
AWS
re:Invent
NOV. 28 – DEC. 2, 2022 | LAS VEGAS, NV

BOA328

Manage your infrastructure with Terraform and GitHub Actions

Emily Freeman
Head of Community Engagement
AWS

Cobus Bernard
Sr. Developer Advocate
AWS

Julie Gunderson
Sr. Developer Advocate
AWS

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

What we will be covering today

Why simplifying the software delivery process makes sense

DevOps practices

Infrastructure as code

Tooling

A balanced infrastructure approach to DevOps

Hands-on demo using GitHub Actions with Terraform

Q&A

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.



Cobus Bernard
Sr. Developer Advocate
AWS



Emily Freeman
Head of Community Engagement
AWS



Julie Gunderson
Sr. Developer Advocate
AWS





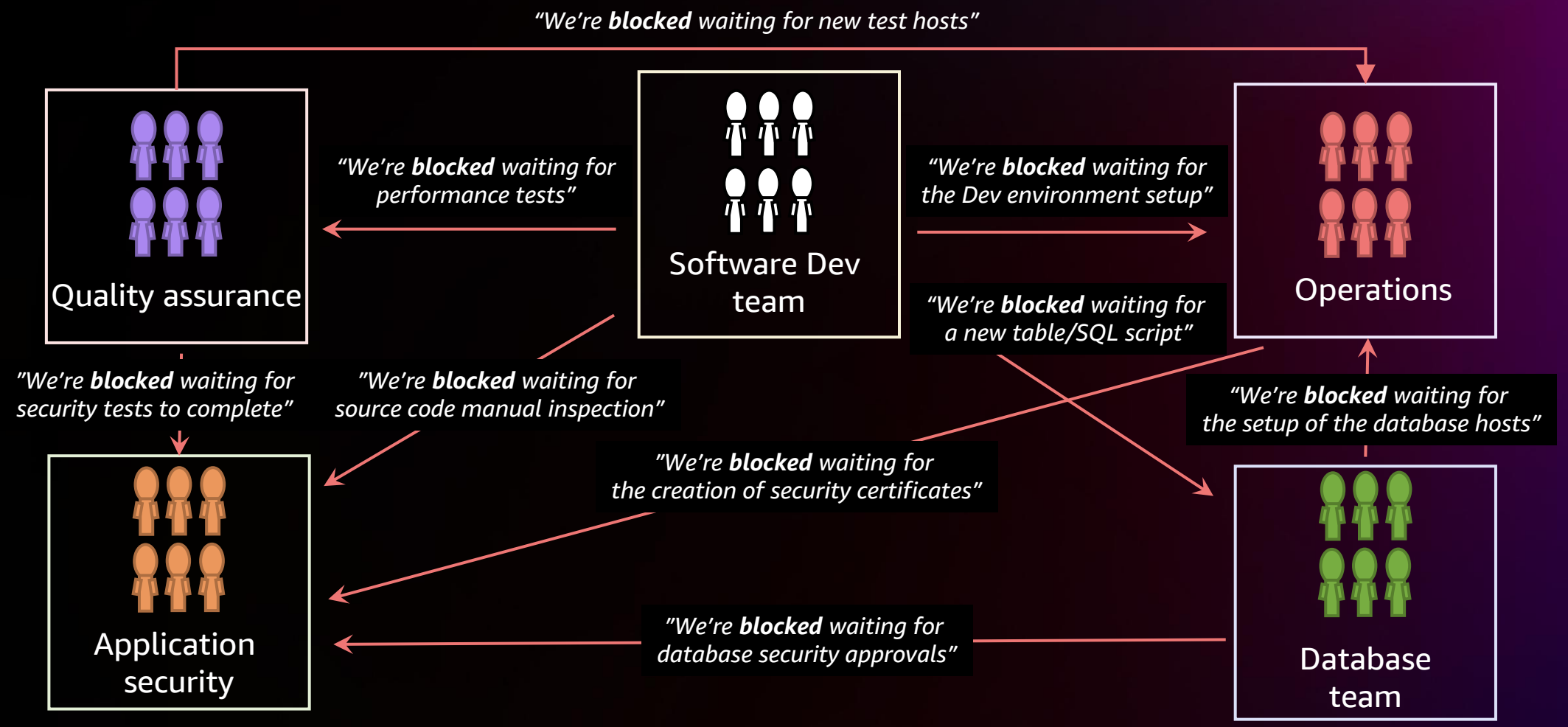


aws
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Challenges in software delivery

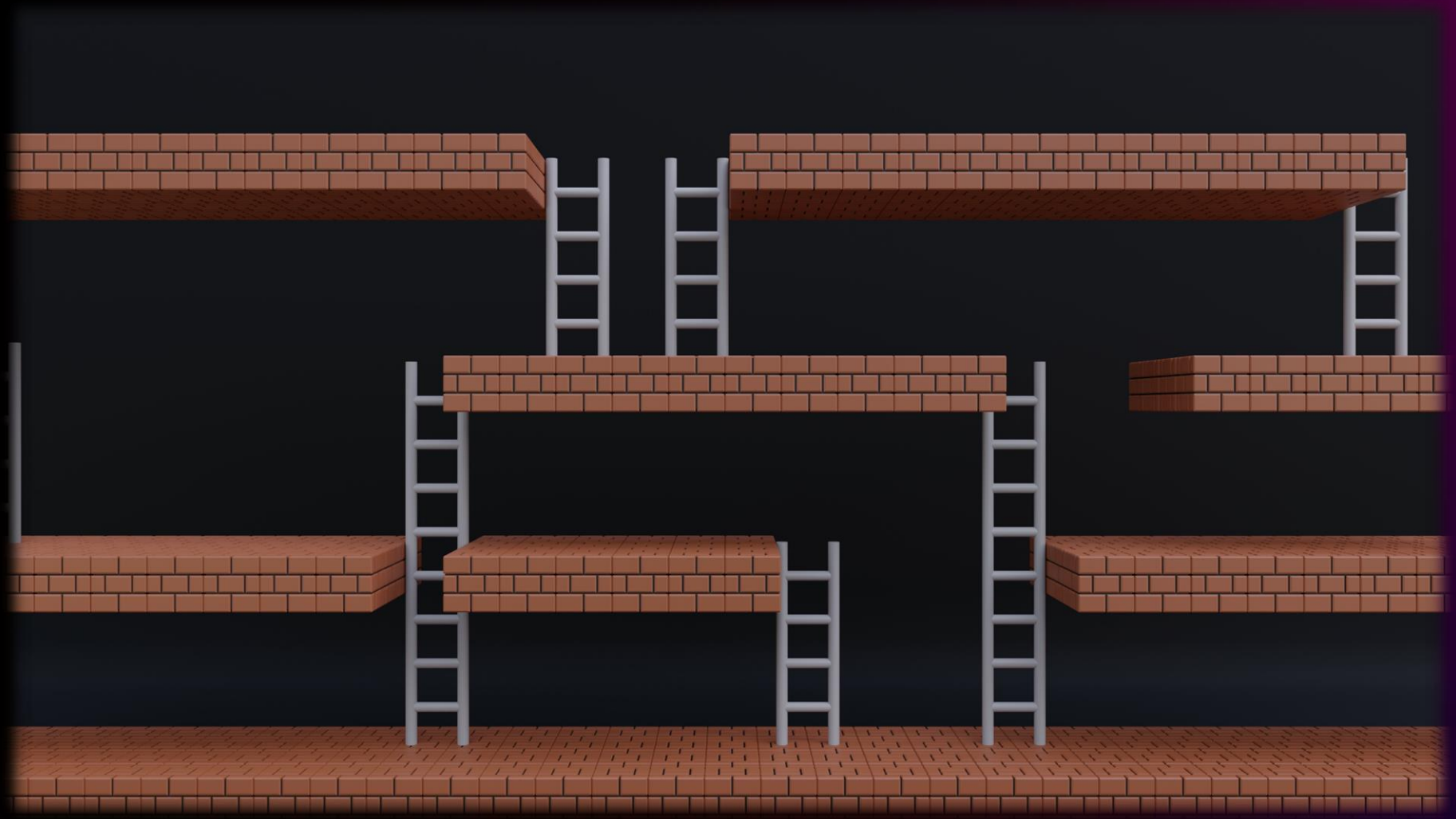
- Increased complexity
- Distributed teams
- Speed
- Reliability

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.



aws
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

DevOps practices



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

DevOps practices



Continuous integration

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

DevOps practices



Continuous integration



Continuous delivery

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

DevOps practices



Continuous integration



Continuous delivery



Microservices

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

DevOps practices



Continuous integration



Infrastructure as code



Continuous delivery



Microservices

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

DevOps practices



Continuous integration



Infrastructure as code



Continuous delivery



Monitoring and logging



Microservices

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

DevOps practices



Continuous integration



Infrastructure as code



Continuous delivery



Monitoring and logging



Microservices



Communication and collaboration

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

DevOps practices



Continuous integration



Infrastructure as code



Continuous delivery



Monitoring and logging



Microservices

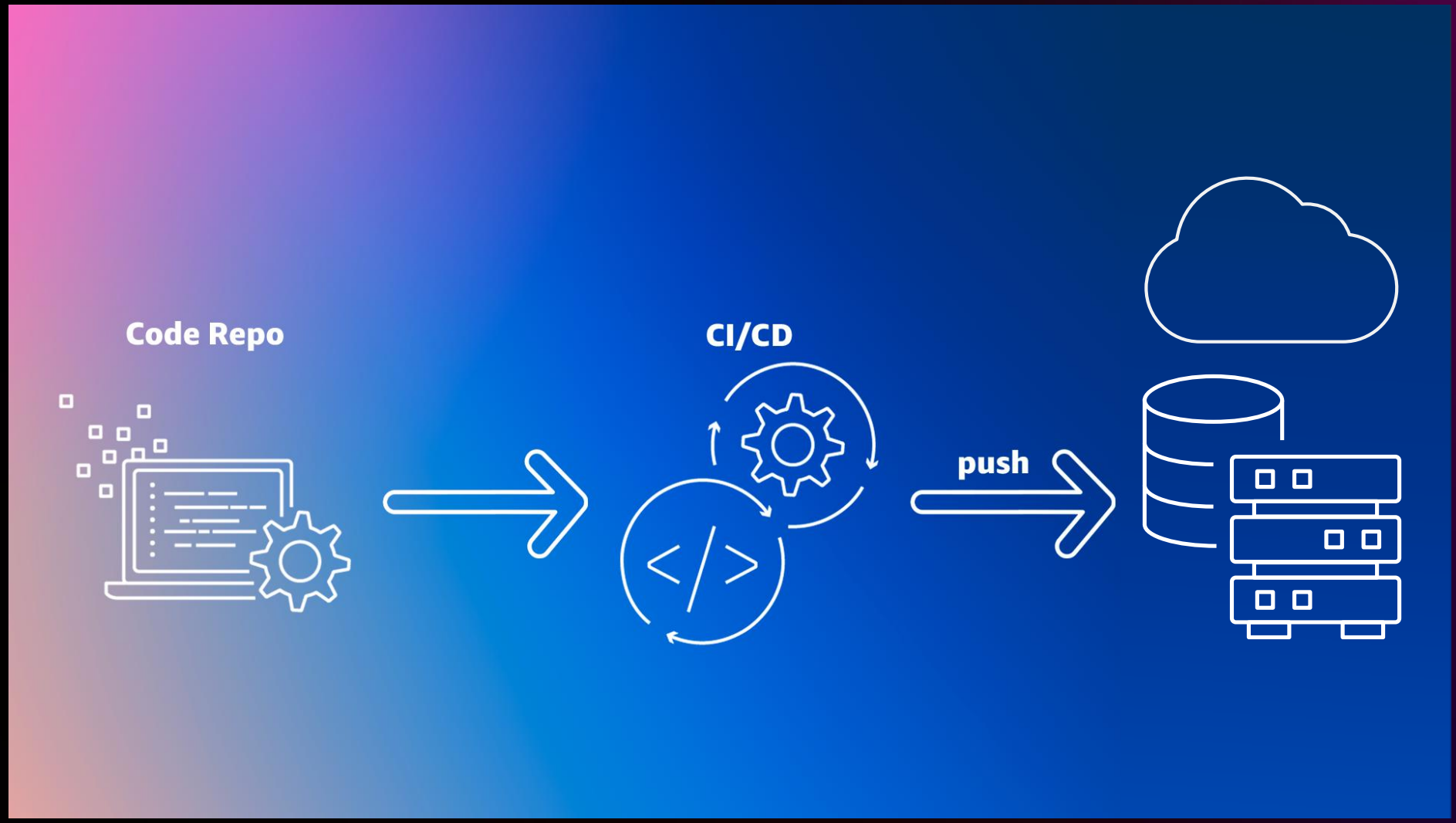


Communication and collaboration

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

GitOps



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.



Infrastructure as code

Apply the same rigor of application code development to infrastructure provisioning:

- Treat infrastructure the same way developers treat code
- Configurations should be defined in a declarative way
- Configurations should be stored in a source control system

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Tools

Infrastructure as code tools

- Terraform
- Ansible
- AWS CloudFormation/AWS CDK
- AWS OpsWorks for Chef Automate
- Puppet
- SaltStack

CI/CD tools

- GitHub Actions
- AWS CodeDeploy
- Jenkins
- CircleCI
- GitLab
- Spinnaker

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Tools

Infrastructure as code tools

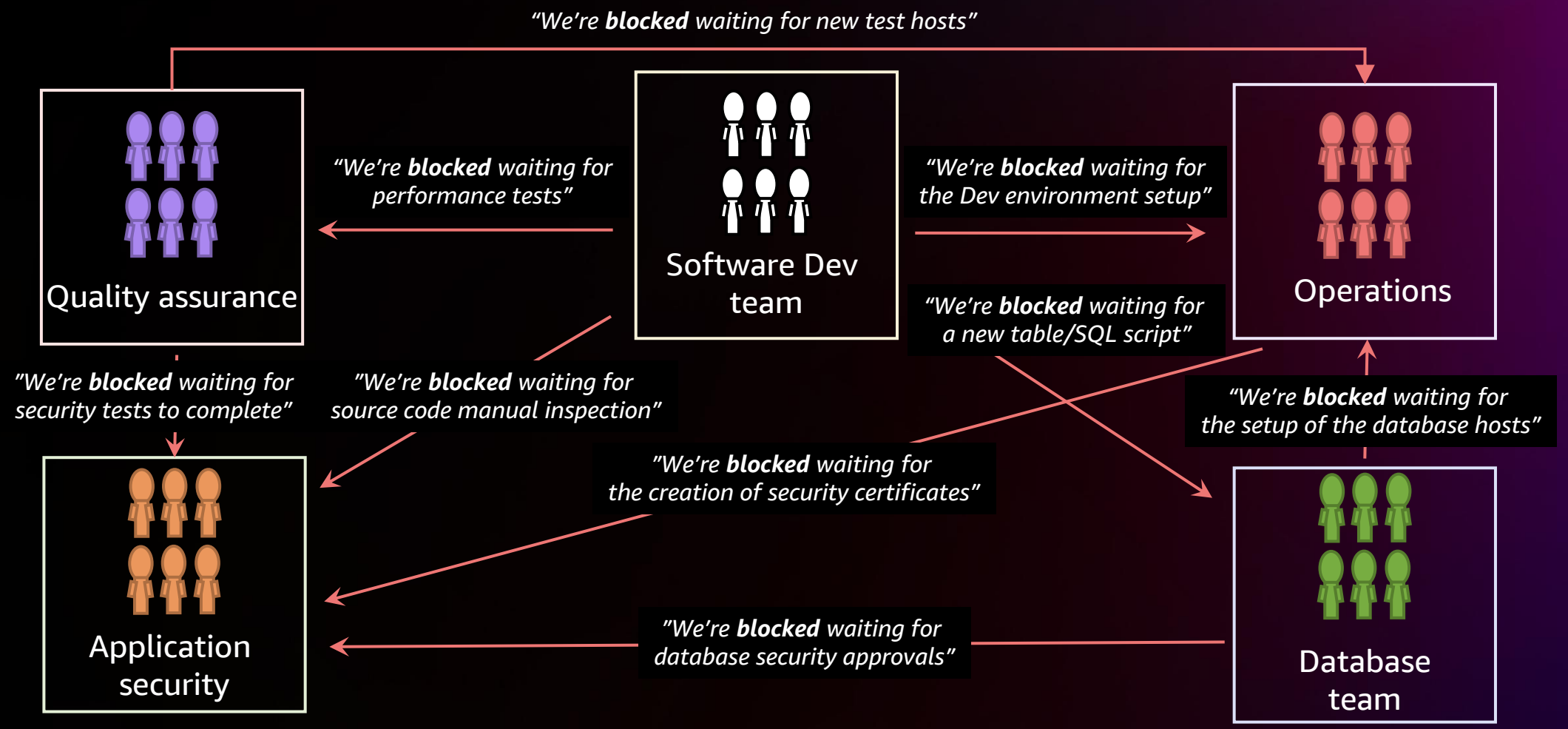
- **Terraform**
- Ansible
- AWS CloudFormation/AWS CDK
- AWS OpsWorks for Chef Automate
- Puppet
- SaltStack

CI/CD tools

- **GitHub Actions**
- AWS CodeDeploy
- Jenkins
- CircleCI
- GitLab
- Spinnaker

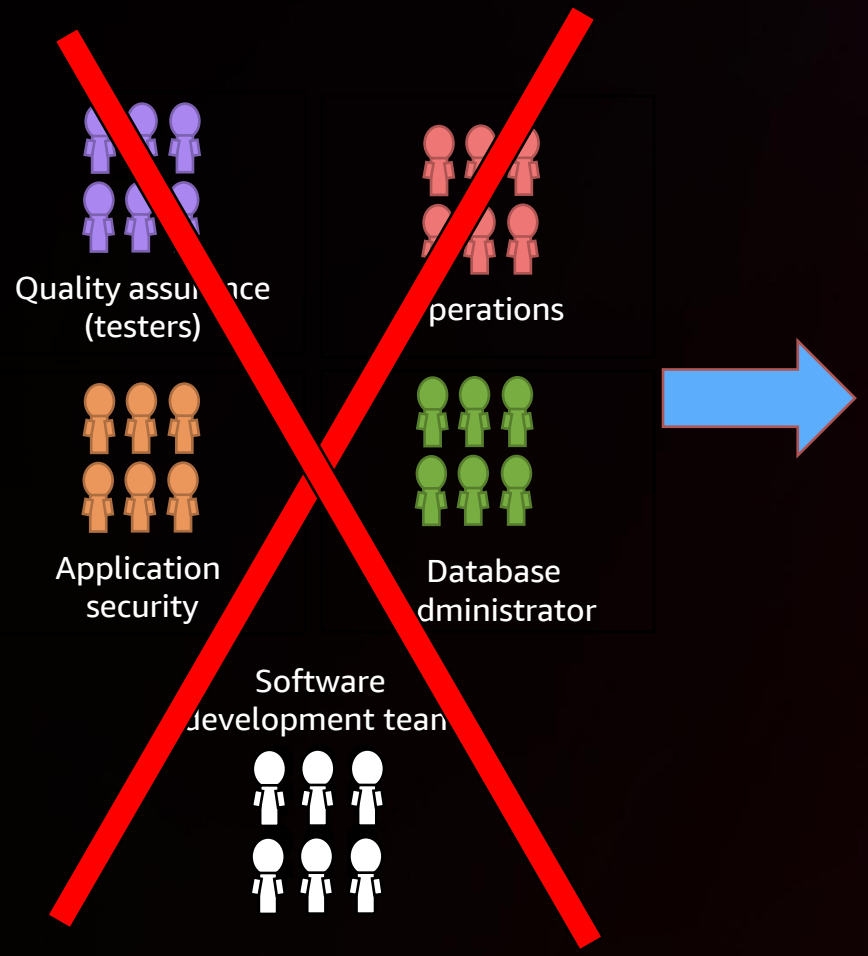
aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

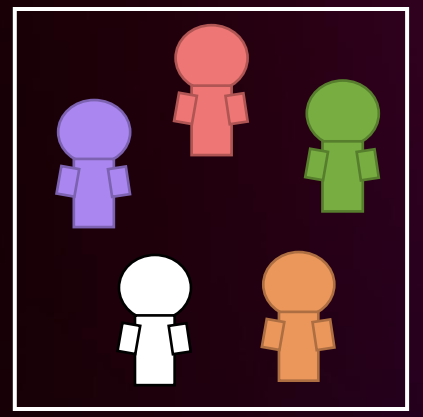


aws
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Teams should operate in a DevOps setting instead



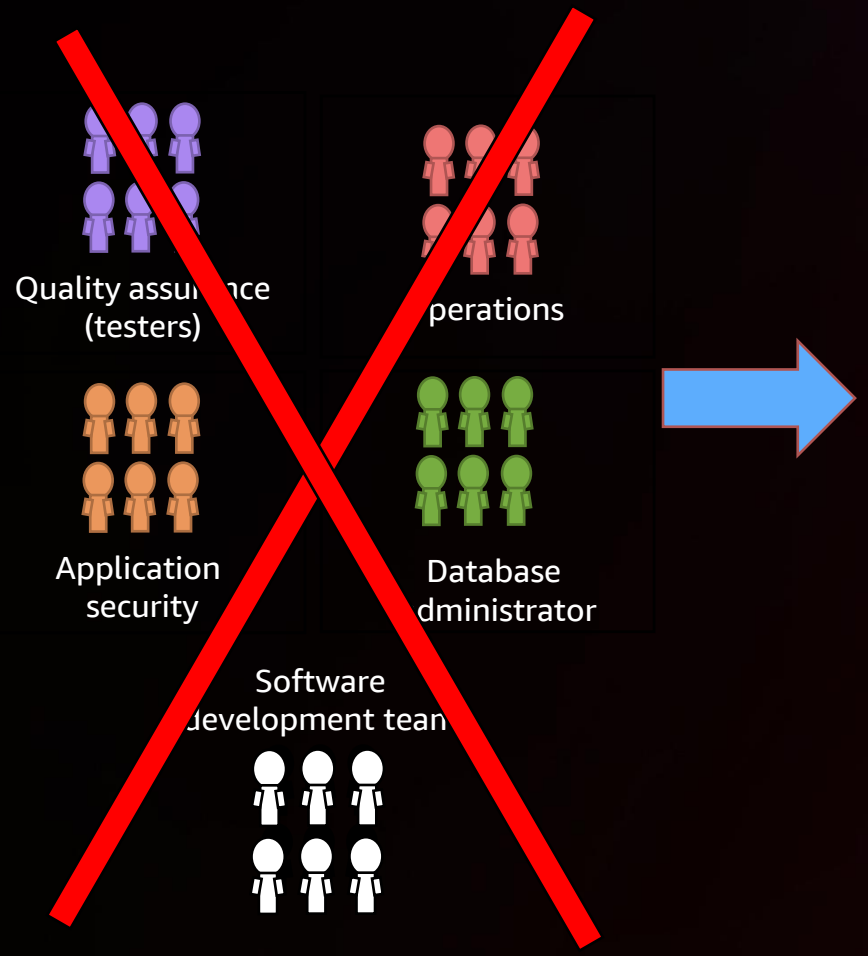
"Working together"



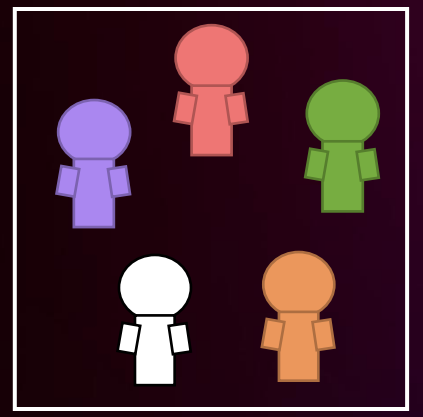
aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Teams should operate in a DevOps setting instead



"Working together"



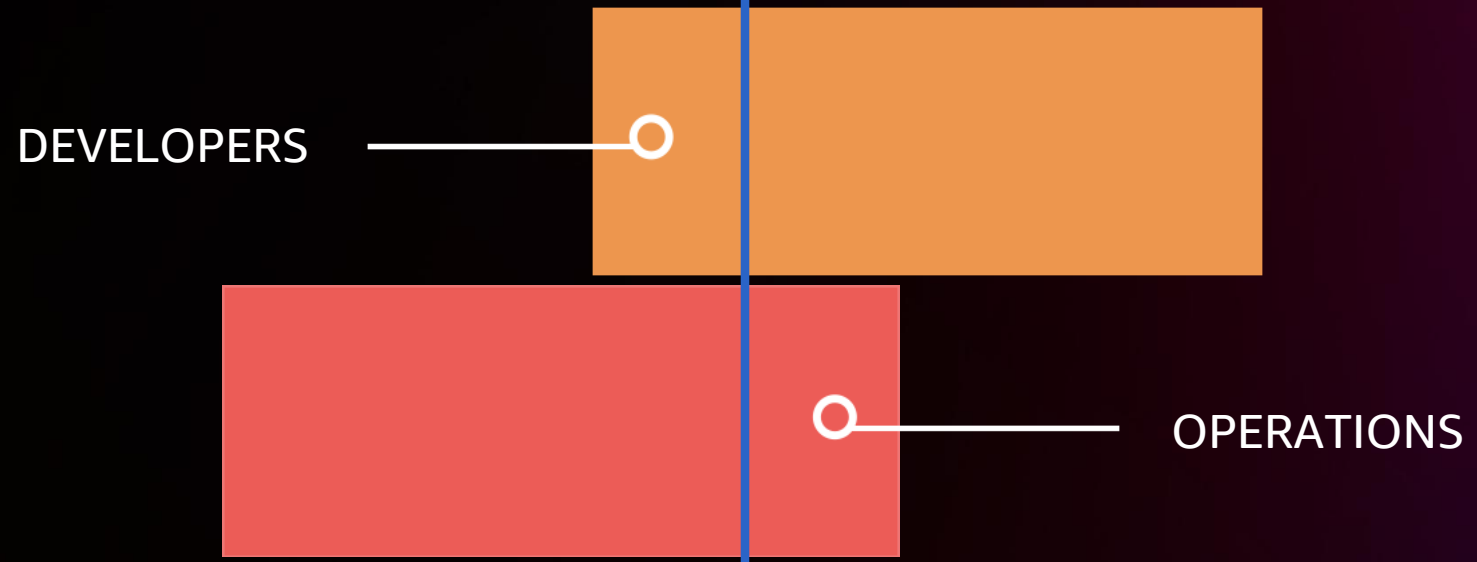
aws
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

A balanced approach



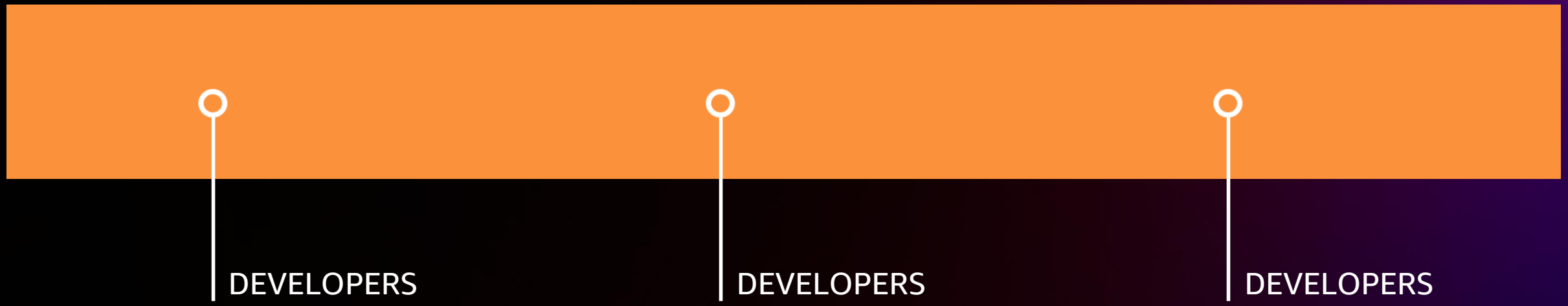
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

A balanced approach



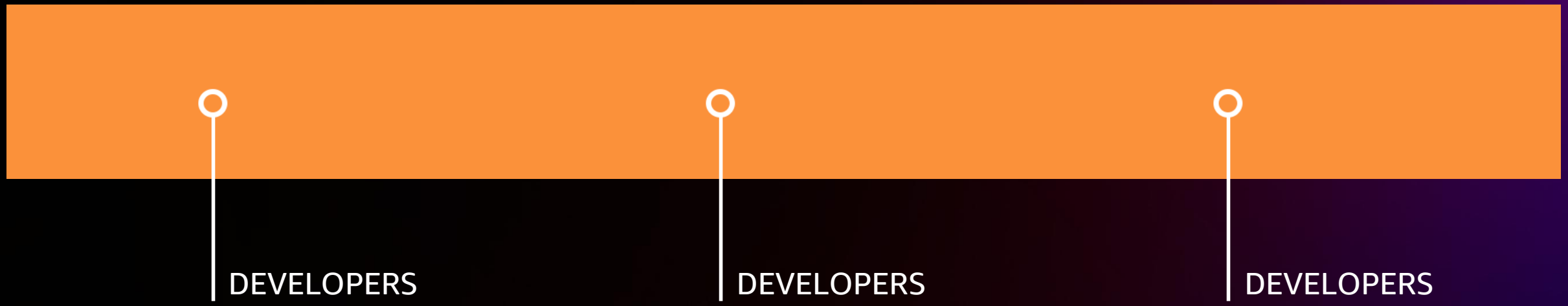
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

A balanced approach



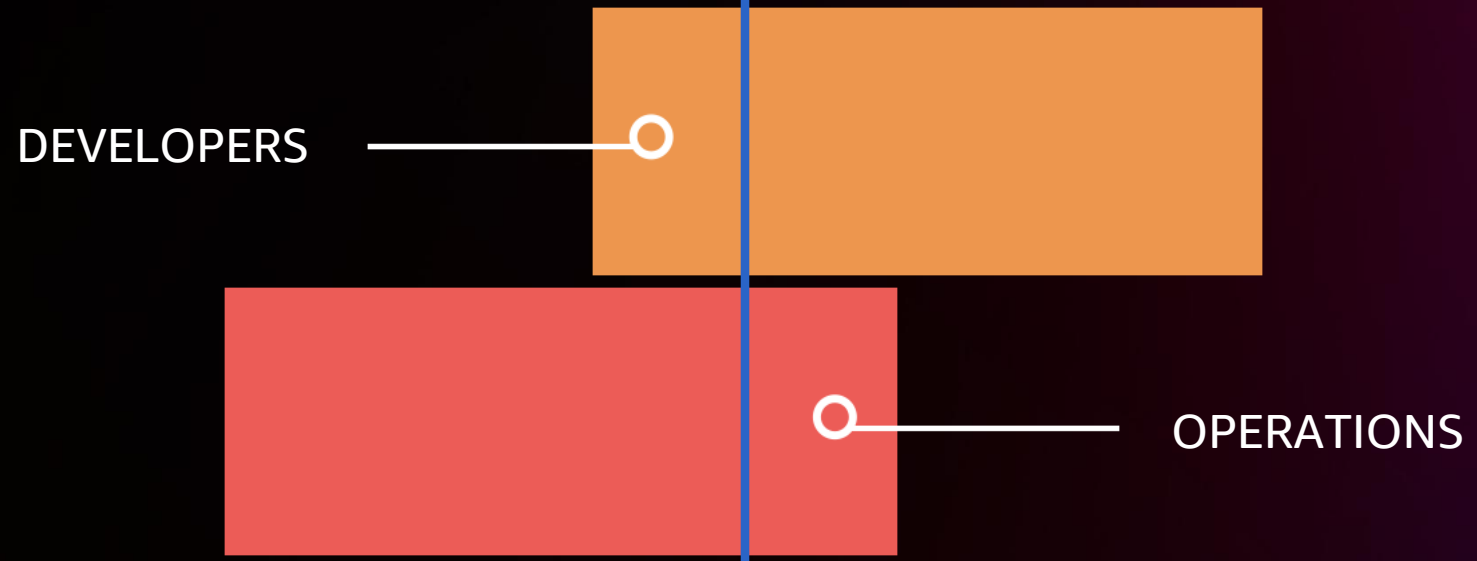
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

A balanced approach



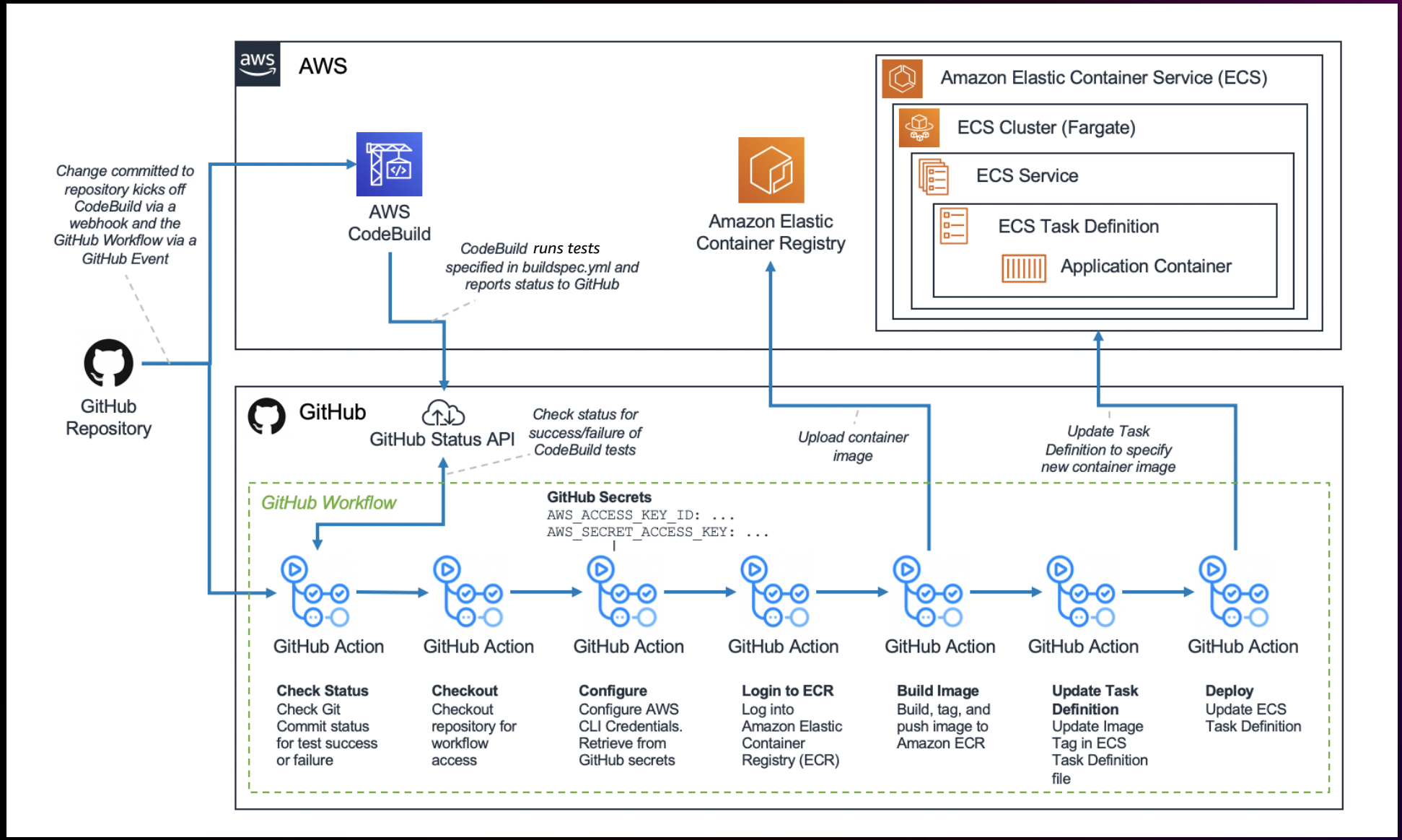
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

A balanced approach



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

GitHub Actions



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Terraform



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

“Should I use Terraform, AWS CDK, CloudFormation, or X?”

Person starting with IaC

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

“Yes”

Darko Mesaros

Sr. Developer Advocate, AWS

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

What came first?

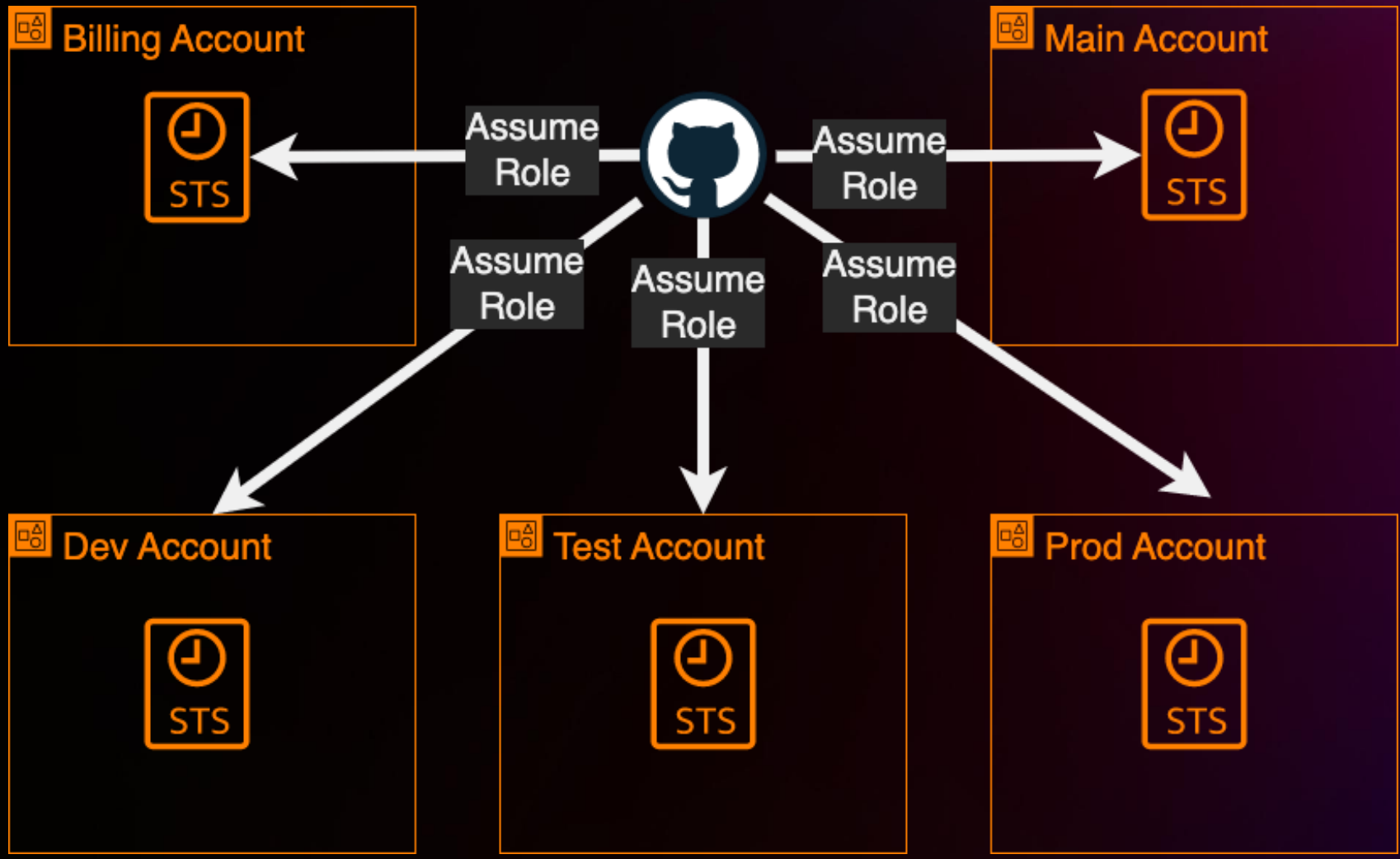
Infrastructure automating your IaC?

IaC automating your infrastructure?



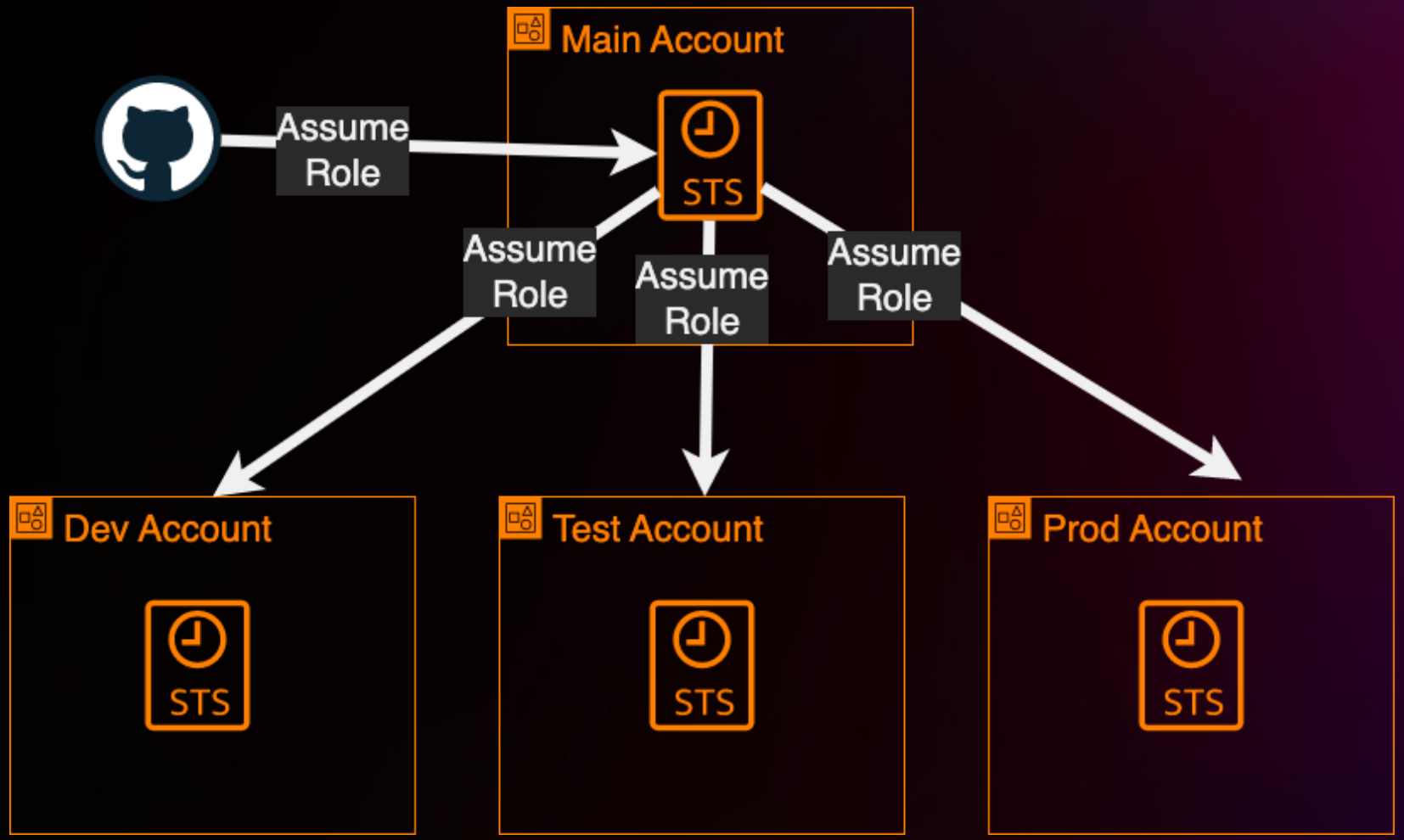
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Infrastructure permission overview (bootstrap)



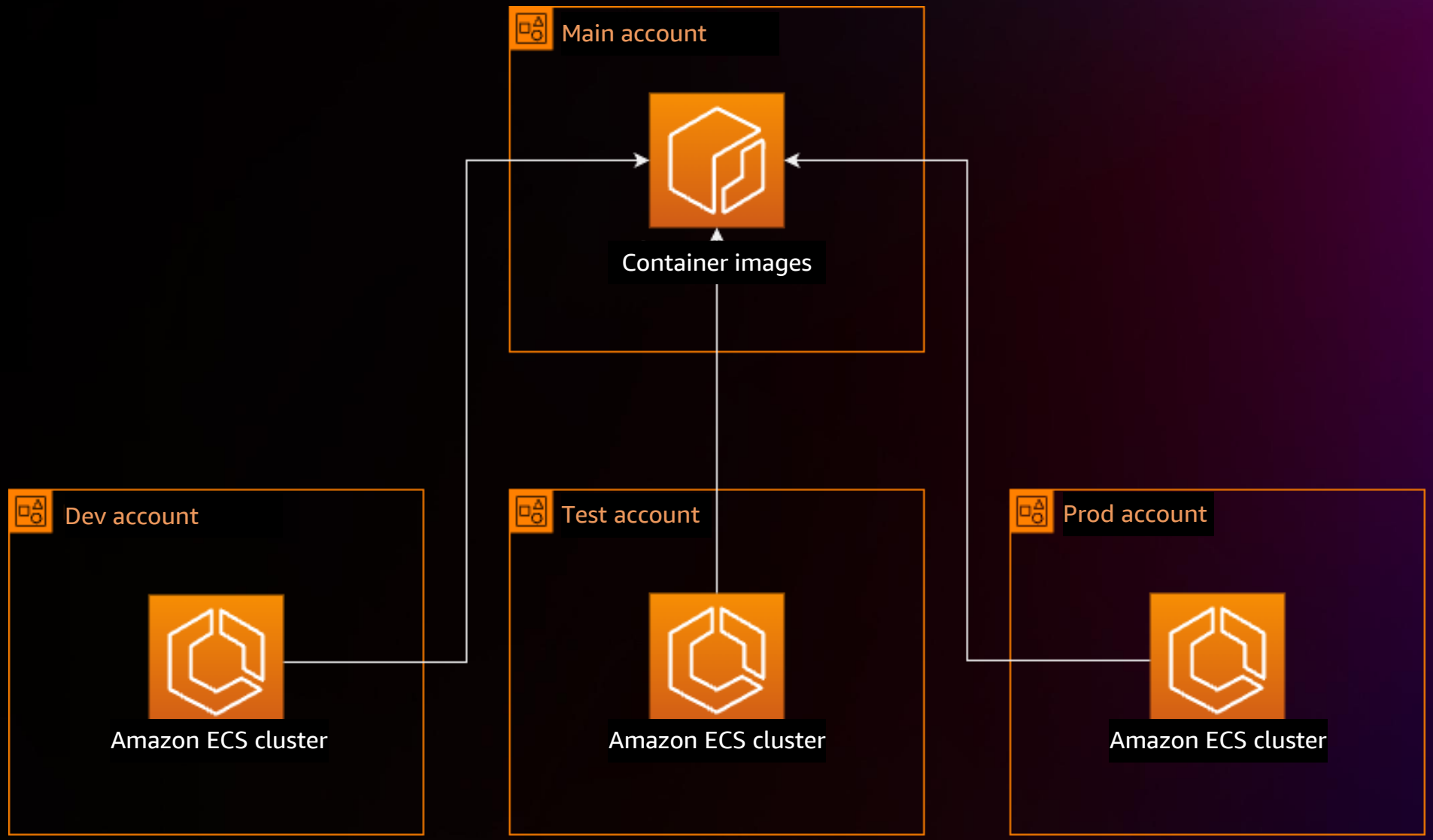
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Infrastructure permission overview



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Shared infrastructure



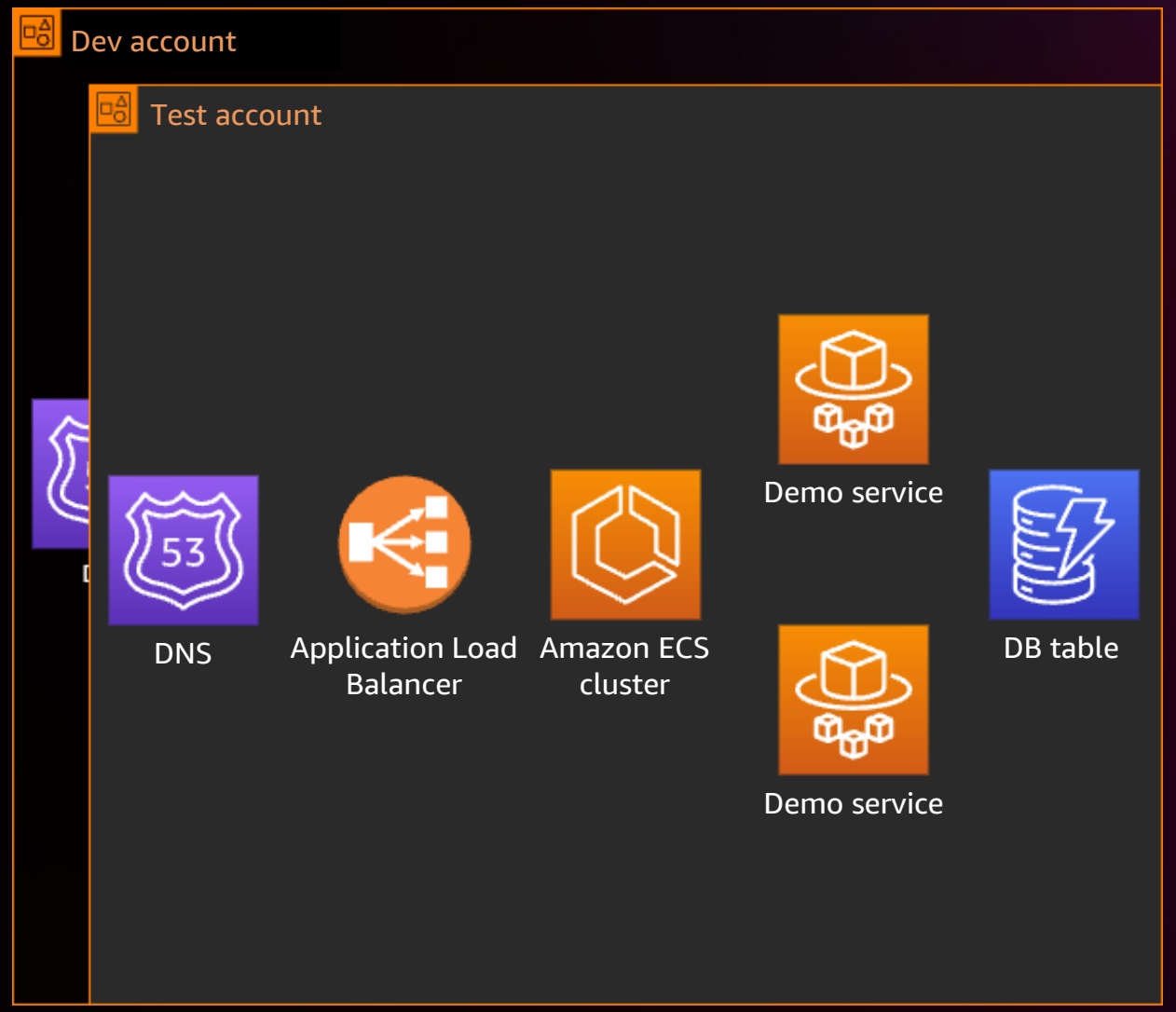
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Infrastructure parity



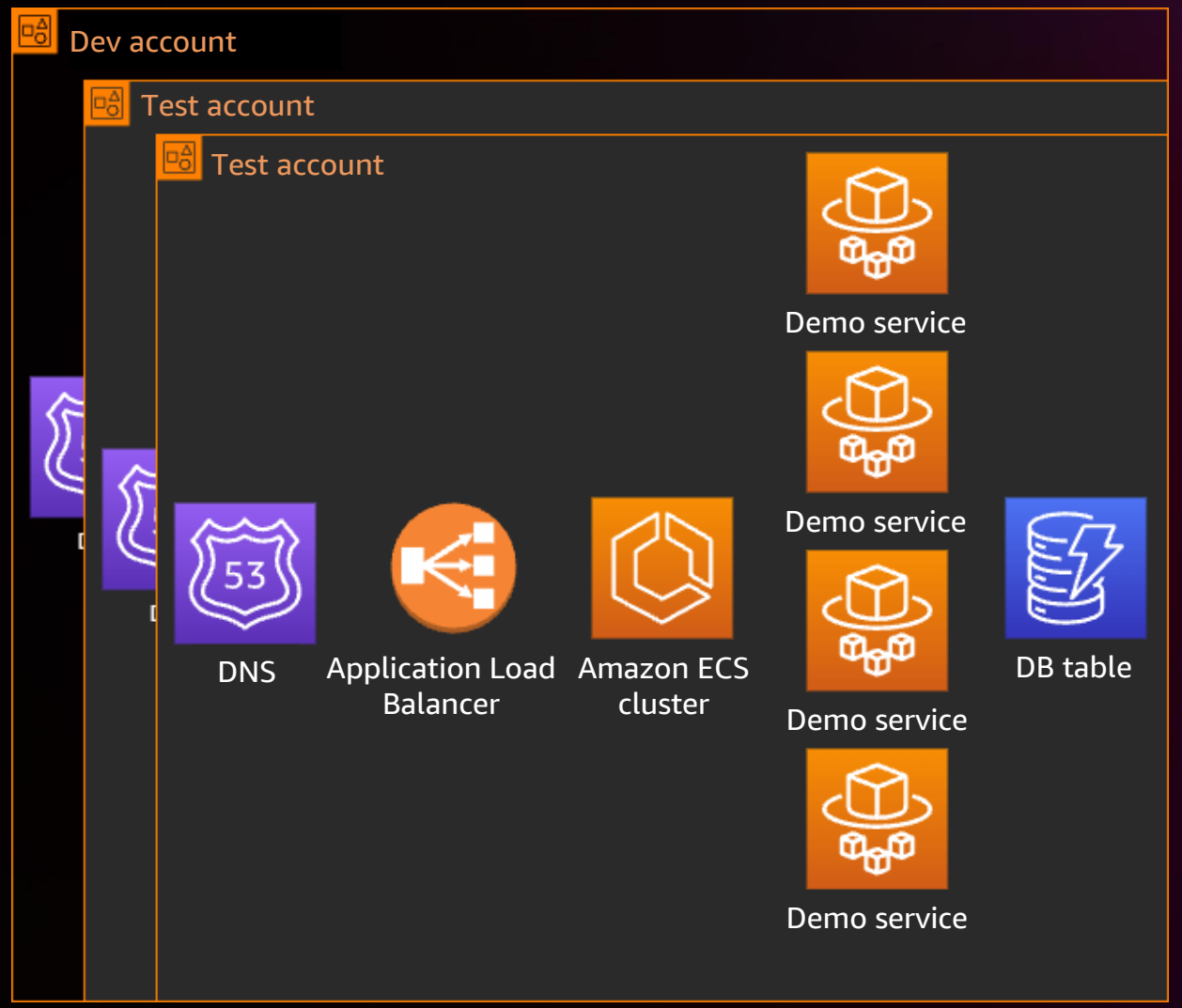
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Infrastructure parity



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Infrastructure parity



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Demo time!

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Thank you!

Emily Freeman
@editingemily

Cobus Bernard
@cobusbernard
in/cobusbernard

Julie Gunderson
@Julie_Gund



Please complete the session survey in the **mobile app**

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.