

</ Streamlining Kubernetes Deployments with GitOps: Best Practices and Beyond />

DevFest Izmir '23

</ whoami

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</ Common release antipatterns

Manual deployments

Most modern applications are complex to deploy, involving many moving parts. Deploying them manually is error prone and can lead to different outcomes with changes on the ordering and timing of the steps.

Deploy to prod like environment late

The first time the app is deployed to production-like environment (staging) after all the development is done.

Manual Config Management

Configuration changes are performed by the operations team, manually on the production system.



</ CI/CD

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Continuous Integration

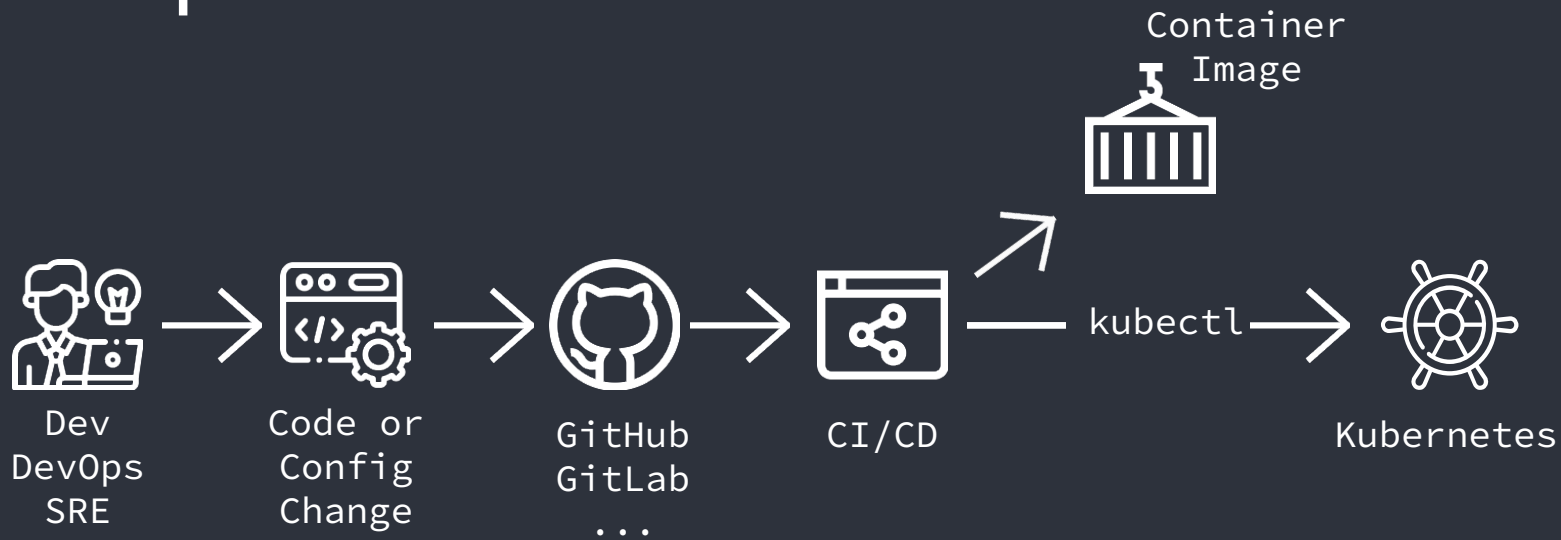
Practice of integrating all your code changes into the main branch of a shared source code repository early and often, automatically testing each change when you commit or merge them, and automatically kicking off a build.

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Continuous Delivery

Following the automation of builds and unit and integration testing in CI, continuous delivery automates the release of that validated code to a repository.

</ Pipelines



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</ Issues with the push model

Correctness

The scripts that are used to deploy the application would not guarantee convergence hence atomic deployments cannot be done.

Security

Credentials are stored on a 3rd party company's infrastructure which we have no influence for it's security.

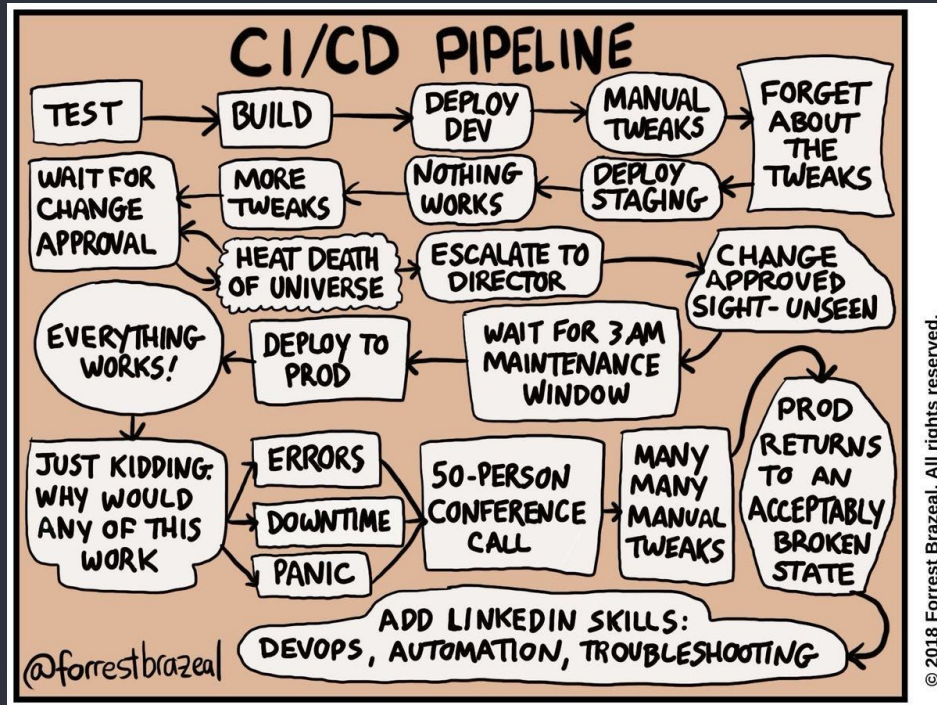
Current State

It's possible that manual updates can be performed on the system and there could be gaps between Git and the Kubernetes cluster.

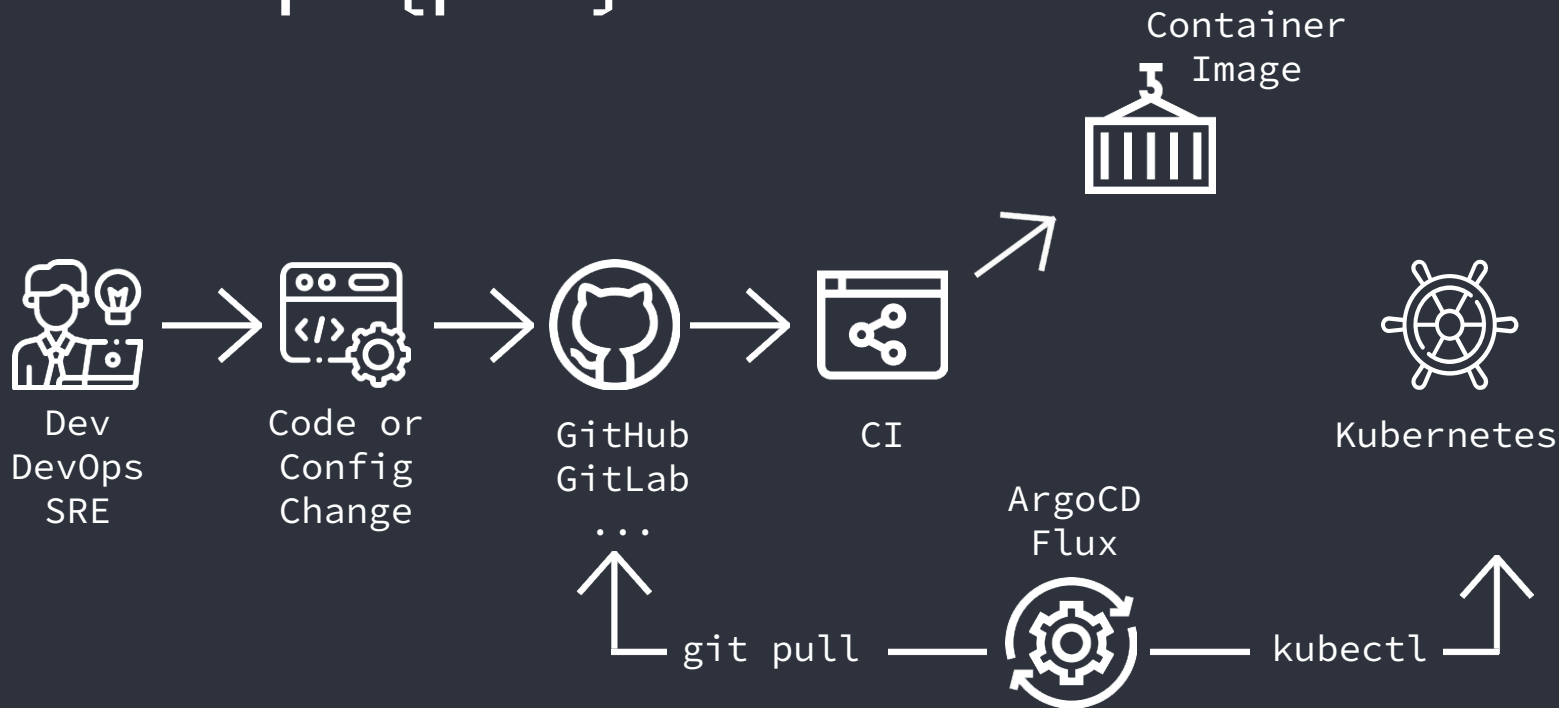
DevEx

Developers need to understand the problems with the deployments scripts and maybe need to fix them. This requires Kubernetes administration knowledge.

</ Real world scenario

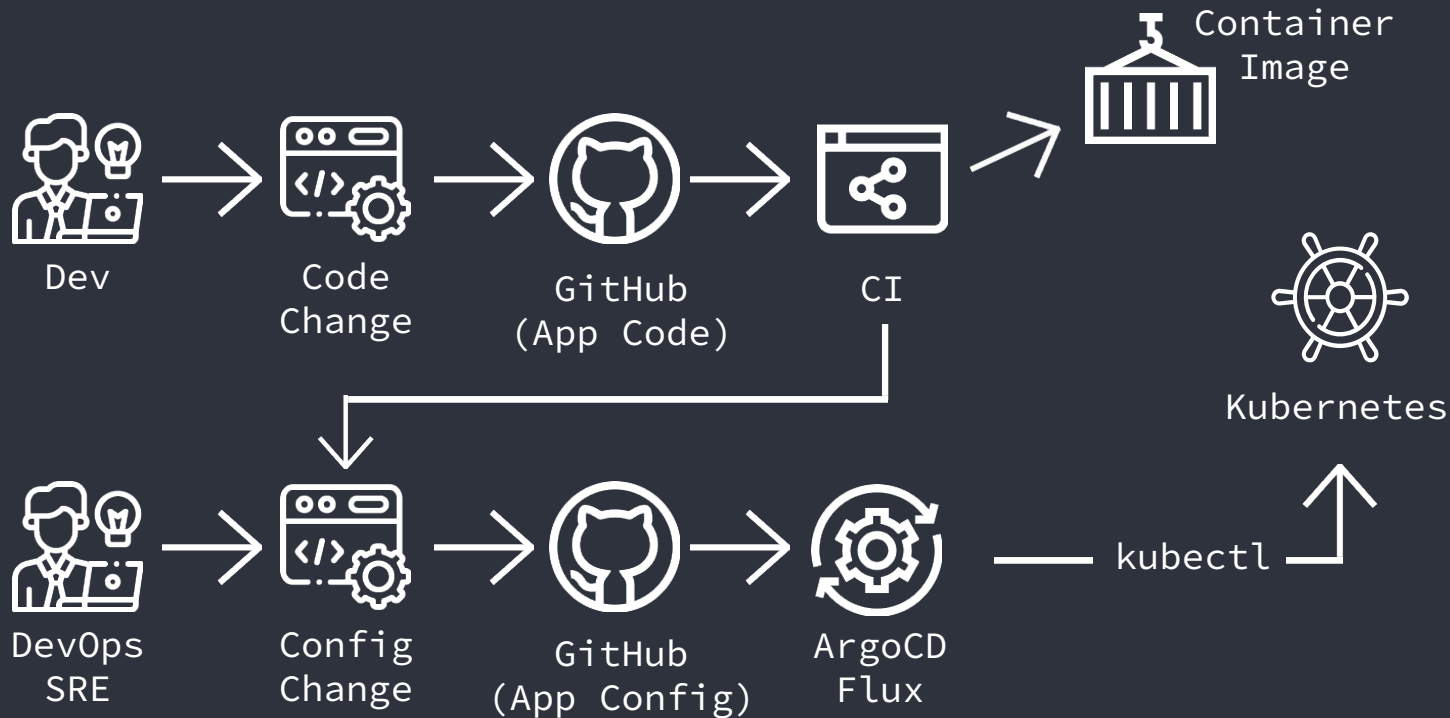


</ GitOps [pull]



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</ Recommended practise



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</ GitOps Principles

Declarative

A system managed by GitOps must have its desired state expressed declaratively.

Versioned and Immutable

Desired state is stored in a way that enforces immutability, versioning and retains a complete version history.

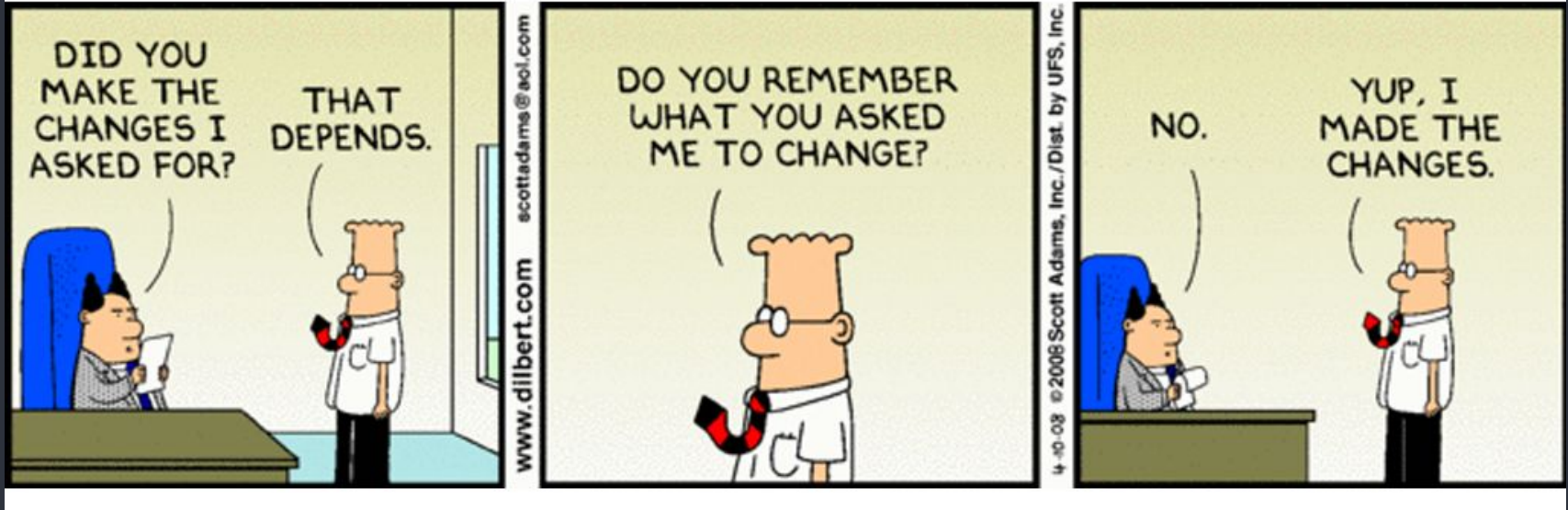
Pulled Automatically

Software agents automatically pull the desired state declarations from the source.

Continuously Reconciled

Software agents continuously observe actual system state and attempt to apply the desired state.

</ Single source of truth



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DEMO TIME

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</ Next stop - <https://kcd.istanbul>



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</ Questions?

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