



GitOps Continuous Delivery with Argo and Codefresh

BRANDON PHILLIPS | CODEFRESH

Info slide (not for presentation)

Original Abstract:

GitOps is the gold standard for managing and deploying Kubernetes applications. In this talk, we'll show you how we use raw Kubernetes, in addition to Helm and Terraform to manage our deployments to a wide range of clusters and clouds.

Codefresh operates a global SaaS product in the cloud using Kubernetes. CloudPosse helps companies like PeerStreet, RMS, Sportech, and others migrate to Kubernetes. Between the two of us, we've deployed to every cloud and in almost any kind of situation. We've built an established, well-worn path for using the principles of "GitOps" to take advantage of Kubernetes declarative infrastructure in order to deploy more often, and with more reliability.

In this session, you'll learn the principles of GitOps and how it solves both technology and organizational problems around CI/CD, Kubernetes application drift, and traceability through the engineering process.

New:

GitOps Continuous Delivery with Argo and Codefresh

Description:

Never make a manual change again. In this talk we'll show how to use GitOps to achieve reliable, and fast releases time and time again. Rather than pushing changes, Argo pulls and syncs code changes to a cluster. When combined with Codefresh's CI/CD components we can get something magical.

Brandon Phillips

Solutions Architect

 **codefresh**



Agenda

1. Intro
2. GitOps
3. ArgoCD
4. Demo: Gitops Deployment
5. ArgoCD Rollouts
6. Demo: Canary Deployment

<https://github.com/brandonphillips/express-microservice>

<https://github.com/brandonphillips/gitopsapp>

<https://github.com/brandonphillips/rollout>

Codefresh

Enterprise CI/CD platform for microservices



Container-native



Intuitive & Robust



Enterprise Ready



Flexible Delivery

The screenshot displays the Codefresh web interface. The top navigation bar includes the Codefresh logo, user profile (HHS), and account information (Razid77). The main content area is titled "Pipelines" and shows a list of pipelines with columns for name, duration, success rate, and last execution. Two pipelines are visible: "promote" and "cd". Below the list, a detailed view of the "cd" pipeline is shown, including a "Building Pipeline" section with a progress bar and a "Memory Usage" graph at the bottom. The graph shows memory usage in MB over time, with a peak around 180 MB. The pipeline steps are categorized into "DEFAULT", "BUILD", "FULL REQUEST", "STAGING", and "PRODUCTION".

GitOps Objectives

- **Repeatable** - Apply changes the same way in every environment
 - Even your entire stack all at once!
- **Predictable** - Comprehensive understanding of deployment impact
 - Declarative configuration with a known end state
- **Auditable** - Traceable changes to infrastructure and applications
 - Understand exact state during any prior time period
- **Accessible** - Changes only require a pull request

Practicing GitOps

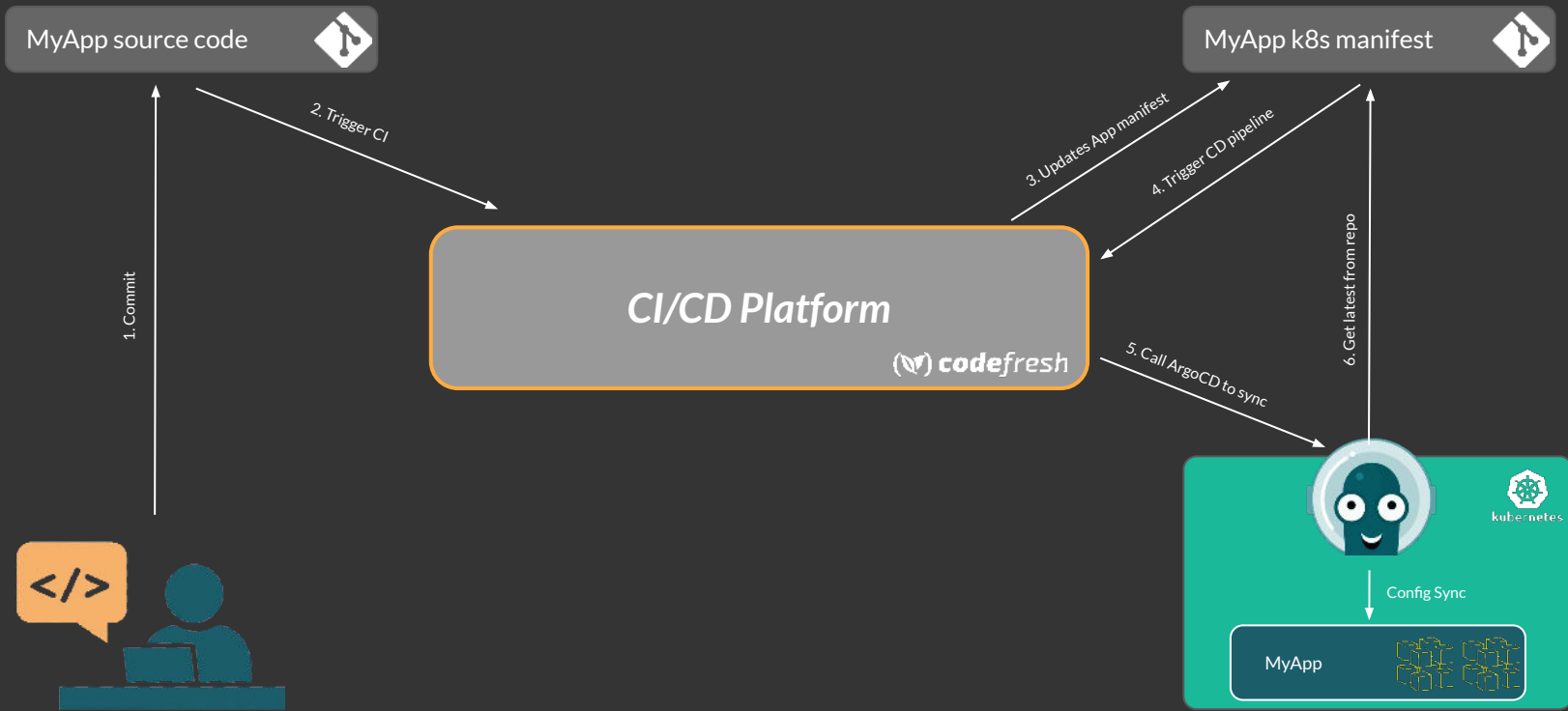
- Git as a system of record for the desired state of configuration
- Pull requests drive all application & infrastructure changes
- Cluster state always matches Git state
 - Tooling should understand and monitor for configuration drift
- Deployments & rollbacks should be painless
- Developers can and should focus on feature development

Argo CD

A declarative GitOps continuous delivery tool for Kubernetes

- **Templating:** Helm, Kustomize, and more
- **Configuration Drift:** Monitors live state against desired state
- **Enterprise Ready:** SSO, multi-cluster, and audit trails
- **Extensibility:** Rich CLI, webhooks, events, and polished web UI



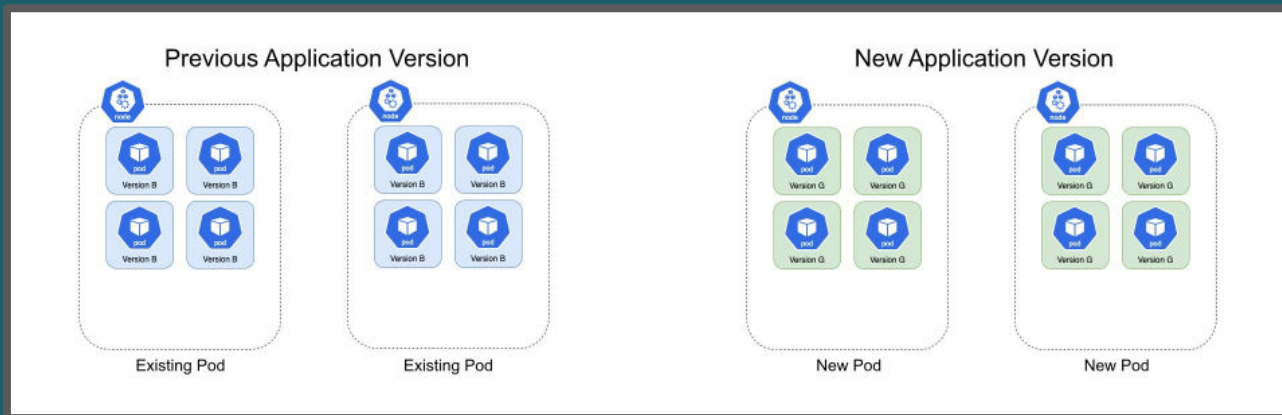


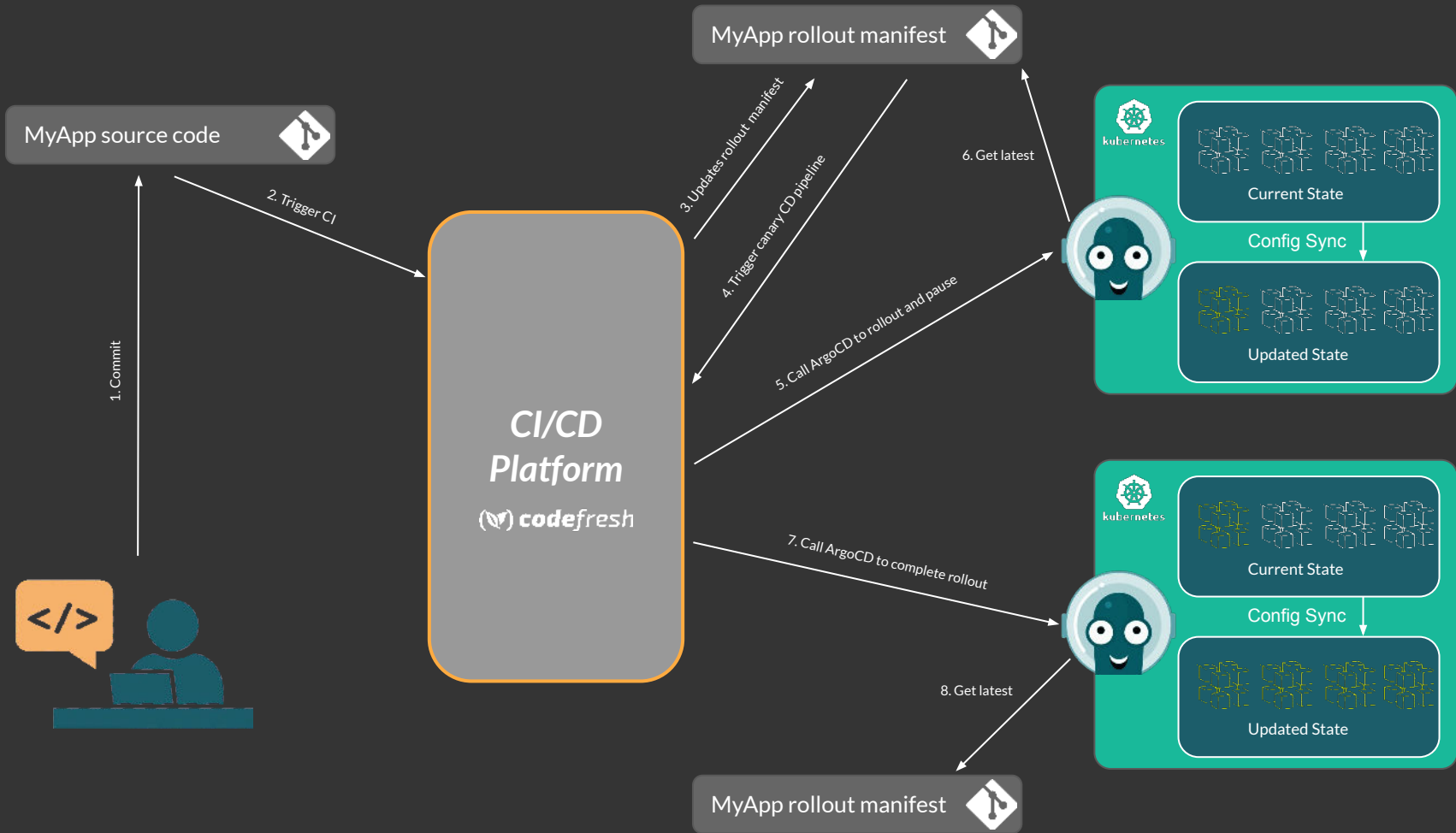
GitOps Demo!

Argo Rollout

Advanced deployment CRD for Blue Green and Canary on K8s

- **Service Meshes:** Istio, Linkerd (SMI), and more
- **Autoscaling:** Anti-affinity and horizontal pod scaling





Canary Demo!

Questions?



**Build Fast,
Deploy Faster**

Signup for a FREE account with
UNLIMITED builds

& schedule a 1:1 with
our experts at

<https://codefresh.io>