

AWS re:Invent

NOV. 28 – DEC. 2, 2022 | LAS VEGAS, NV

CON306-R

Accelerate software development lifecycles with GitOps

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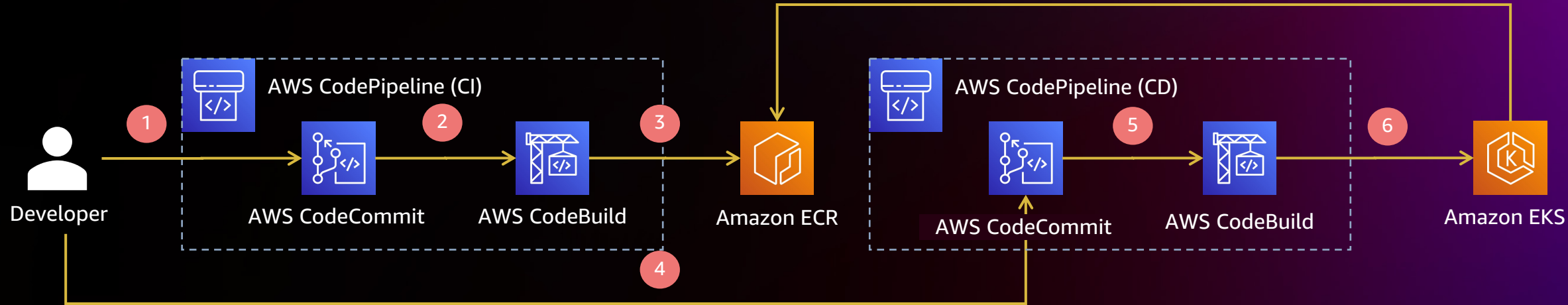
Agenda

- Introduction and concepts
- Multi-cluster GitOps
- Lab time

Introduction and concepts

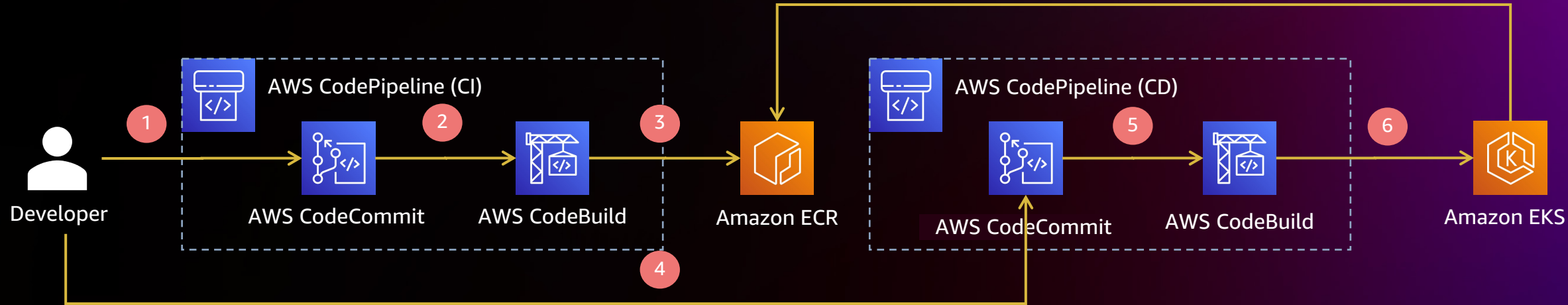
DevOps CI/CD vs. GitOps

DevOps CI/CD

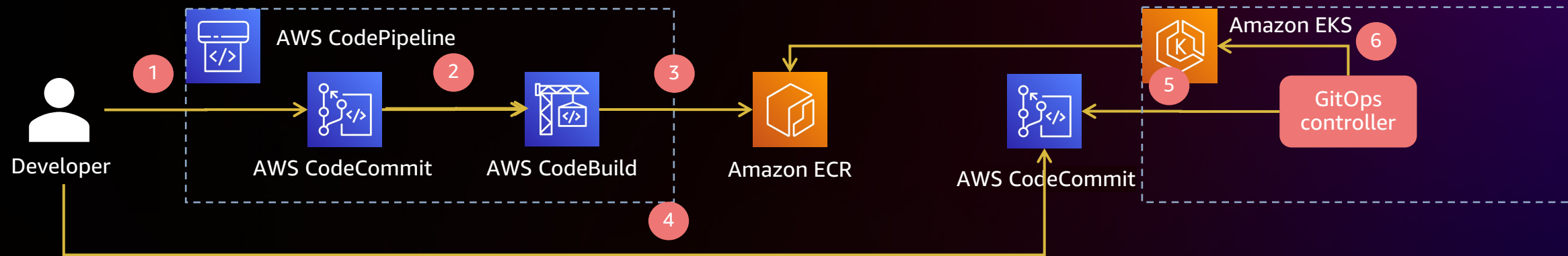


DevOps CI/CD vs. GitOps

DevOps CI/CD



GitOps



Flux, the GitOps controller for Kubernetes



Implemented as a set of Kubernetes extensions

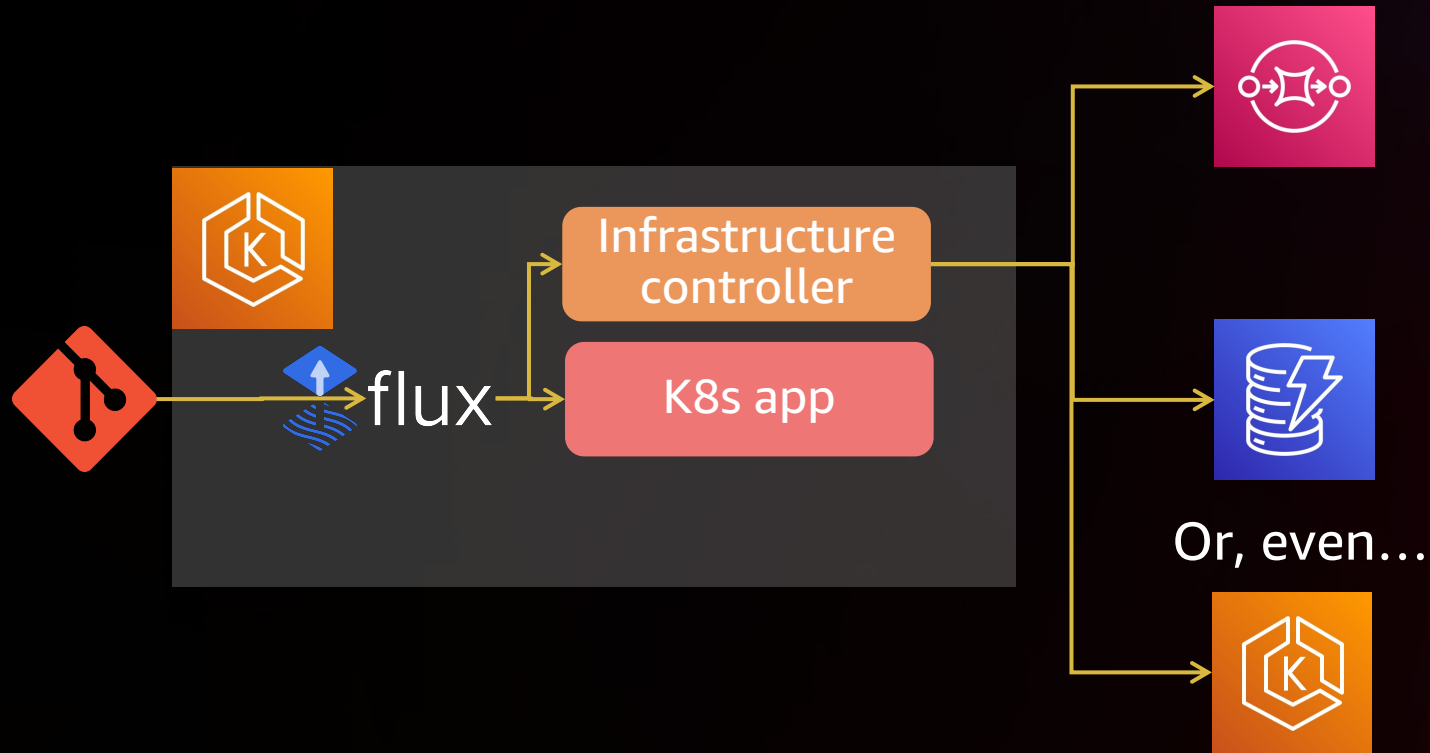


Runs as an in-cluster software agent



Amazon EKS add-on for GitOps
(coming soon)

Infrastructure controllers



Sample manifest

```
apiVersion: dynamodb.aws.crossplane.io/v1alpha1
kind: Table
metadata:
  name: products
spec:
  forProvider:
    region: us-east-1
    attributeDefinitions:
      - attributeName: id
        attributeType: S
    keySchema:
      - attributeName: id
        keyType: HASH
    billingMode: PROVISIONED
    provisionedThroughput:
      readCapacityUnits: 1
      writeCapacityUnits: 1
    providerConfigRef:
      name: default
```

e.g., AWS Controller for Kubernetes (ACK), Crossplane

Secrets management – What are secrets?

“A Secret is an object that contains a small amount of sensitive data such as a password, a token, or a key.”

– from Kubernetes.io

Secrets management strategies

Externalize secrets

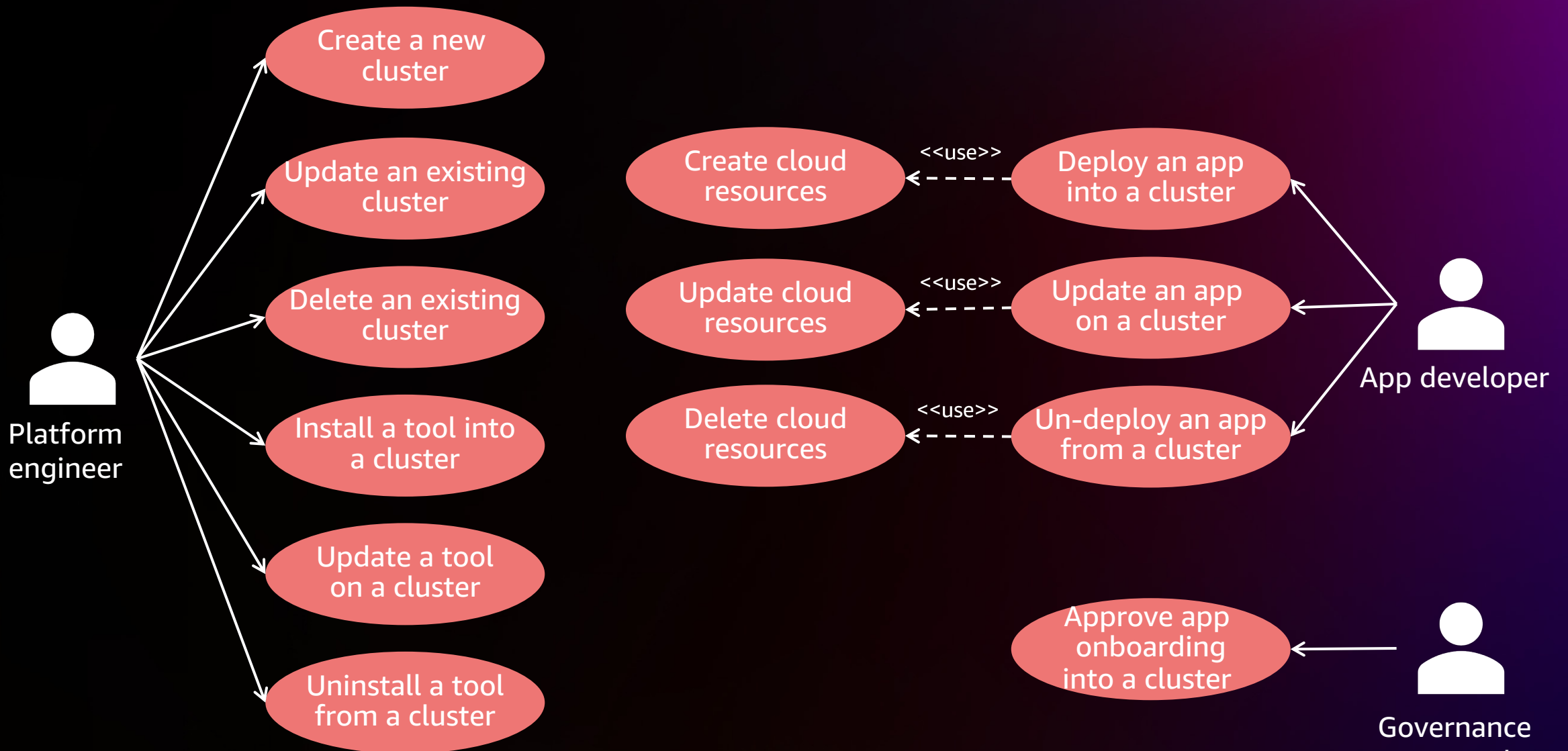
- Secret information stored in an external vault
- e.g., External Secrets Operator

Store secret in Git encrypted

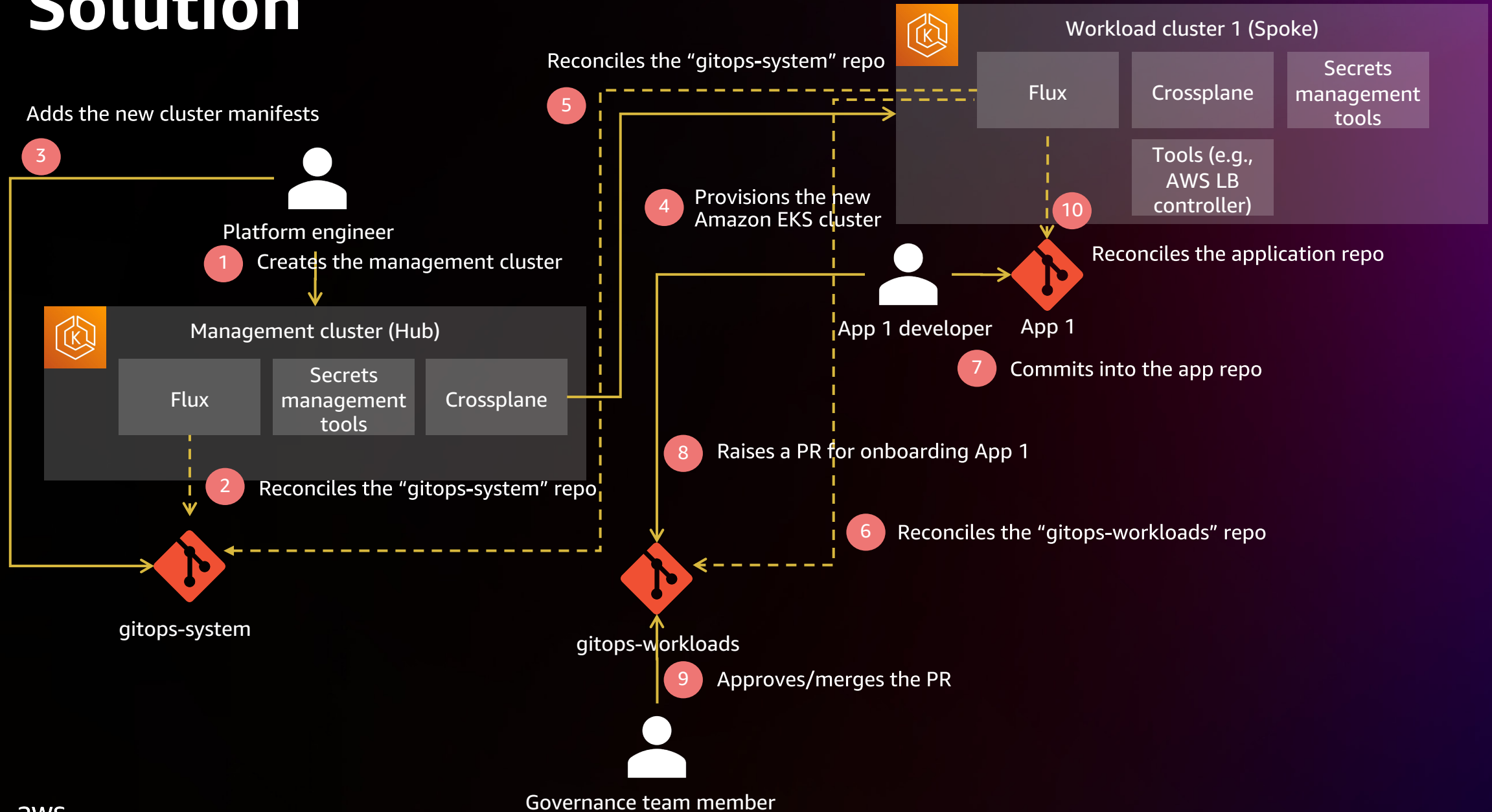
- Secret information stored in Git, but in an encrypted form
- e.g., Sealed Secrets

**Now, let's put all these pieces
together to address a real scenario**

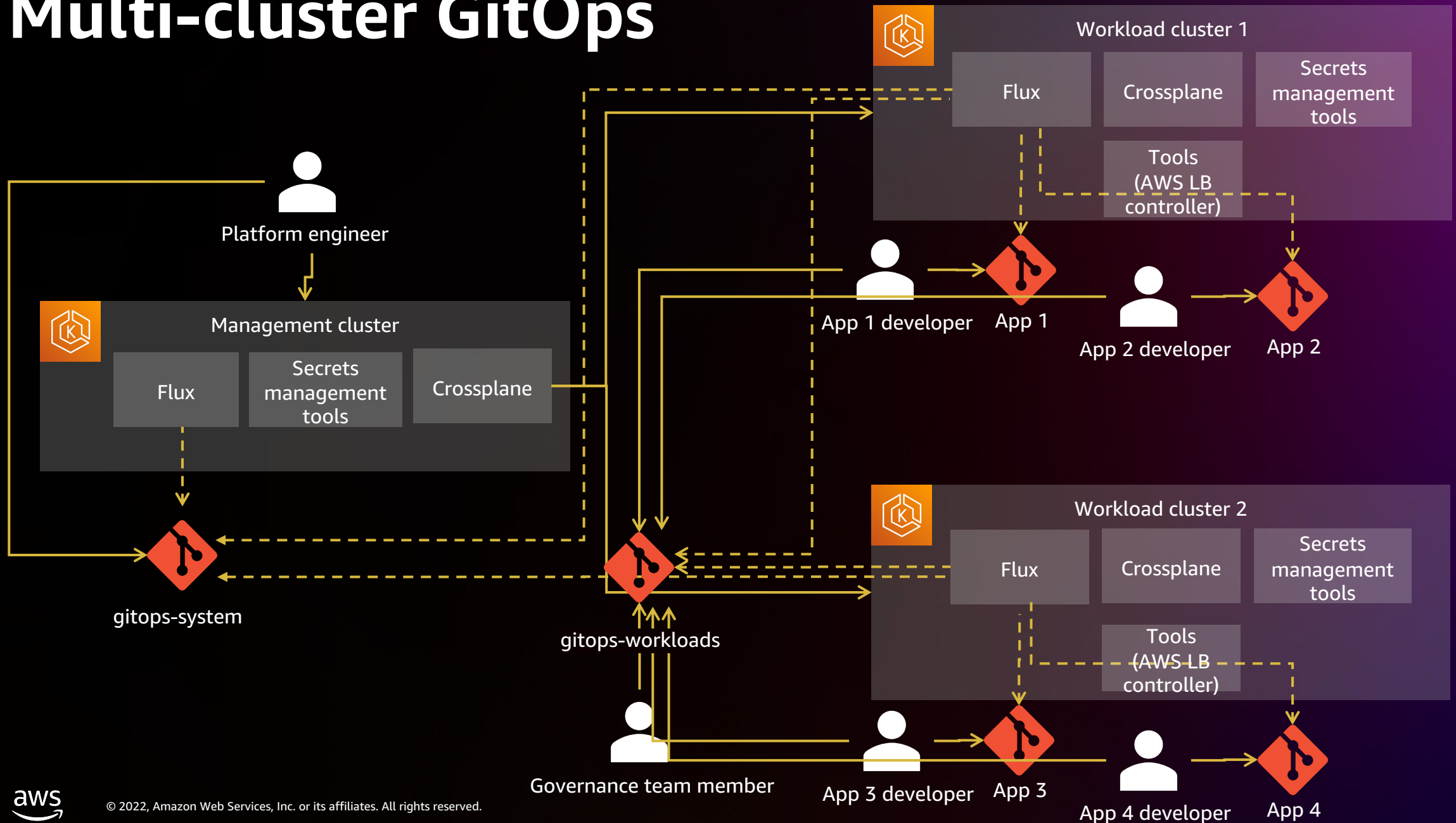
Use cases



Solution



Multi-cluster GitOps



Lab time



Conclusion

What have we accomplished?

- Combined a GitOps controller (Flux) with an infrastructure controller (Crossplane) to build an end-to-end/multi-cluster GitOps
- Learned how to structure Git to support large/complex environments

Next steps

- Visit our GitHub repo: github.com/aws-samples/eks-multi-cluster-gitops. Take it out for a spin. Watch it, star it, fork it, and start sharing feedback through GitHub Issues.

Thank you!

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