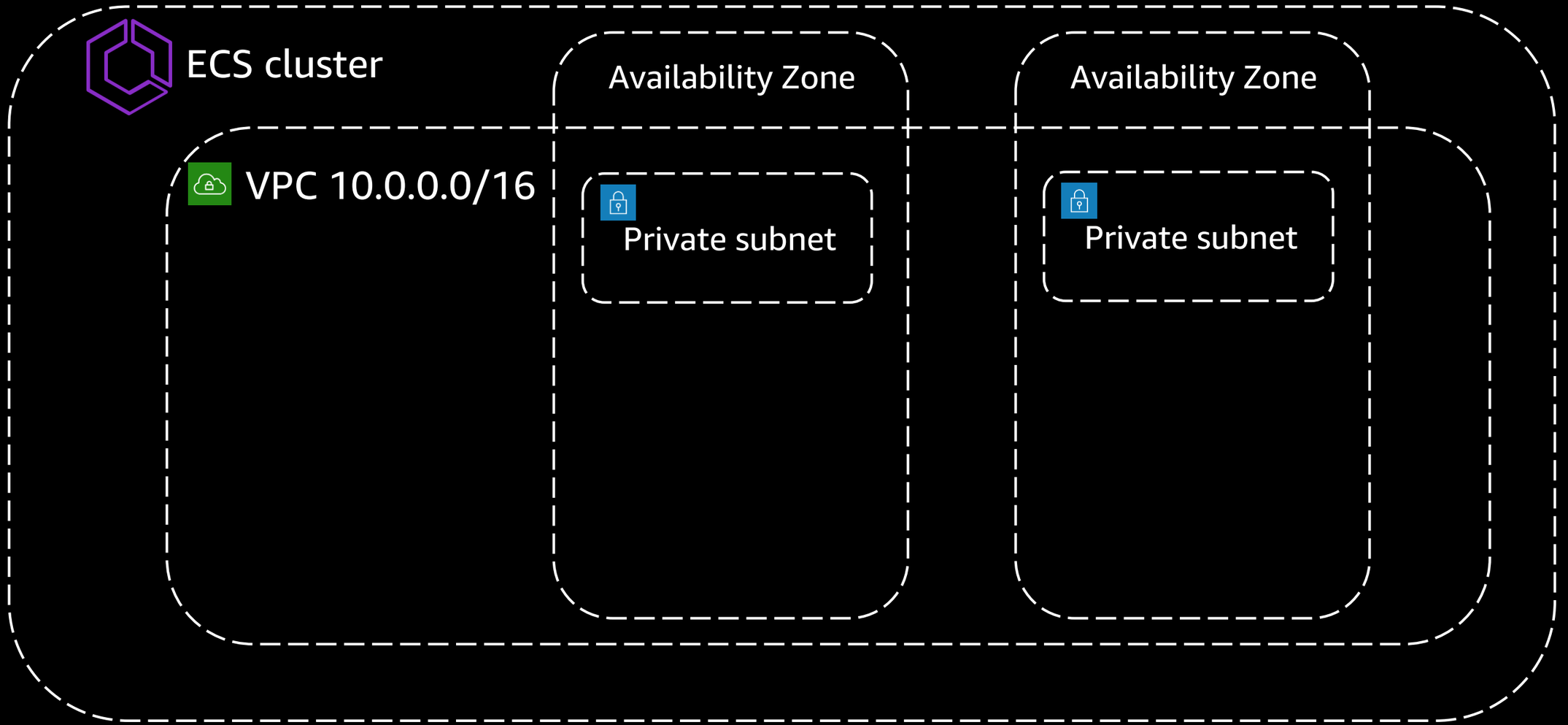
Environment infrastructure for ECS



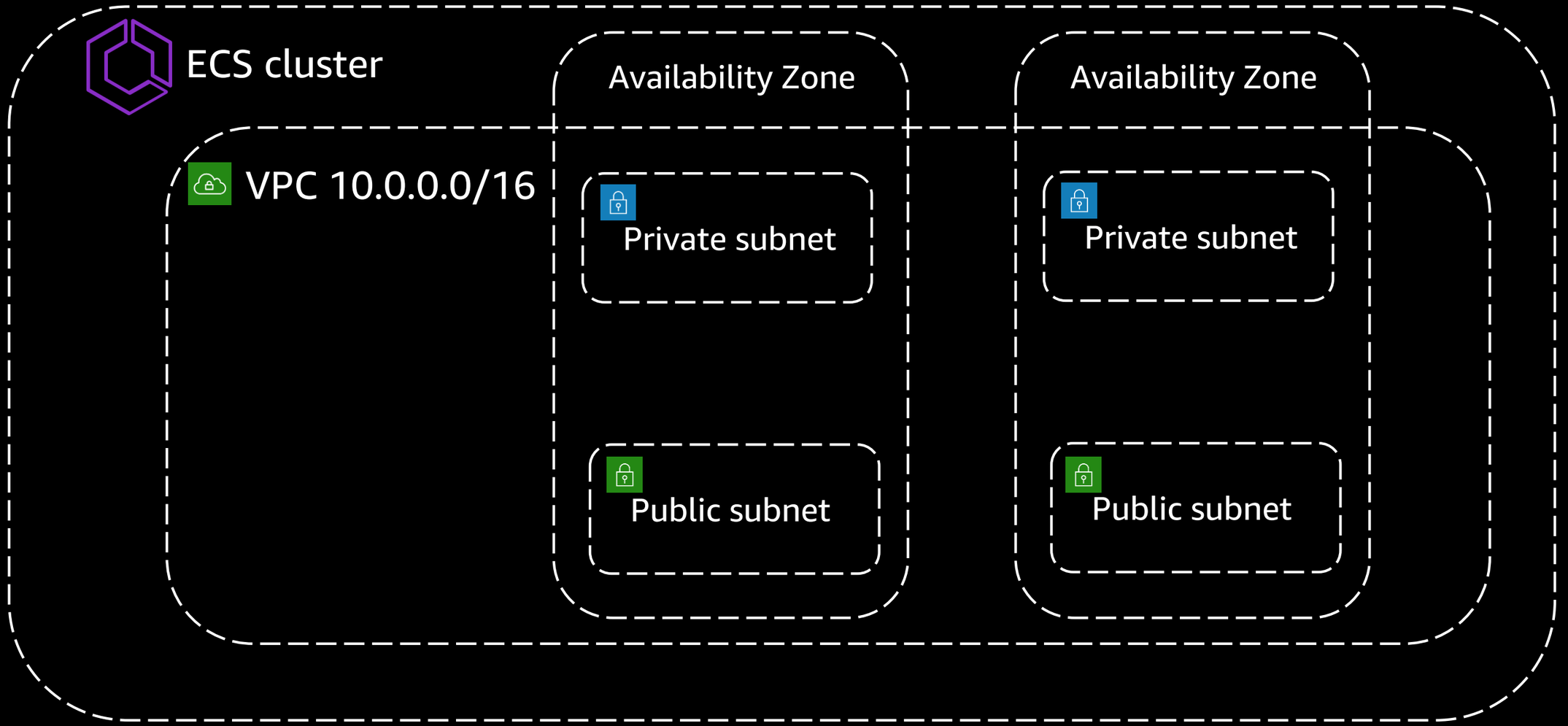
Environment infrastructure for ECS



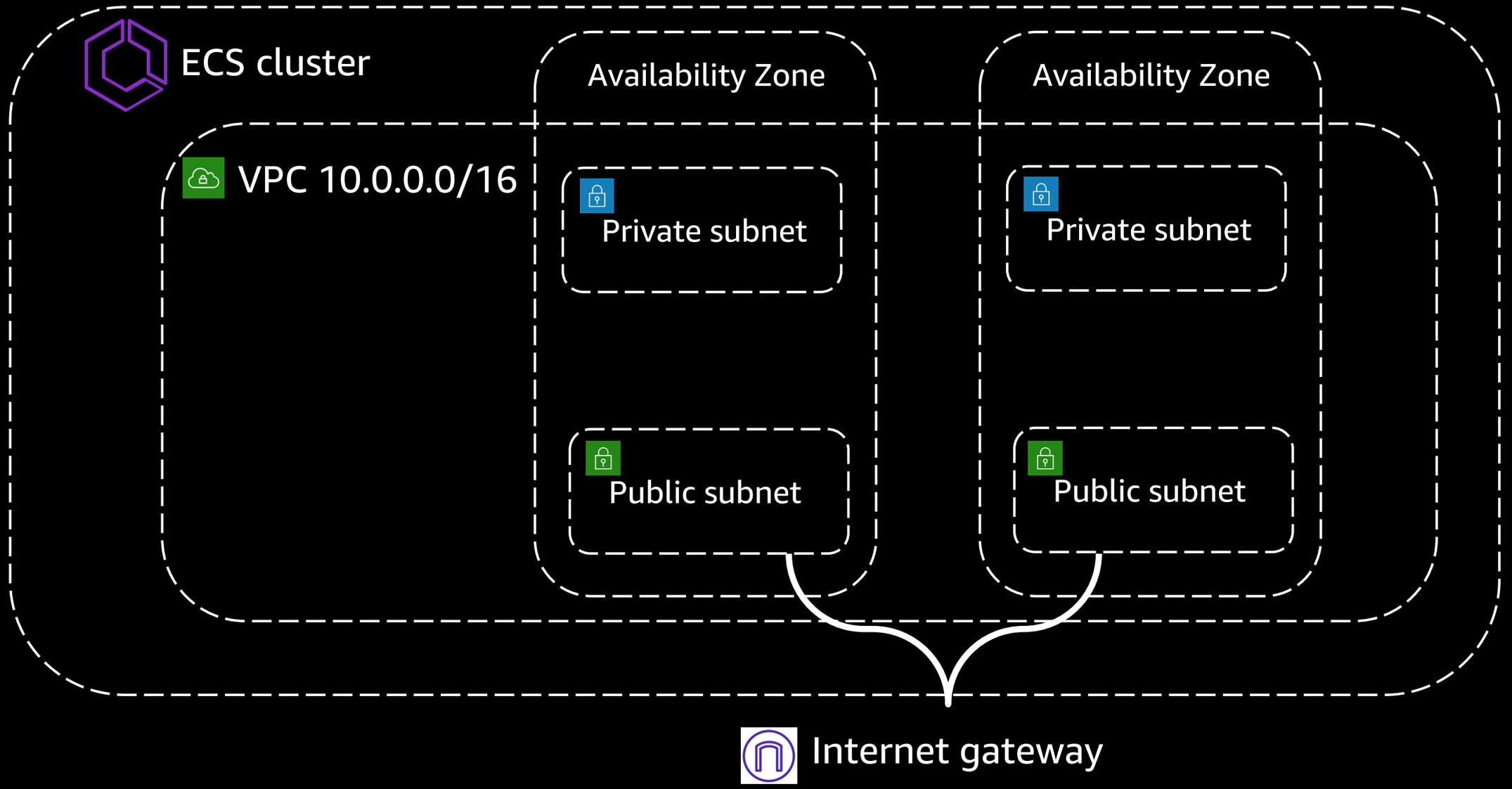
Environment infrastructure for ECS



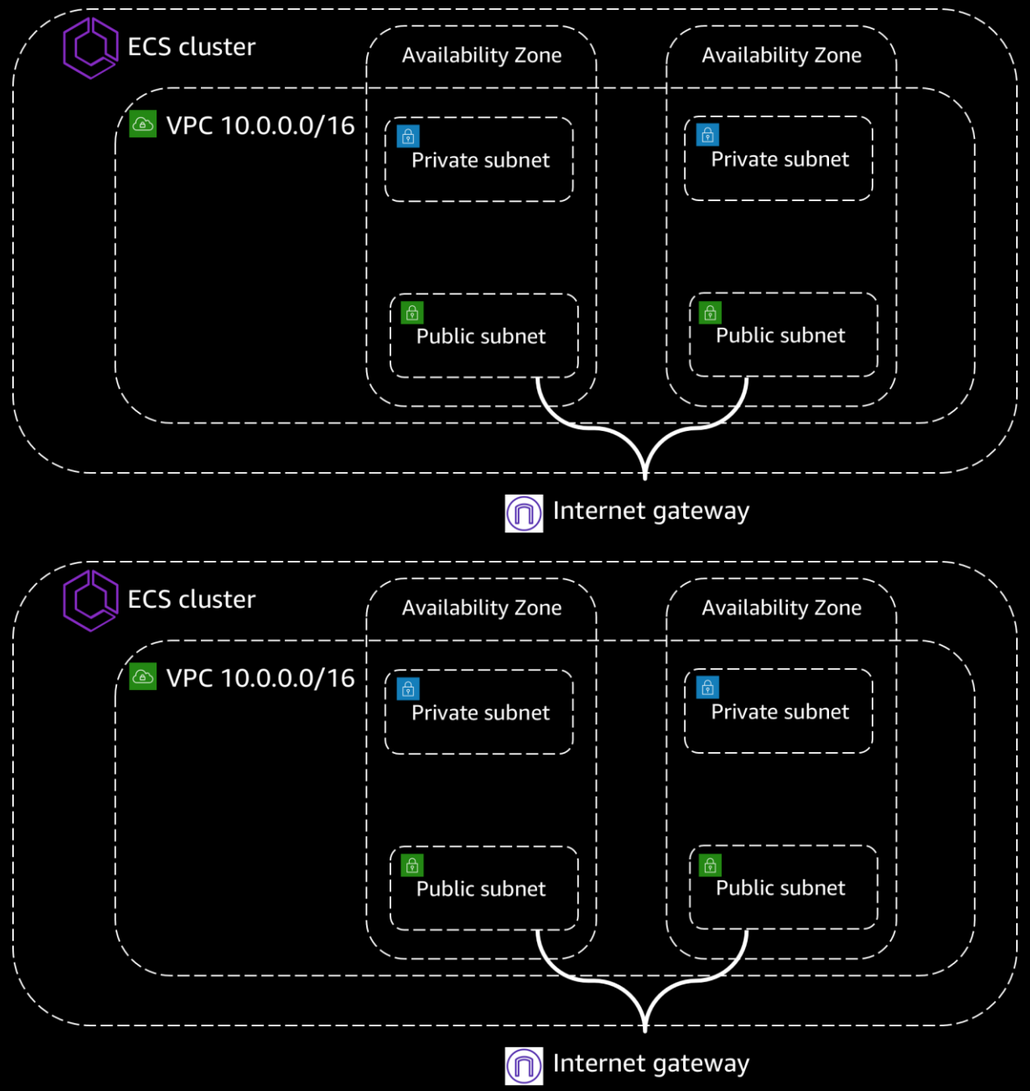
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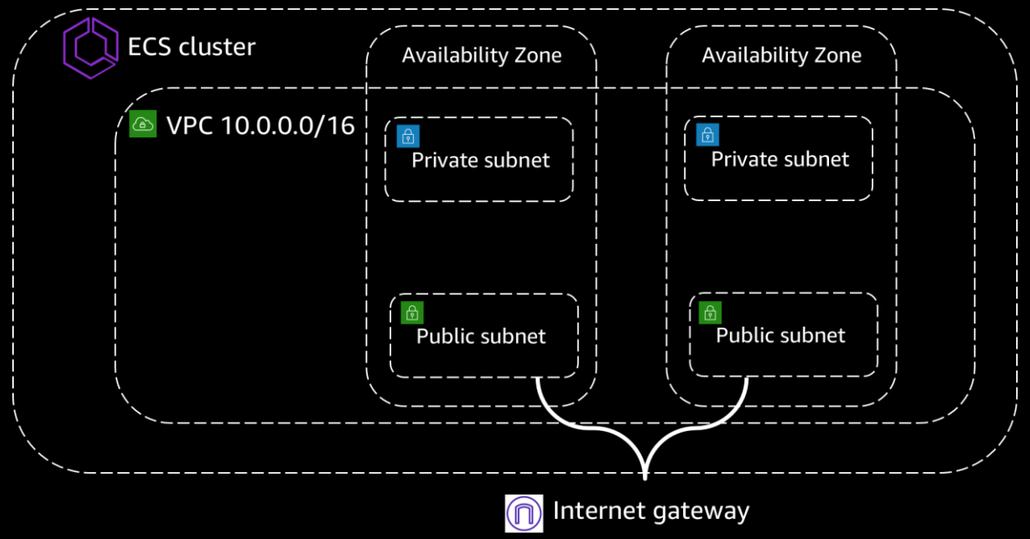
Environment infrastructure for ECS

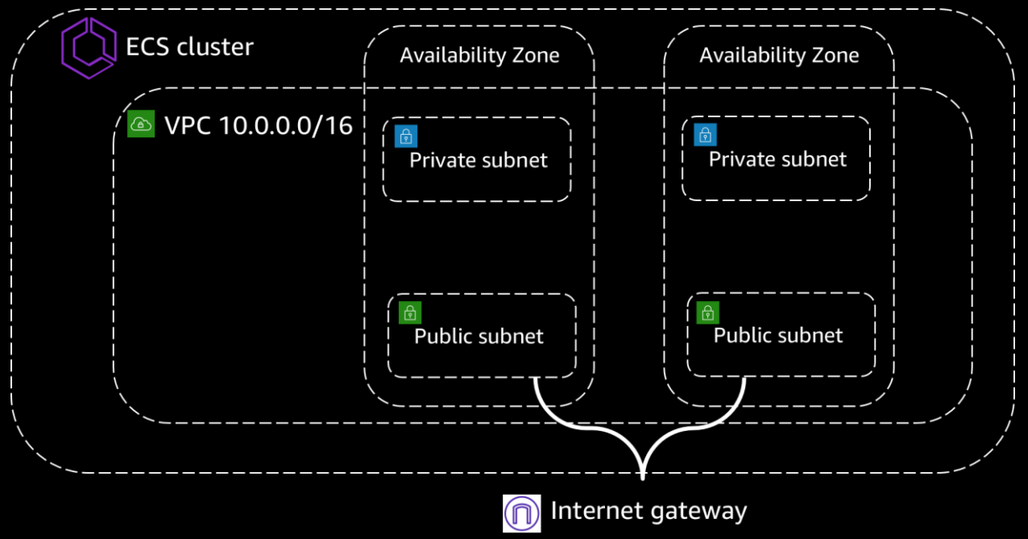


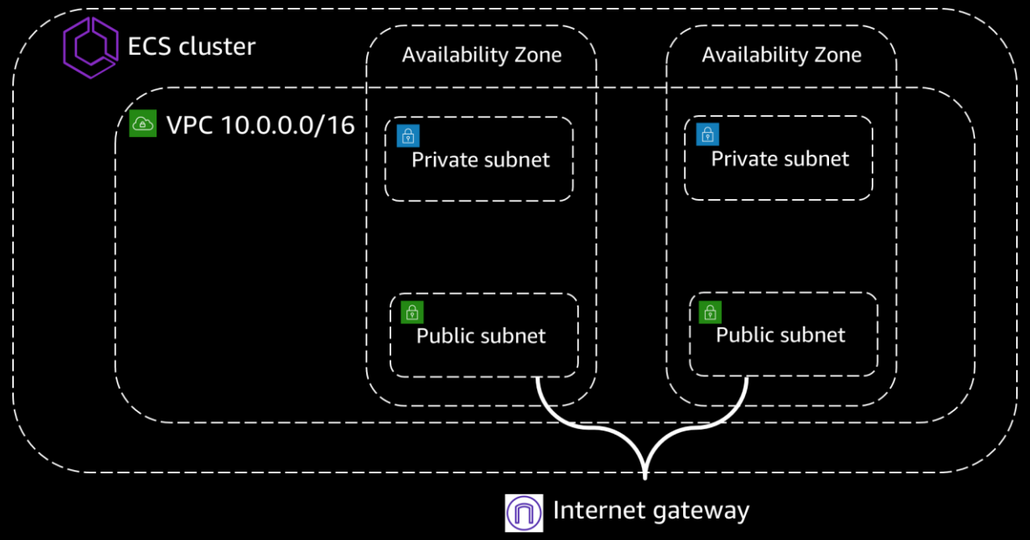
Environment infrastructure for ECS



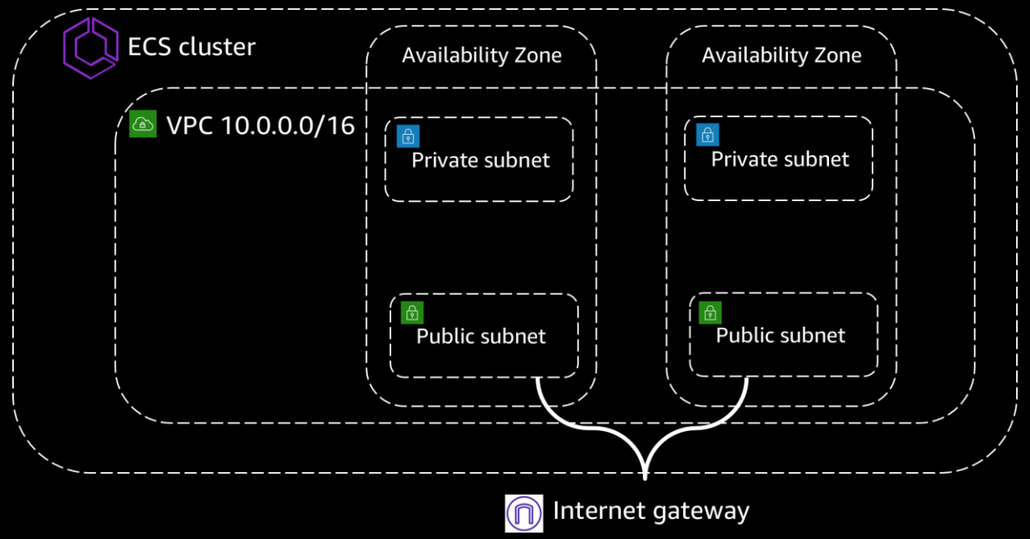
Environment infrastructure for ECS

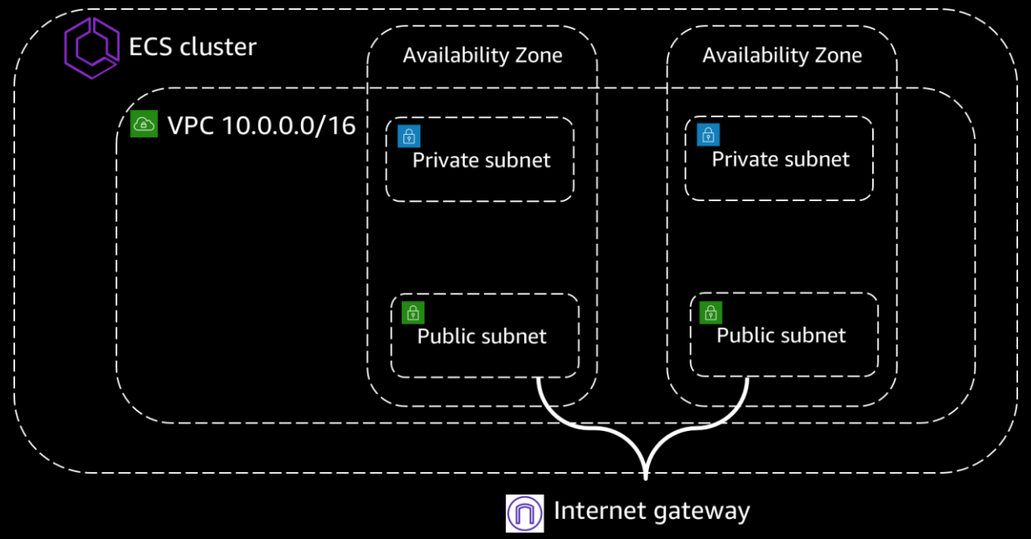


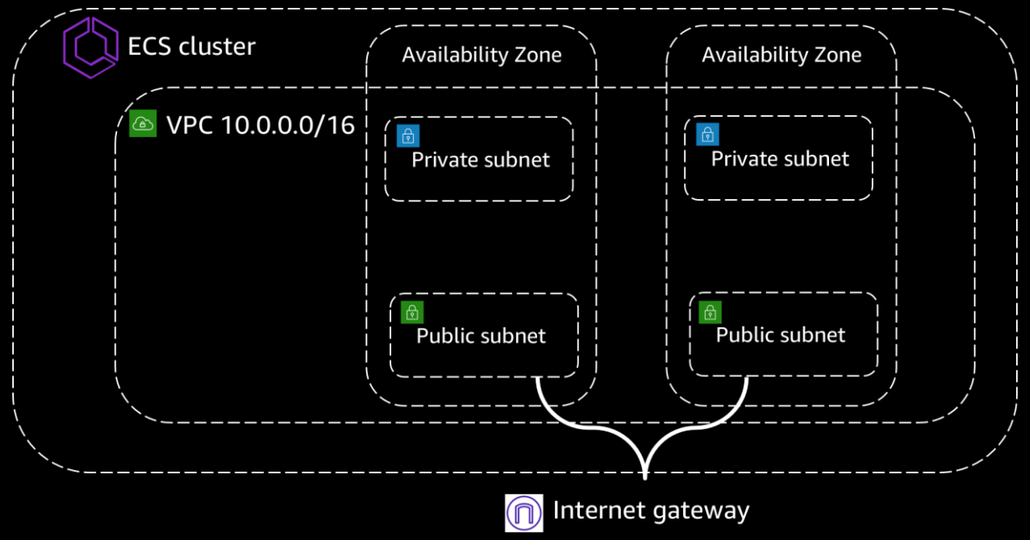


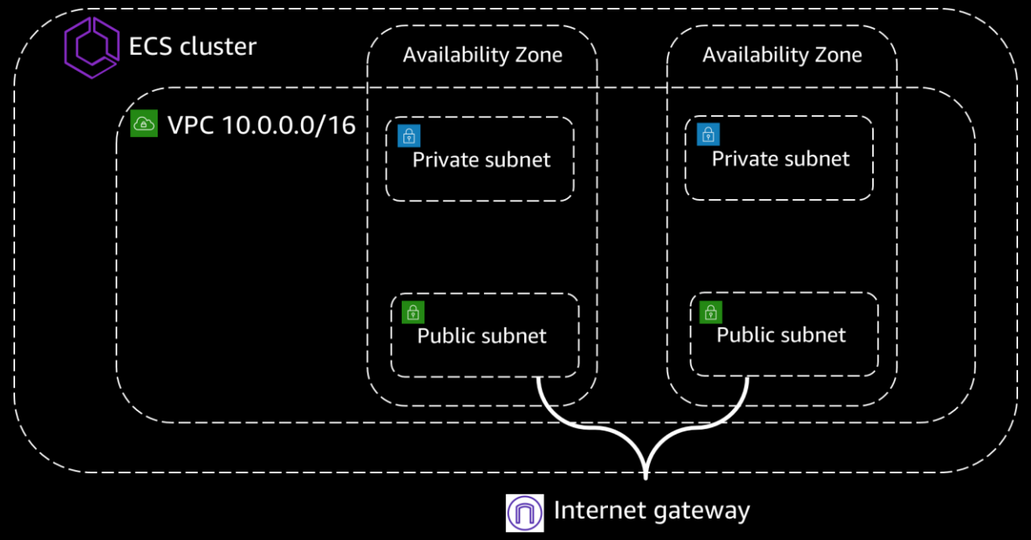


Environment infrastructure for ECS









Repeatable infrastructure



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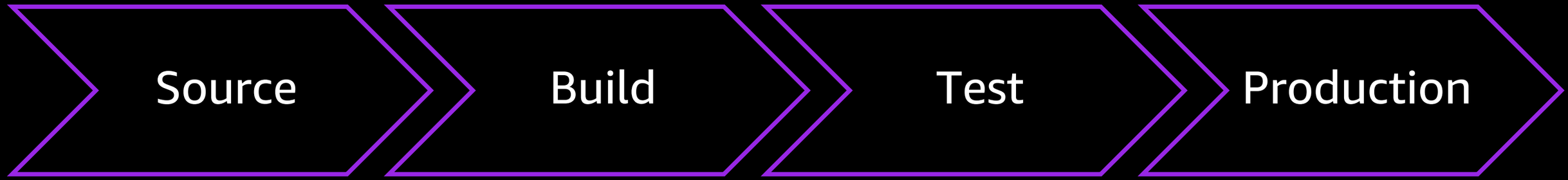
AWS Copilot



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AWS Copilot pipeline



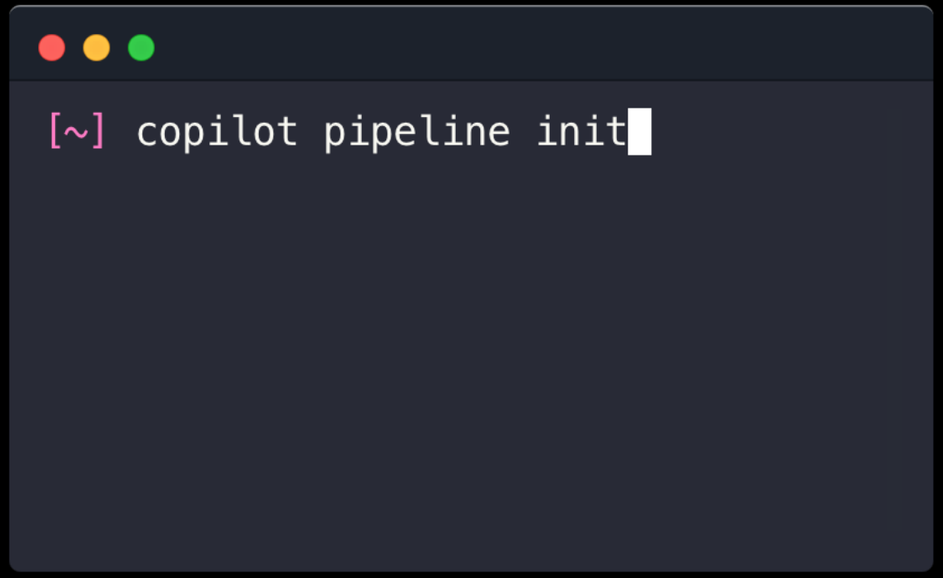
Push source to GitHub repo

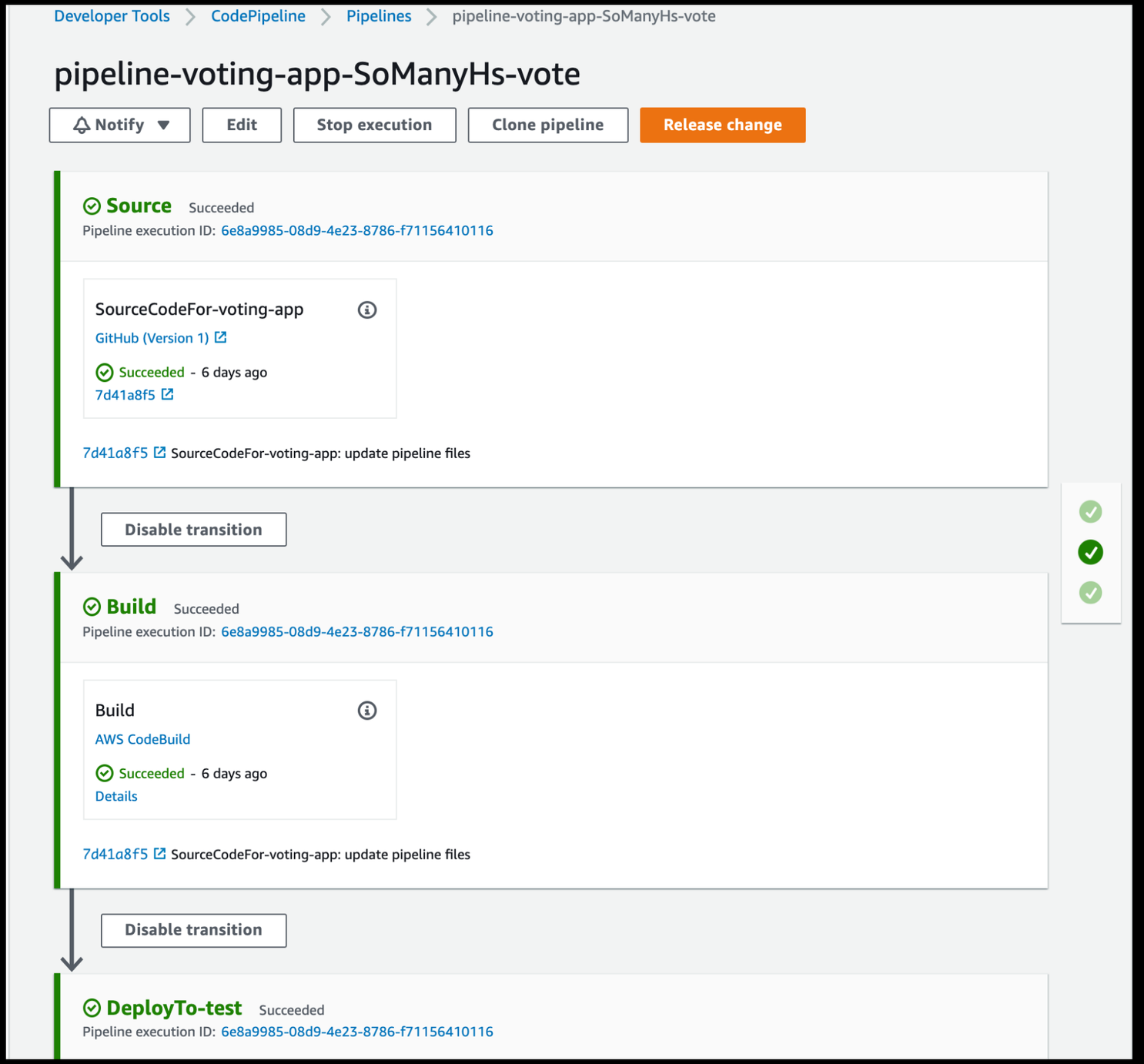
AWS CodeBuild – Build and push service image

Amazon ECS – Deploy service to test environment

Amazon ECS – Deploy service to production environment

AWS Copilot pipeline





AWS Copilot pipeline

```
$ cat ./copilot/pipeline.yml

name: pipeline-voting-app-copilot-voting-app-vote
version: 1
source:
  provider: GitHub
  properties:
    access_token_secret: github-token-voting-app-vote
    branch: main
    repository: https://github.com/SoManyHs/vote

stages:
      name: test
      requires_approval: true
      test_commands: [echo 'running tests', make test]
```

AWS Copilot Pipeline demo



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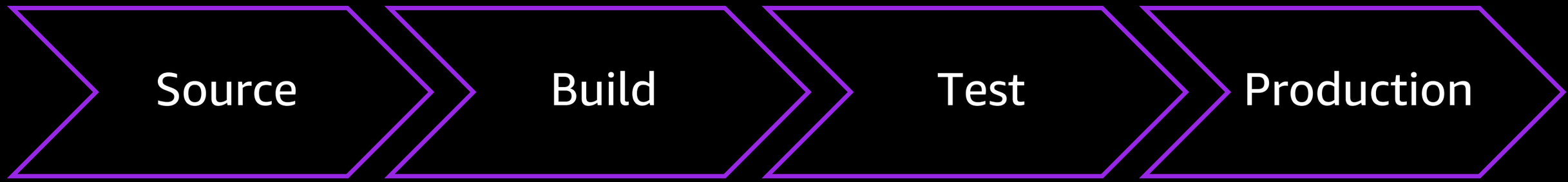
AWS CDK Pipelines



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Release process stages



CDK Pipelines stages



AWS CDK Pipelines stages



Pushes source to GitHub

AWS CloudFormation – Deploys applications



AWS CDK Pipelines stages

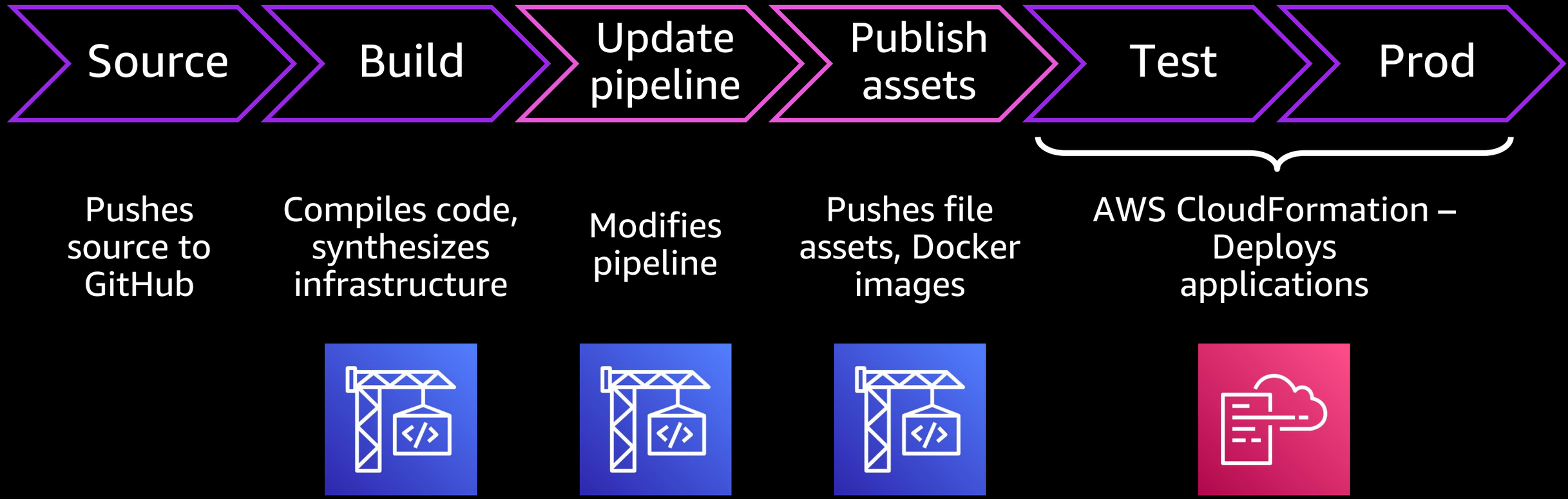


Pushes source to GitHub

Compiles code, synthesizes infrastructure

AWS CloudFormation – Deploys applications

AWS CDK Pipelines stages



AWS CDK Pipelines demo



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Thank you!

Hsing-Hui Hsu

@SoManyHs

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