

AWS re:Invent

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SAS307-R

DevOps and SaaS: Applying automation in multi-tenant environments

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DevOps can be simplified to 4 practices

THE 4 A'S OF MODERN DEVOPS

1

Accountability

By bringing development and operations closer together; no “throw it over the wall” siloed culture

2

Automation

To speed up delivery and reduce human interaction and errors

3

Awareness

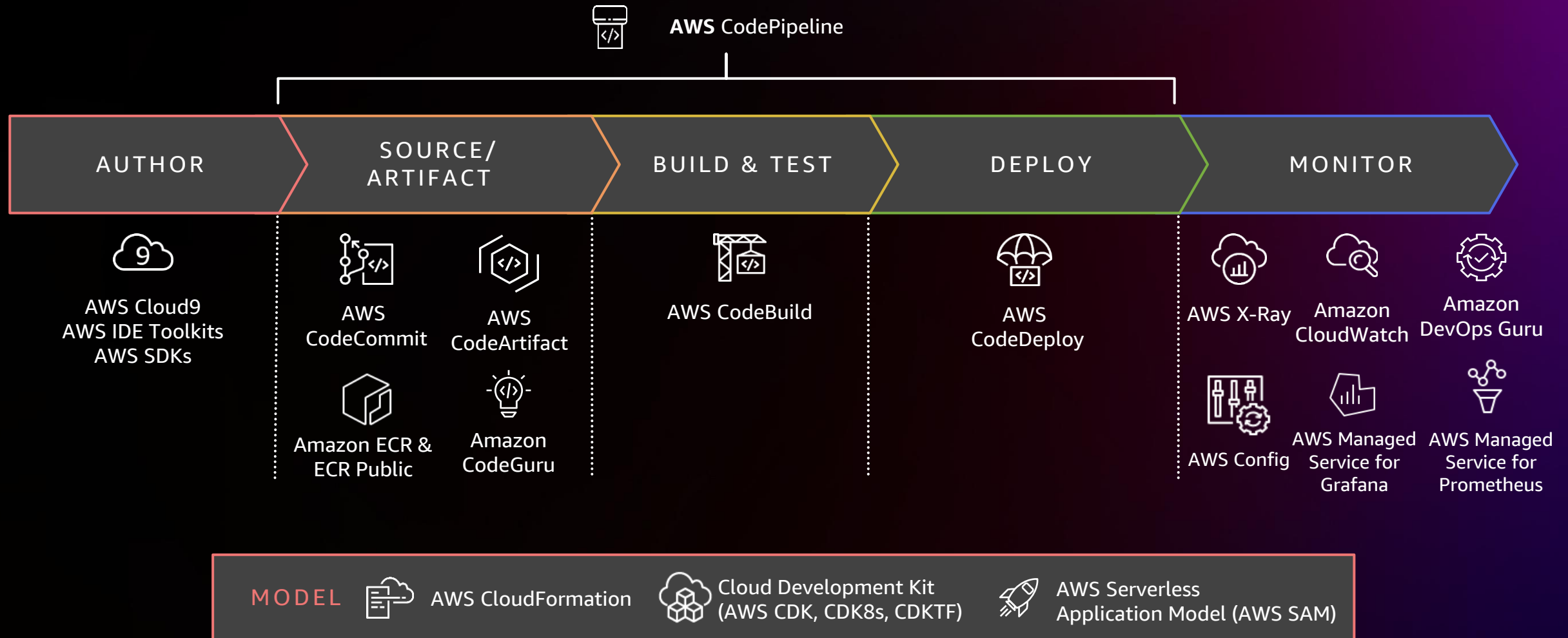
Of the state of your systems at all times

4

Autonomy

Enabled via centrally enforced standards and governance

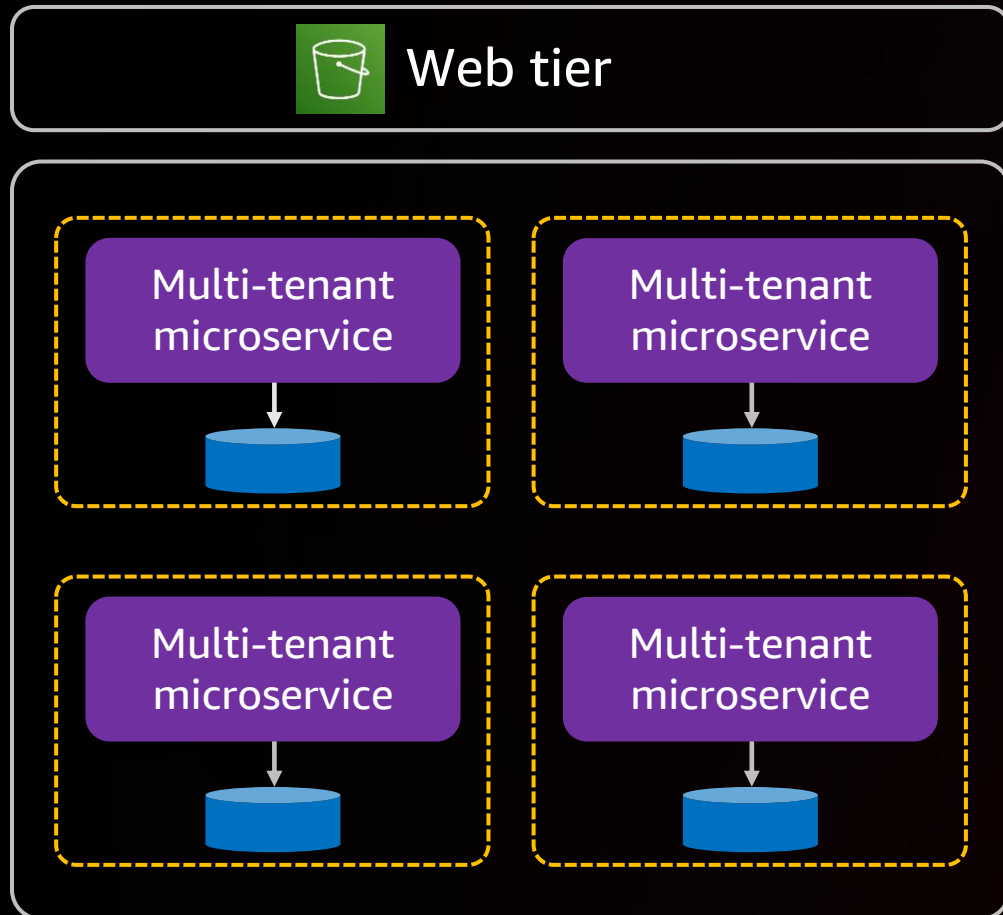
Go faster with an end-to-end solution



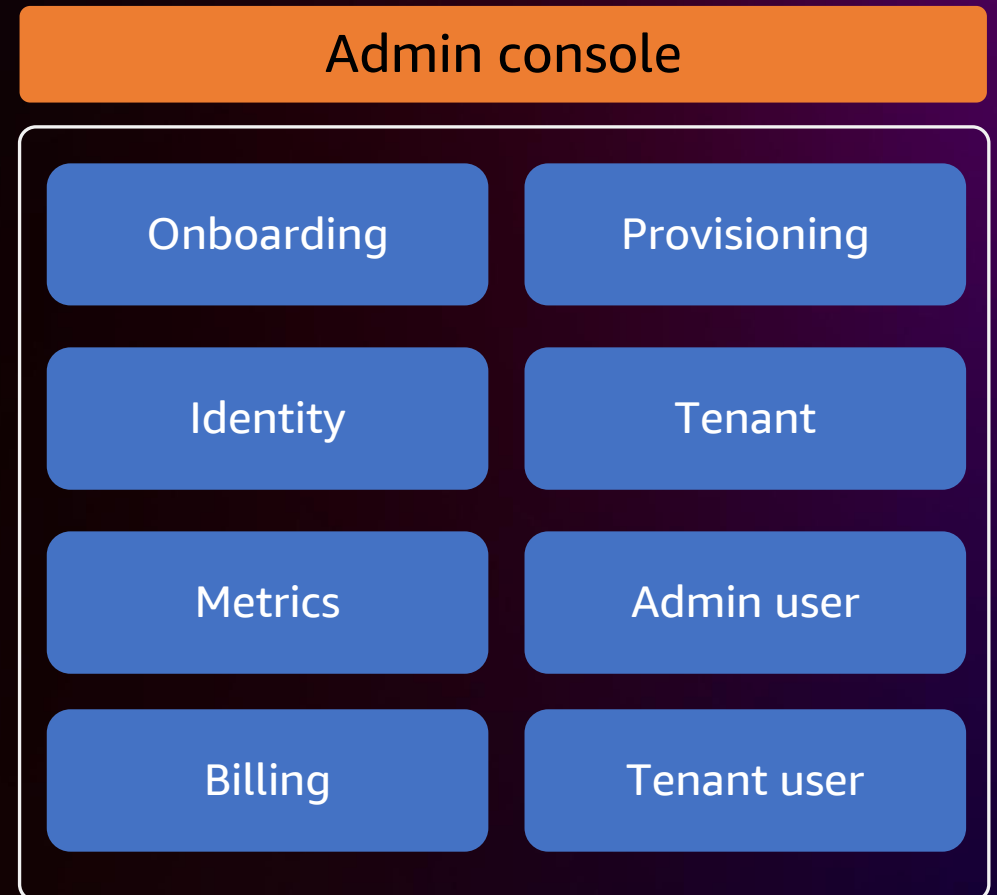
What is a SaaS delivery model?

What it means to be SaaS

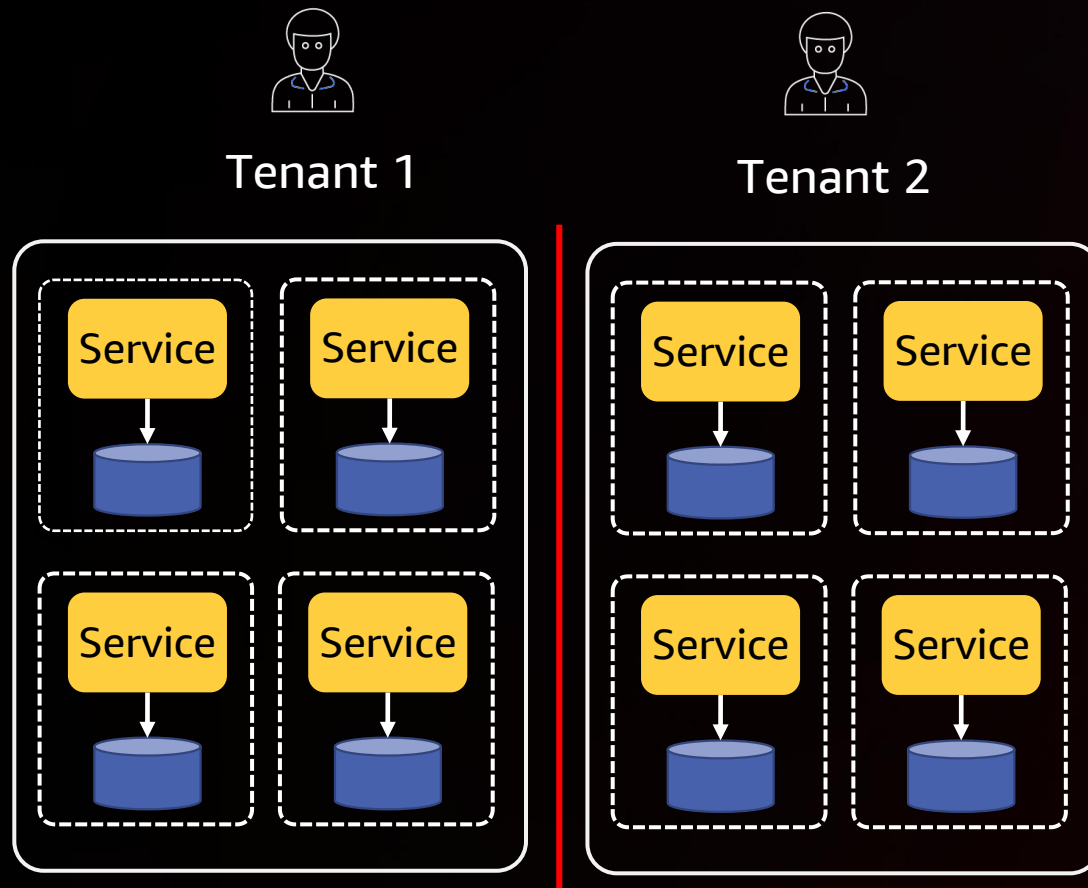
Application plane



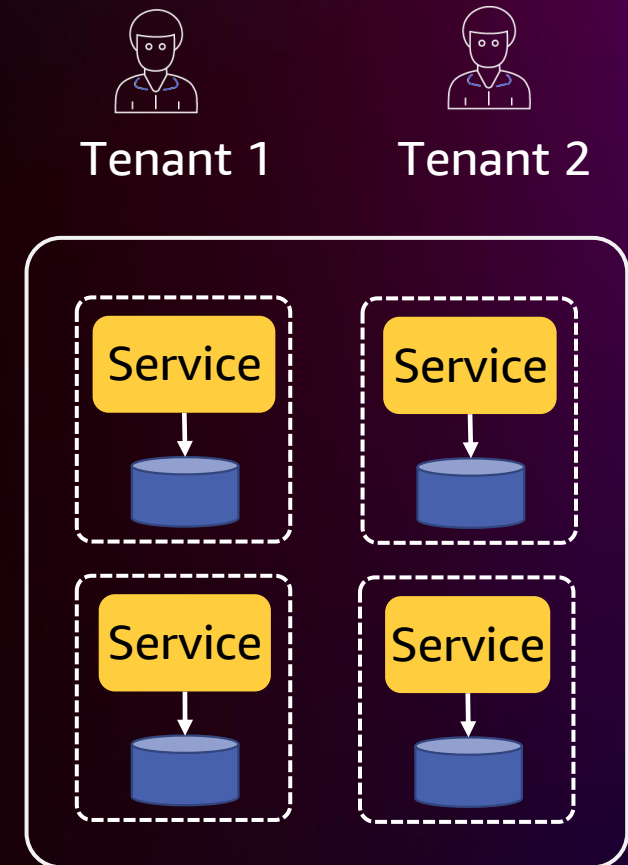
Control plane



Application plane deployment models



Dedicated resources for each tenant
(silo model)

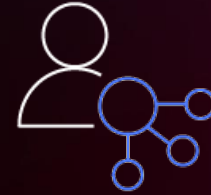


Shared resources for all tenants
(pool model)

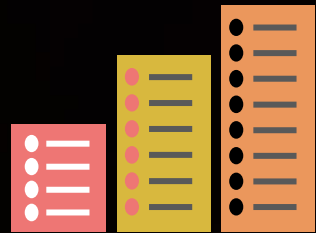
Factors that can shape deployment models



Compliance



Noisy neighbor



Tiering strategy

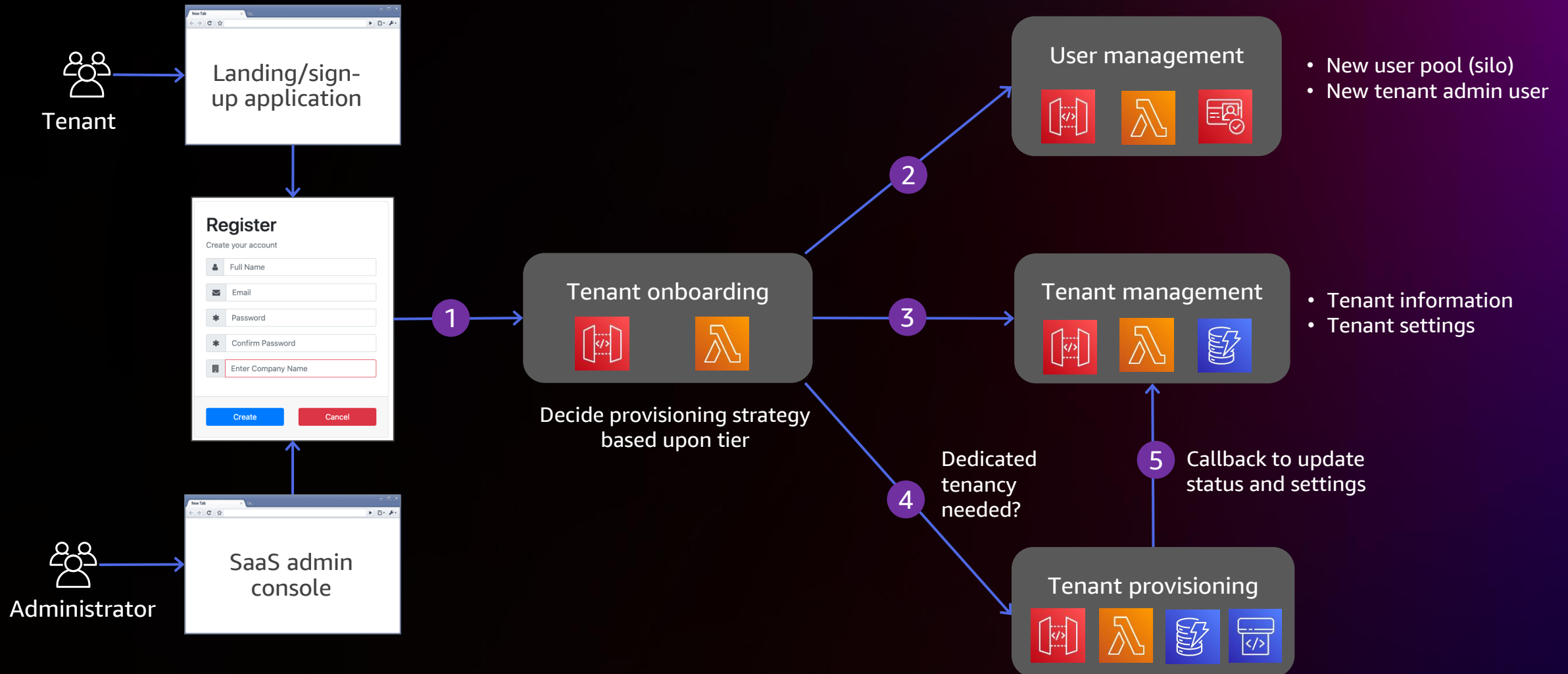


Global reach

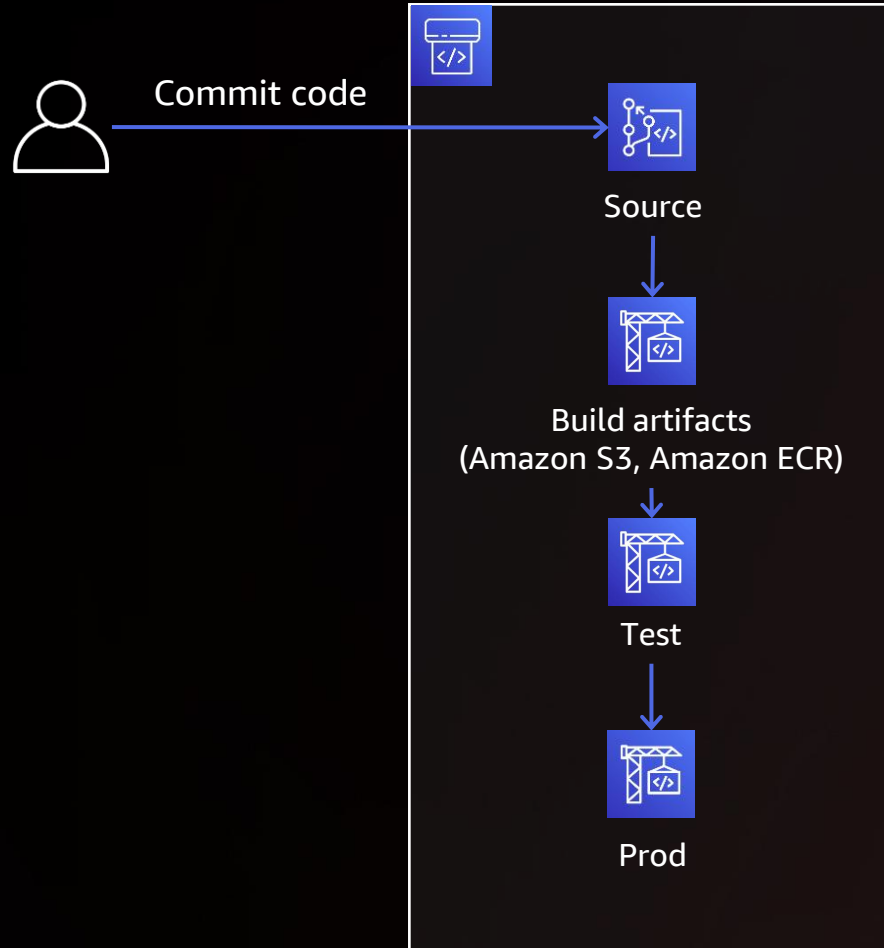
How the SaaS model impacts DevOps practices

- Automate tenant onboarding/offboarding
- Provision infrastructure based upon tenant tiers
- Deploy updates across all tenant environments
- Enable tenant routing
- Enable experiments and manage feature flags

Automating tenant onboarding

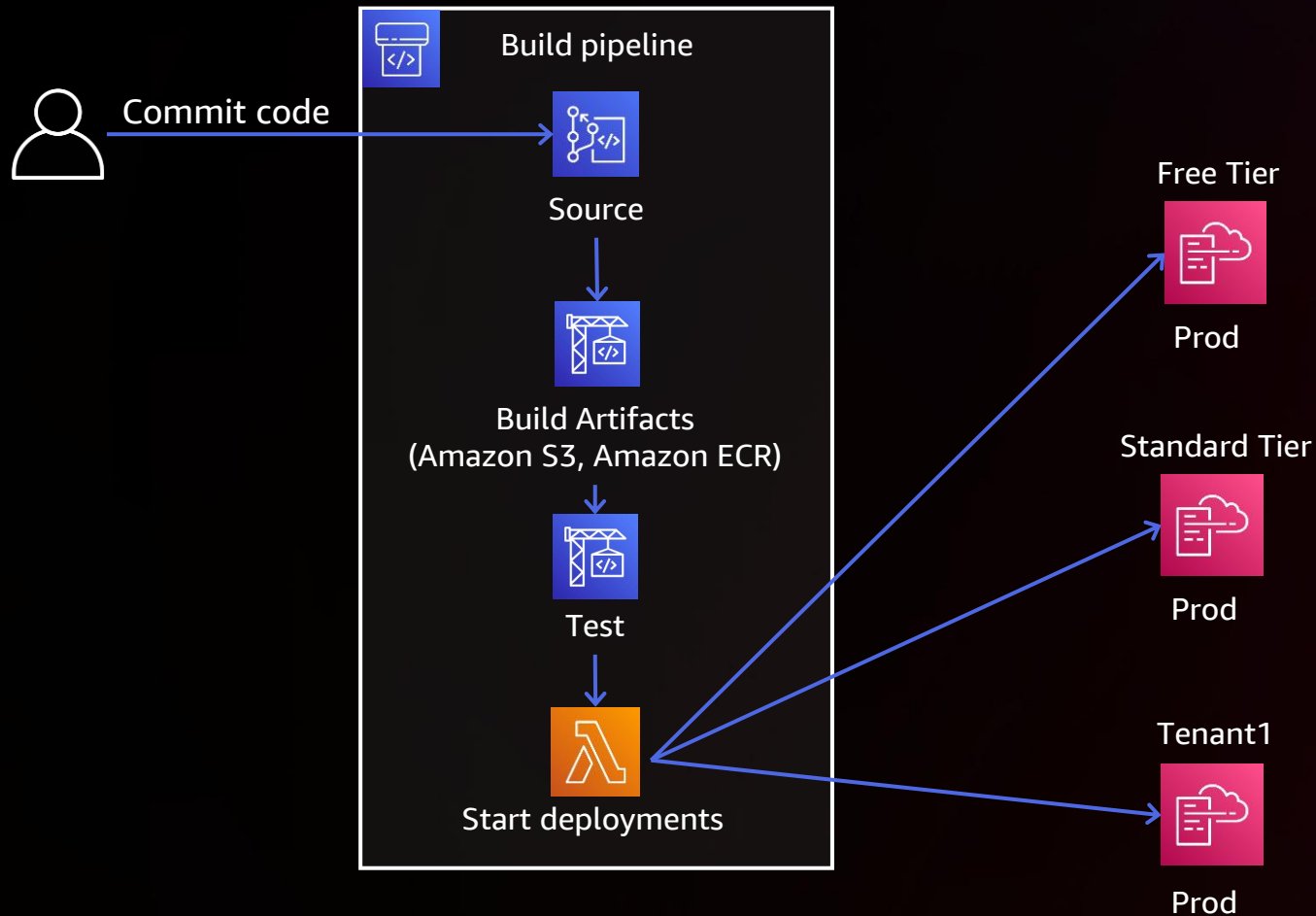


Basic CI/CD pipeline



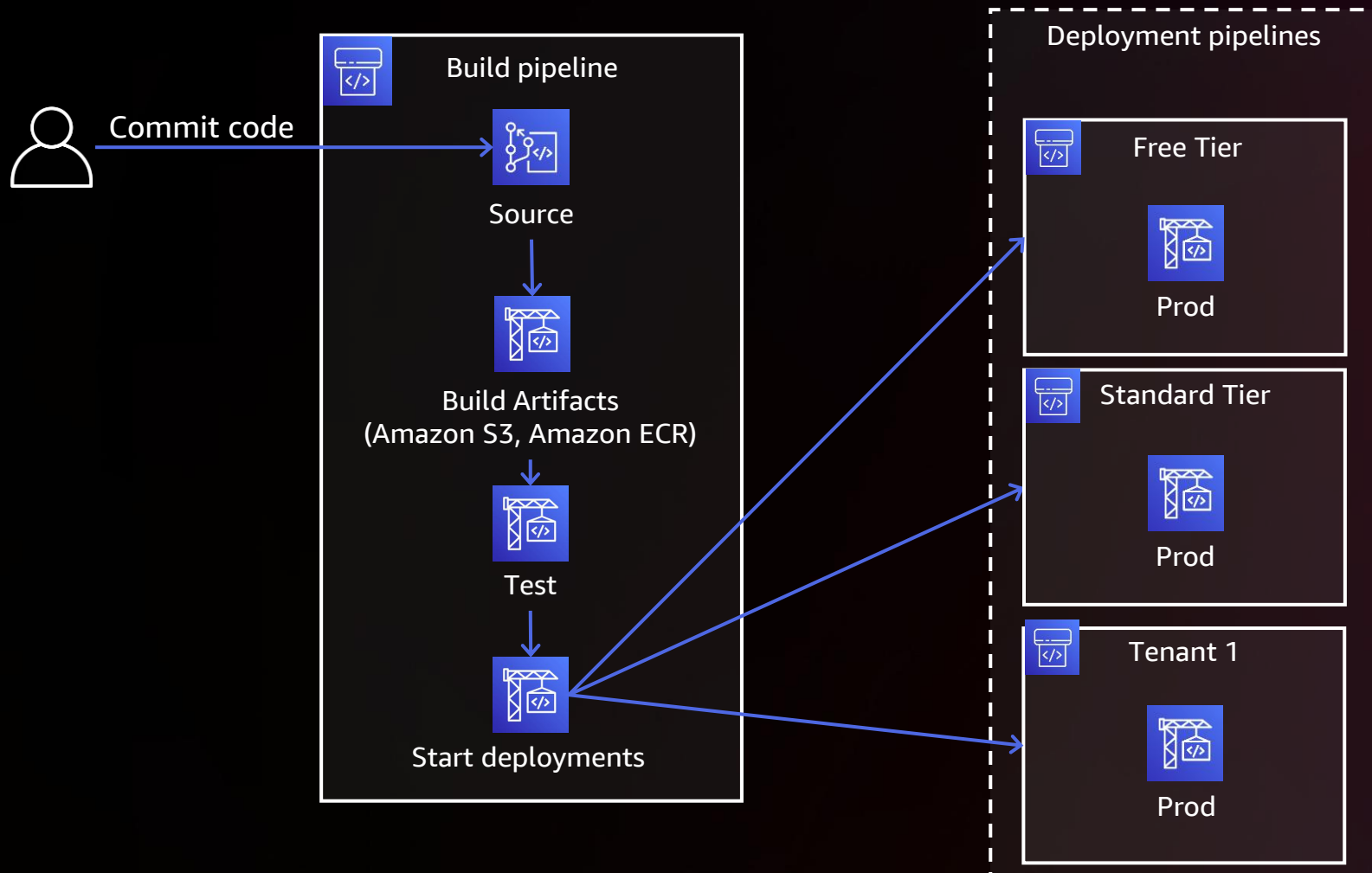
- Pool model (shared resources)
- Single tier
- Single Region

Multi-tier SaaS CI/CD pipeline



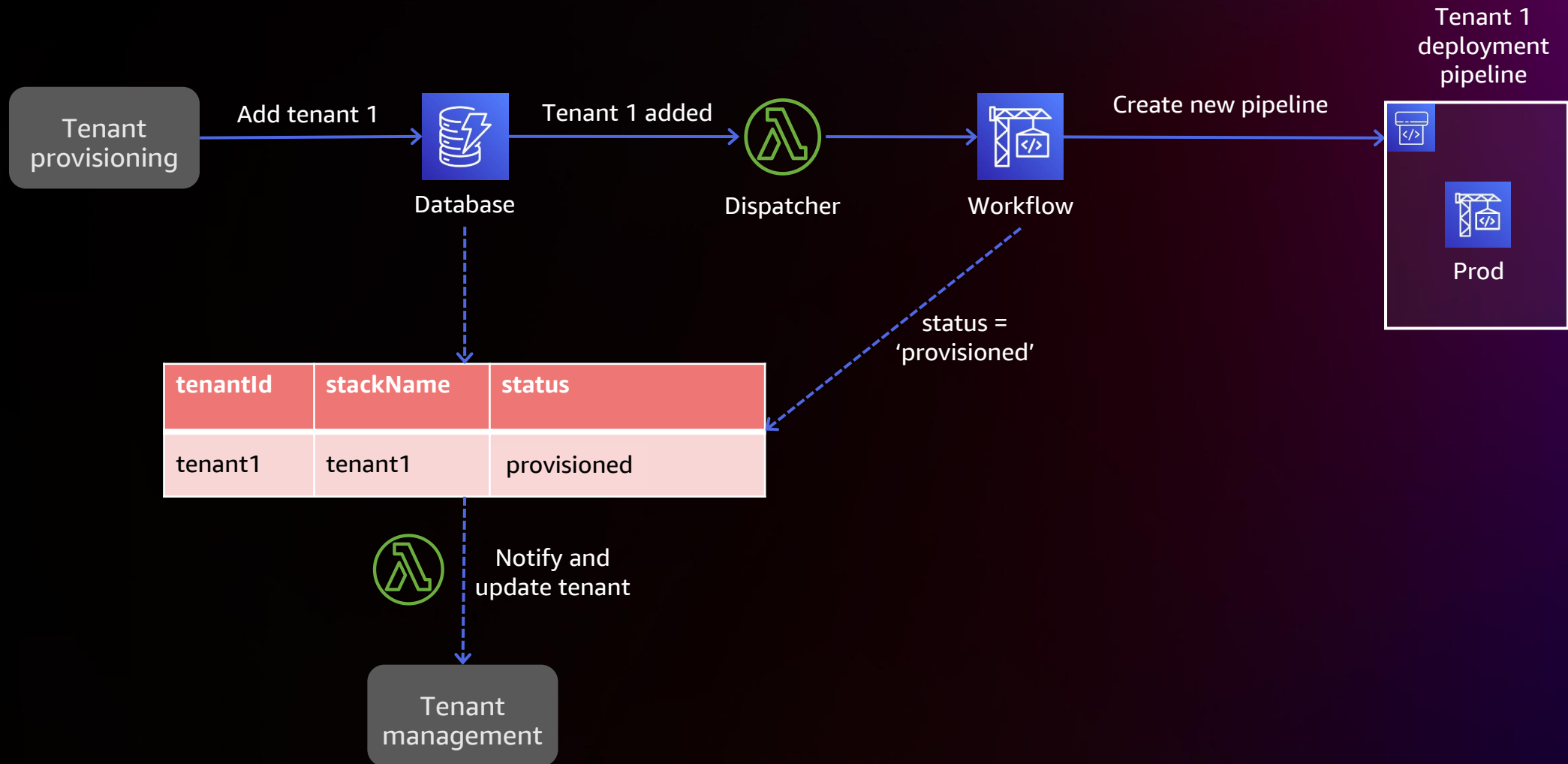
- A mix of pool and silo models
- Supports multiple tiers
- Supports multiple Regions

Multi-tier SaaS CI/CD pipeline

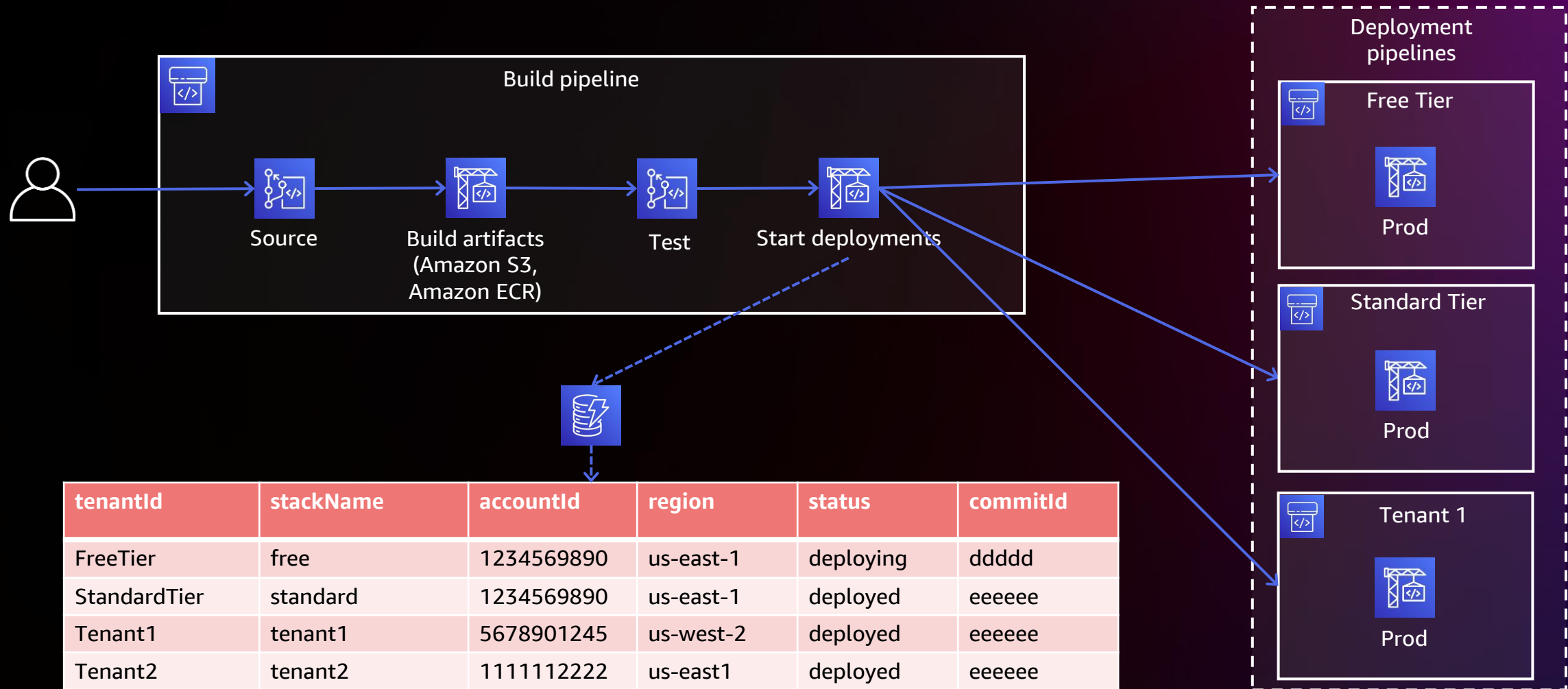


- A mix of pool and silo models
- Supports multiple tiers
- Supports multiple regions

Onboarding: Provisioning tenant pipelines



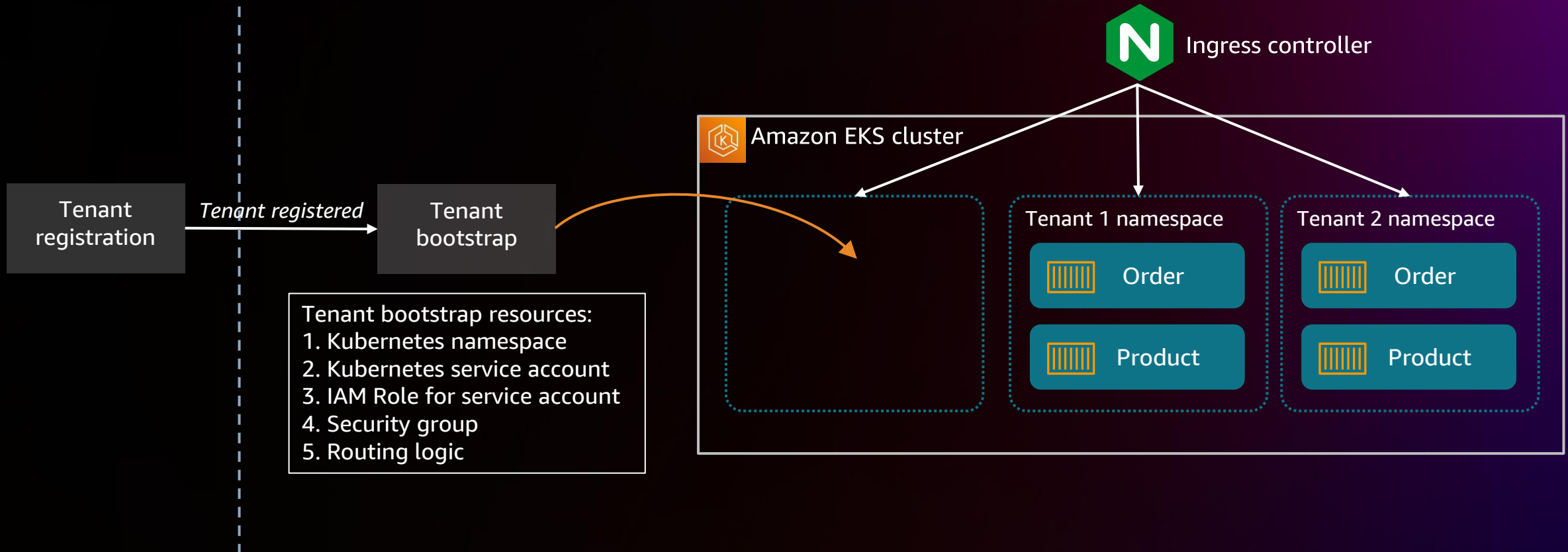
Multi-tier, multi-account, multi-region CI/CD



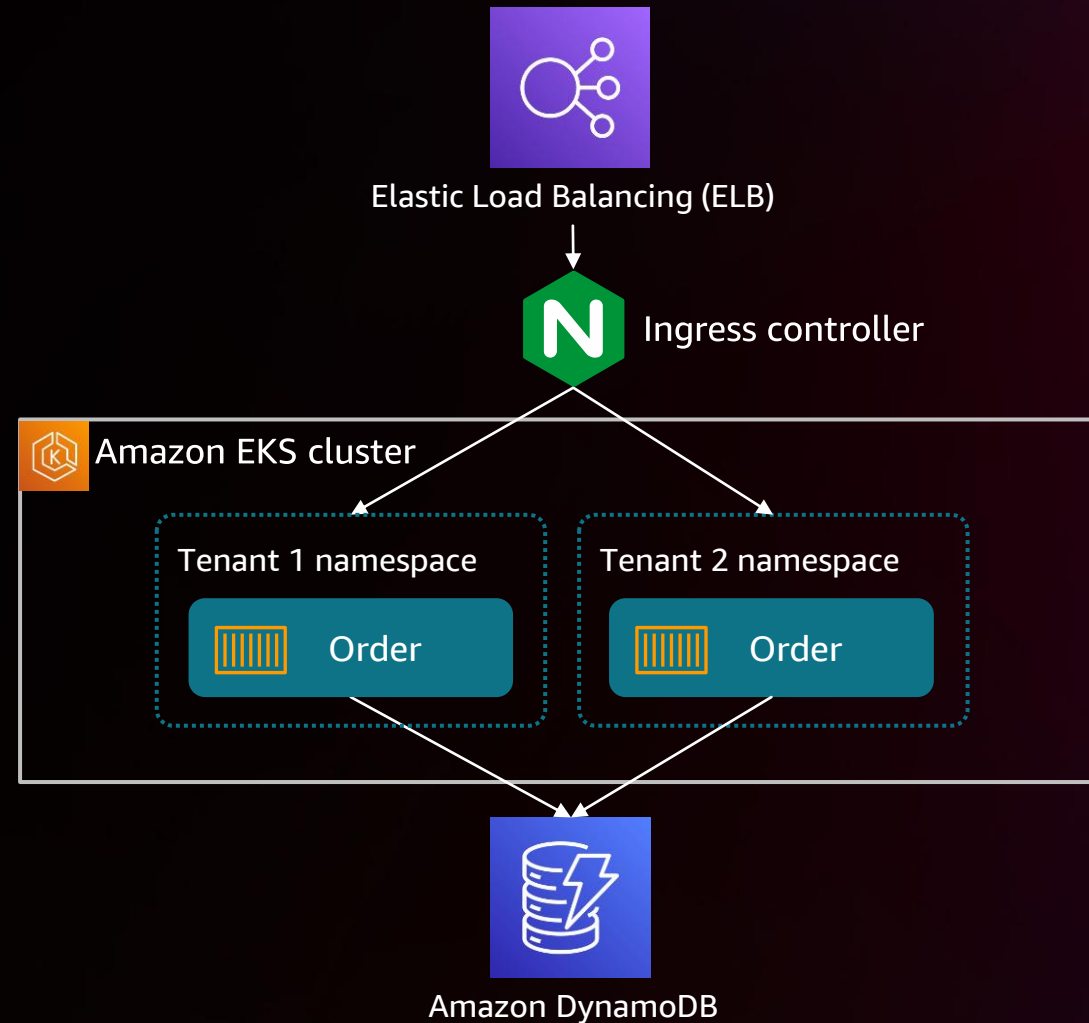
Containers example – Compute bootstrapping

Control plane

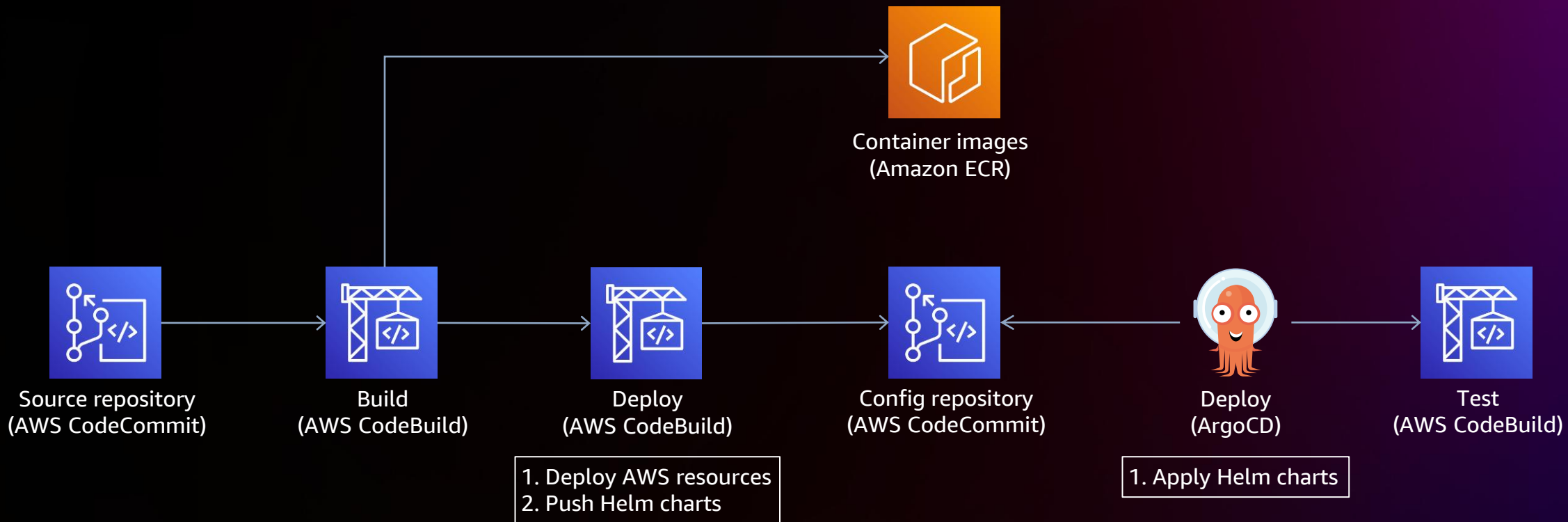
Application plane



Containers example – Application architecture



Containers example – Pipeline



References

<https://aws.amazon.com/blogs/apn/building-a-multi-tenant-saas-solution-using-aws-serverless-services/>



<https://aws.amazon.com/blogs/devops/parallel-and-dynamic-saas-deployments-with-cdk-pipelines/>



More SaaS sessions

Breakout sessions

- SAS305 – SaaS architecture patterns: From concept to implementation
- SAS405 – SaaS microservices deep dive: Simplifying multi-tenant development
- SAS306 – SaaS migration: Inside a real-world multi-tenant transformation
- SAS302 – Supporting extensibility in SaaS environments
- PEX310 – Optimizing your multi-tenant SaaS architecture

Workshops

- SAS403 – SaaS microservices deep dive: Multi-tenancy meets microservices
- SAS402 – Serverless meets SaaS: Inside a real-world serverless SaaS solution
- SAS401 – Amazon EKS SaaS: Building a working multi-tenant environment

Business session

- PEX209 – Building your SaaS journey on AWS

More SaaS sessions

Chalk talks

- SAS307 – DevOps and SaaS: Applying automation in multi-tenant environments
- SAS303 – SaaS anywhere: Building SaaS solutions that run in hybrid models
- SAS301 – Multi-tenant meets ML: Building ML-based SaaS environments
- SAS304 – Solving the SaaS compliance puzzle
- PEX313 – The SaaS control plane: The heart of SaaS growth
- ARC403 – Amazon EKS SaaS deep dive: Inside a multi-tenant EKS solution
- ARC323 – Designing a multi-tenant SaaS tiering and throttling strategy
- SVS315 – Building multi-tenant applications with AWS Lambda and AWS Fargate

Builders' session

- ARC327 – How to optimize cost in your multi-tenant architecture

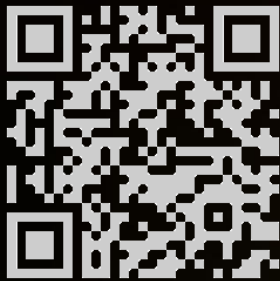


Additional resources

1

Subscribe to AWS SaaS Insights

Get monthly emails with bite-size advice and the latest updates



2

Explore the SaaS on AWS hub

Check out the SaaS on AWS page for more resources and insights



3


Discover resources for builders

Access our curated list of SaaS reference solutions, demos, tech events and more



Thank you!

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