SELF-HEALING ROLLOUTS

AUTOMATING PRODUCTION FIXES

WITH GOOGLE GEMINI AND GOOGLE JULES

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Long time OSS contributor at Kubernetes, Jenkins, Apache Maven,…

PROGRESSIVE DELIVERY

Progressive Delivery *is a term that includes deployment strategies that try to avoid the pitfalls of all-or-nothing deployment strategies*

New versions being deployed do not replace existing versions but run in parallel for an amount of time receiving live production traffic, and are evaluated in terms of correctness and performance before the rollout is considered successful.

From 2h ago

08.47 CEST

Crowdstrike identifies issue behind worldwide outage

Josh Taylor

Cybersecurity software firm Crowdstrike has posted in its support updates that it has identified the issue behind today's massive, global Windows outage.

It is an issue with "content deployment" that has since had those changes reverted and has advised a workaround for affected users.

We are still waiting for confirmation or a statement from Crowdstrike's media team. It's almost midnight in the US, so it's not clear when we might get more detail.

+ Show more

6. Template Instances should have staged deployment

Findings: Each Template Instance should be deployed in a staged rollout.

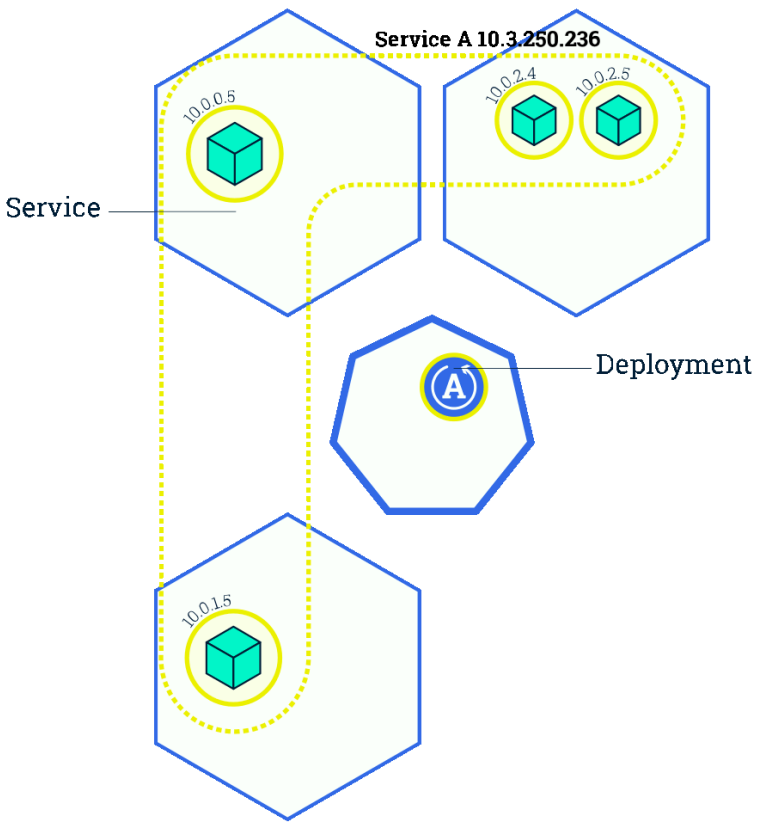
Mitigation: The Content Configuration System has been updated with additional deployment layers and acceptance checks

Staged deployment mitigates impact if a new Template Instance causes failures such as system crashes, false-positive detection volume spikes or performance issues. New Template Instances that have passed canary testing are to be successively promoted to wider deployment rings or rolled back if problems are detected. Each ring is designed to identify and mitigate potential issues before wider deployment. Promoting a Template Instance to the next successive ring is followed by additional bake-in time, where telemetry is gathered to determine the overall impact of the Template Instance on the endpoint.

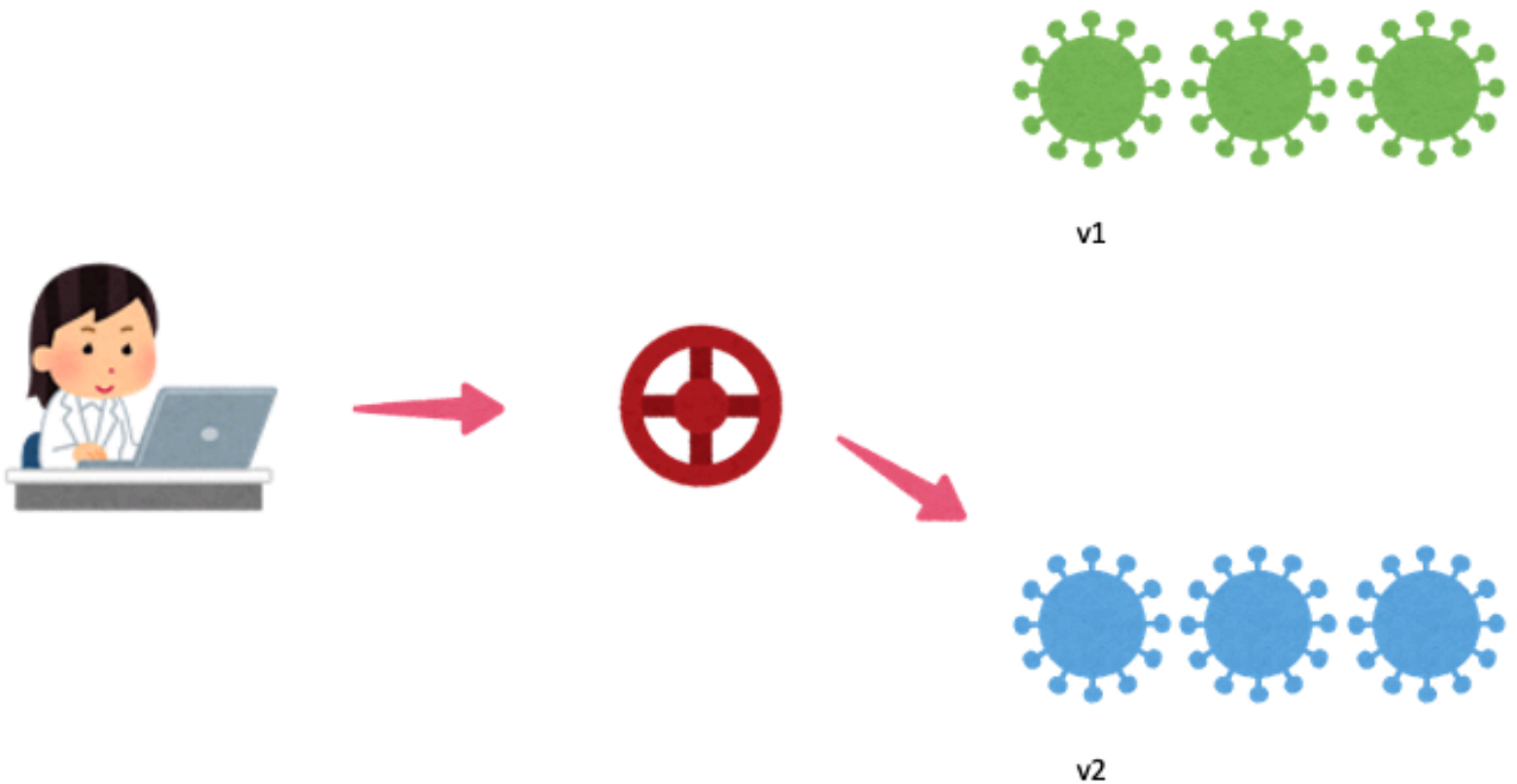
- Avoiding downtime
- Limit the blast radius
- Shorter time from idea to production

PROGRESSIVE DELIVERY TECHNIQUES

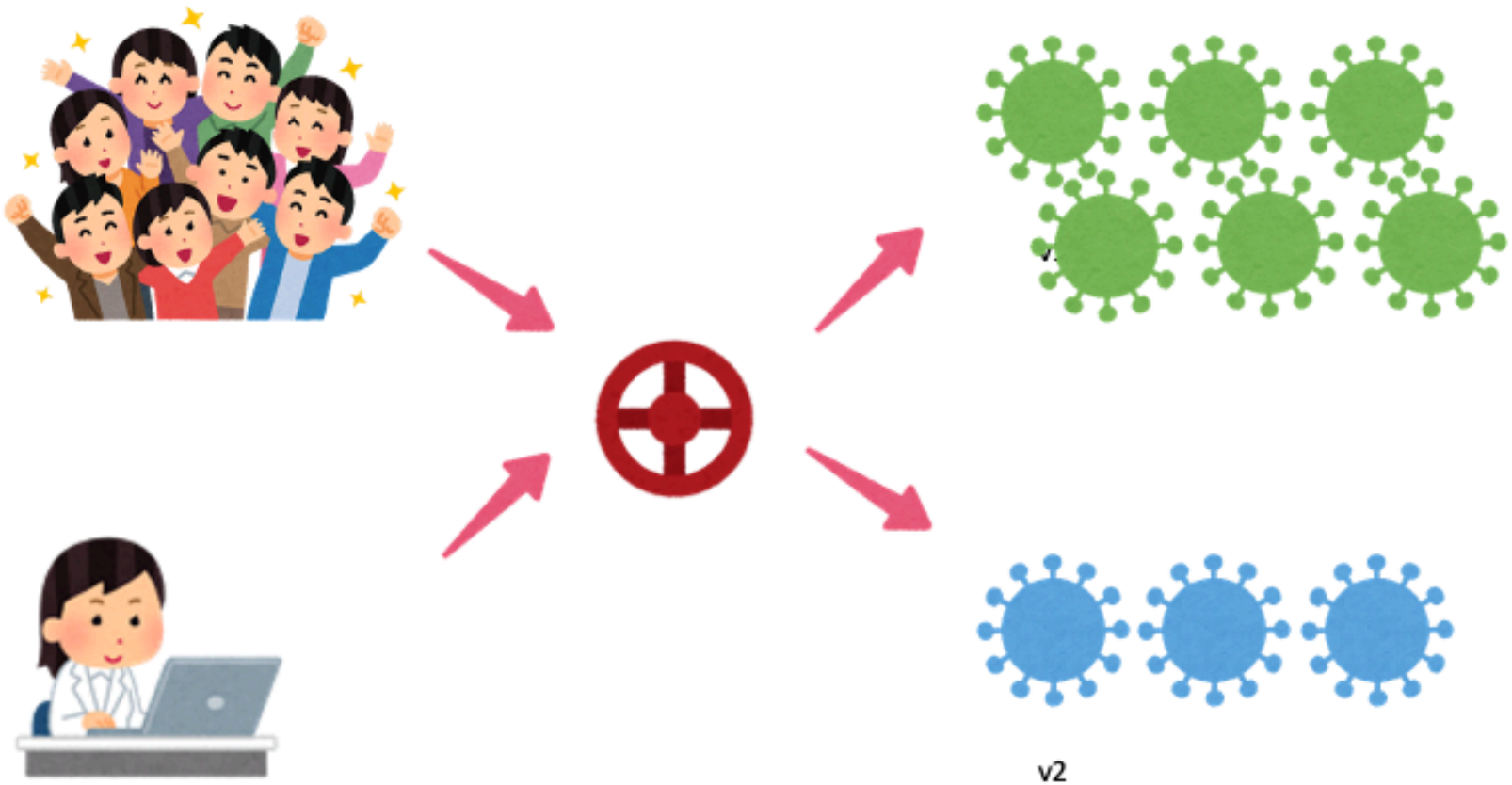
ROLLING UPDATES



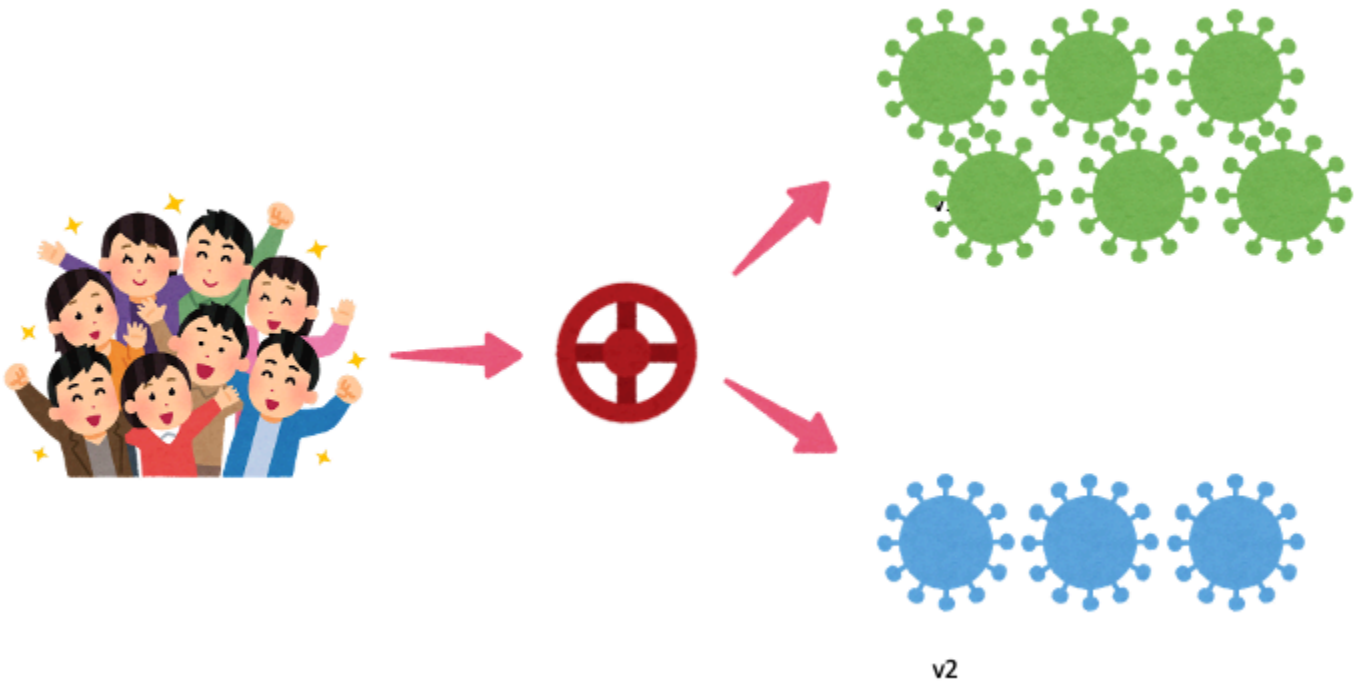
BLUE-GREEN DEPLOYMENT



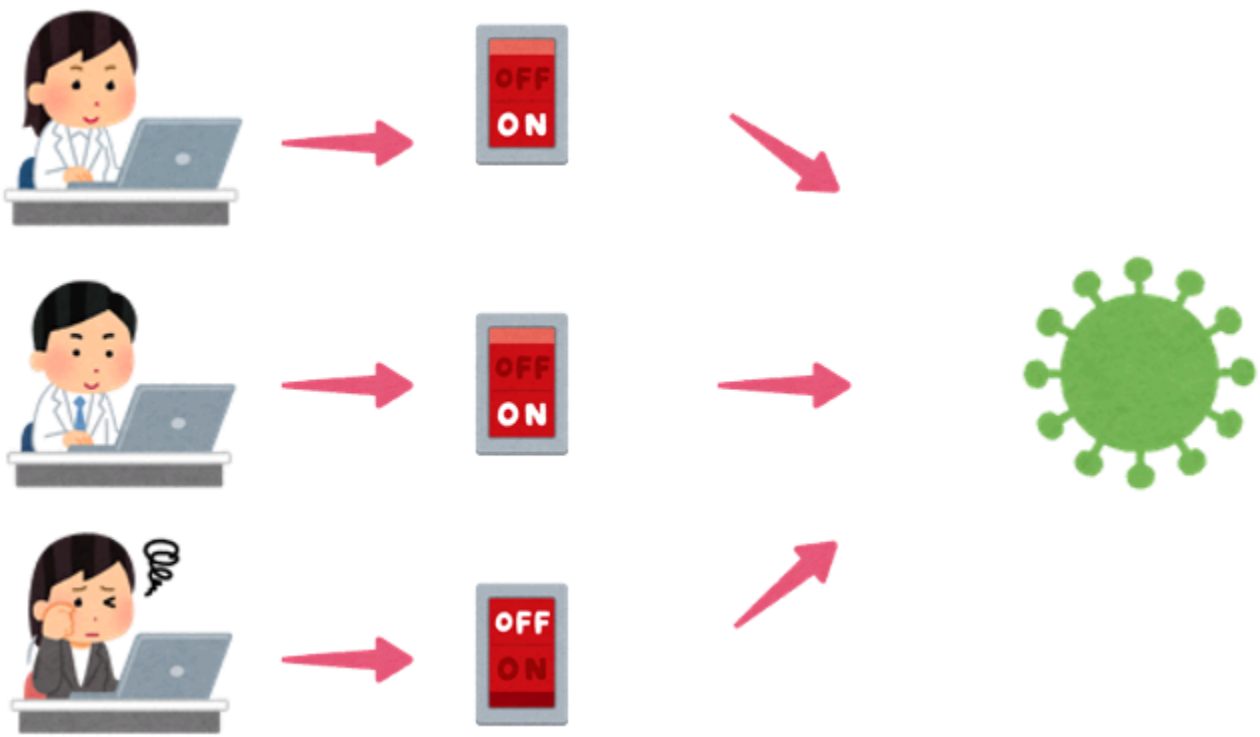
CANARY DEPLOYMENT



DARK LAUNCHING



FEATURE FLAGS



MONITORING IS THE NEW TESTING

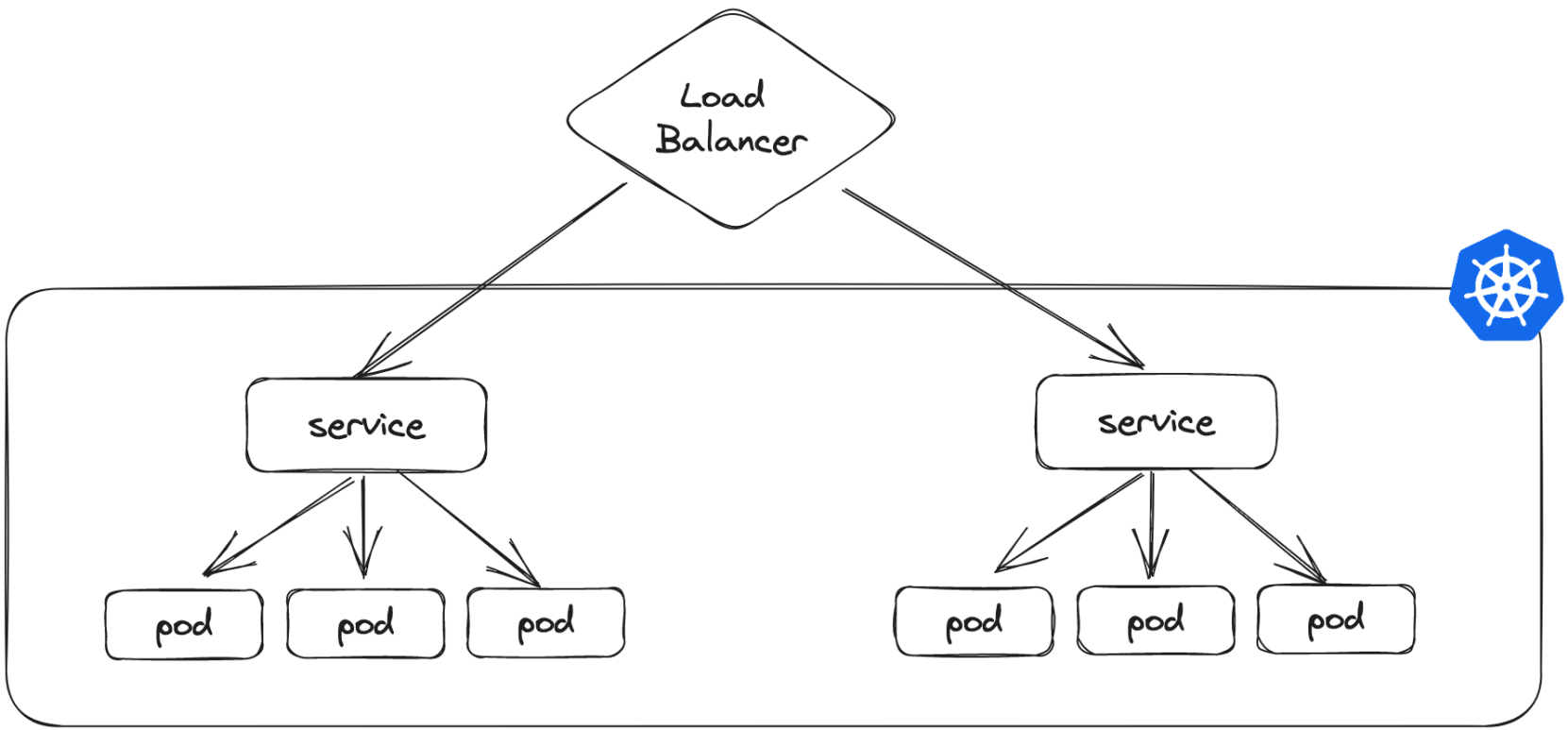
Know when users are experiencing issues **in production**

React to the issues **automatically**

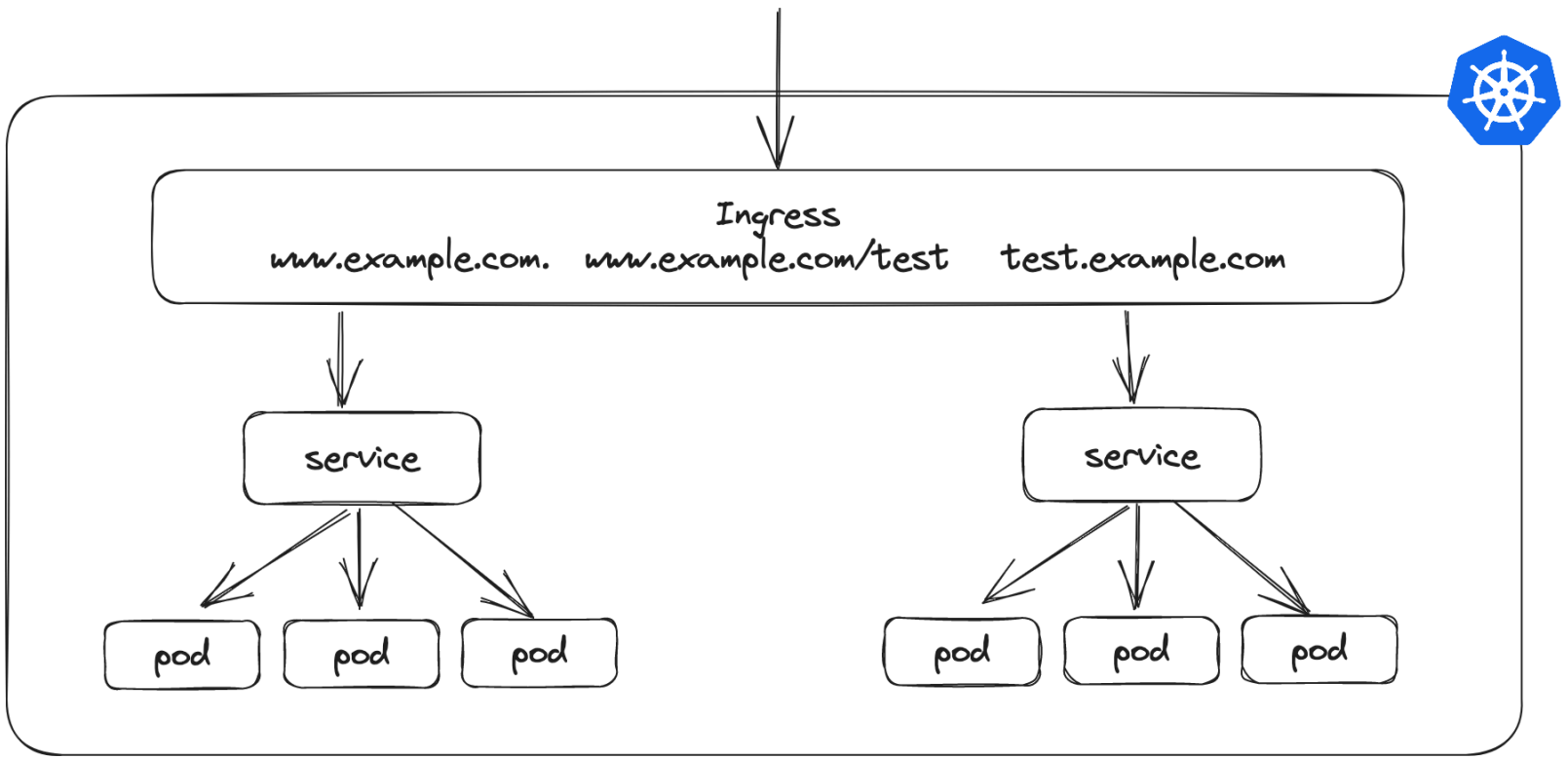
If you haven't automatically destroyed something by mistake, you are not automating enough

PROGRESSIVE DELIVERY IN KUBERNETES

KUBERNETES SERVICE ARCHITECTURE



KUBERNETES INGRESS ARCHITECTURE



KUBERNETES INGRESS

Ingress controllers:

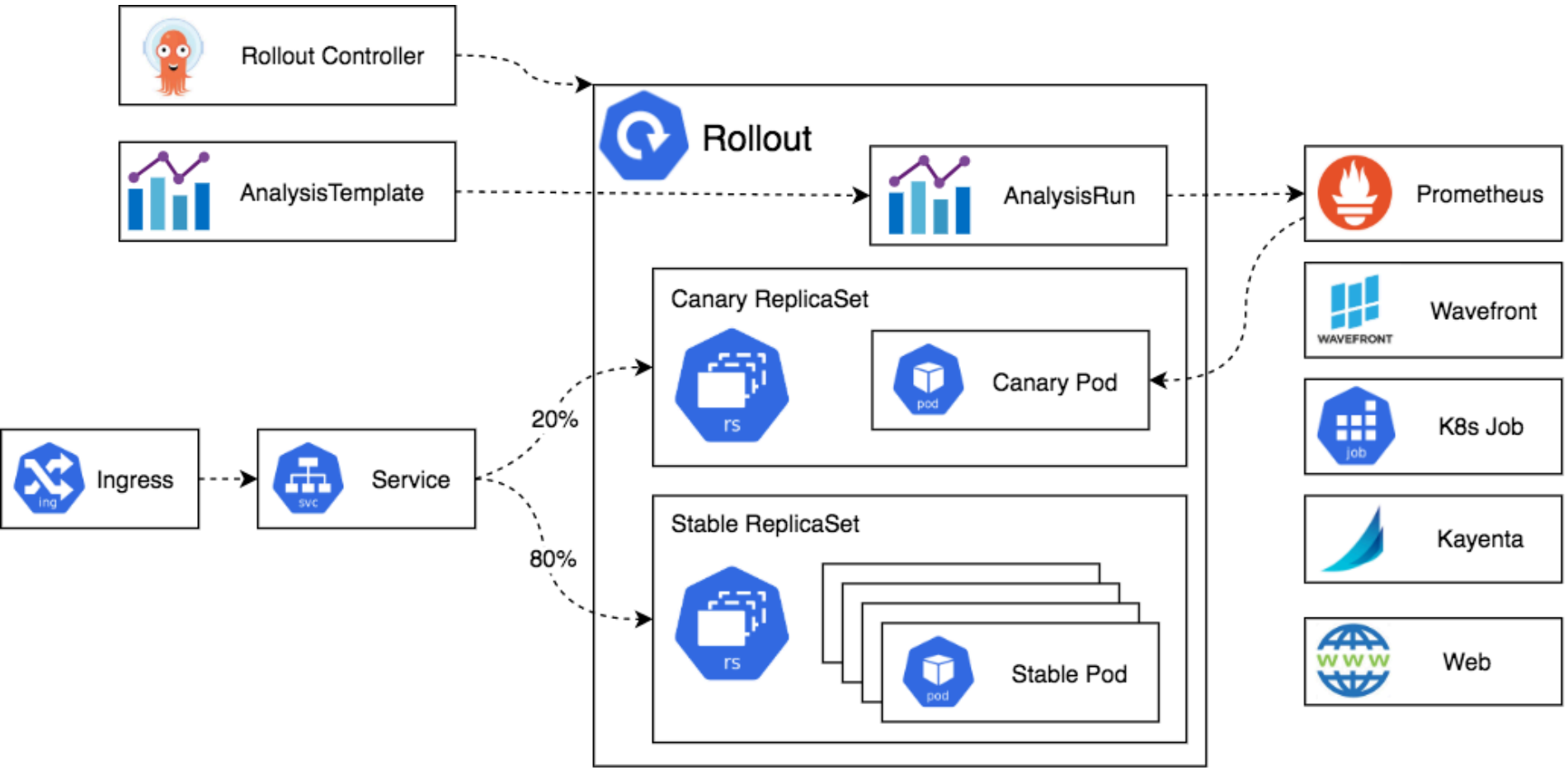
- AWS
- GCE
- nginx
- Ambassador
- Istio Ingress
- Traefik
- HAProxy
- ...

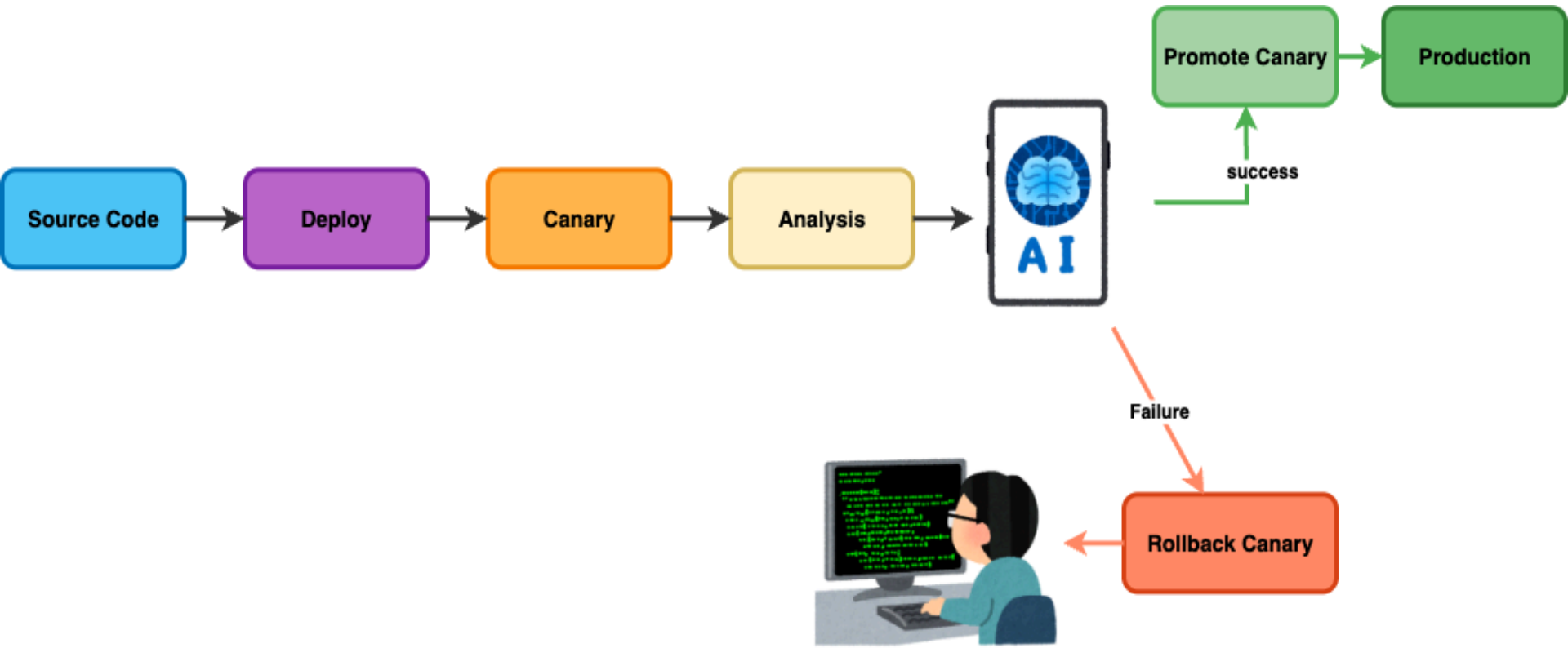
ARGO ROLLOUTS

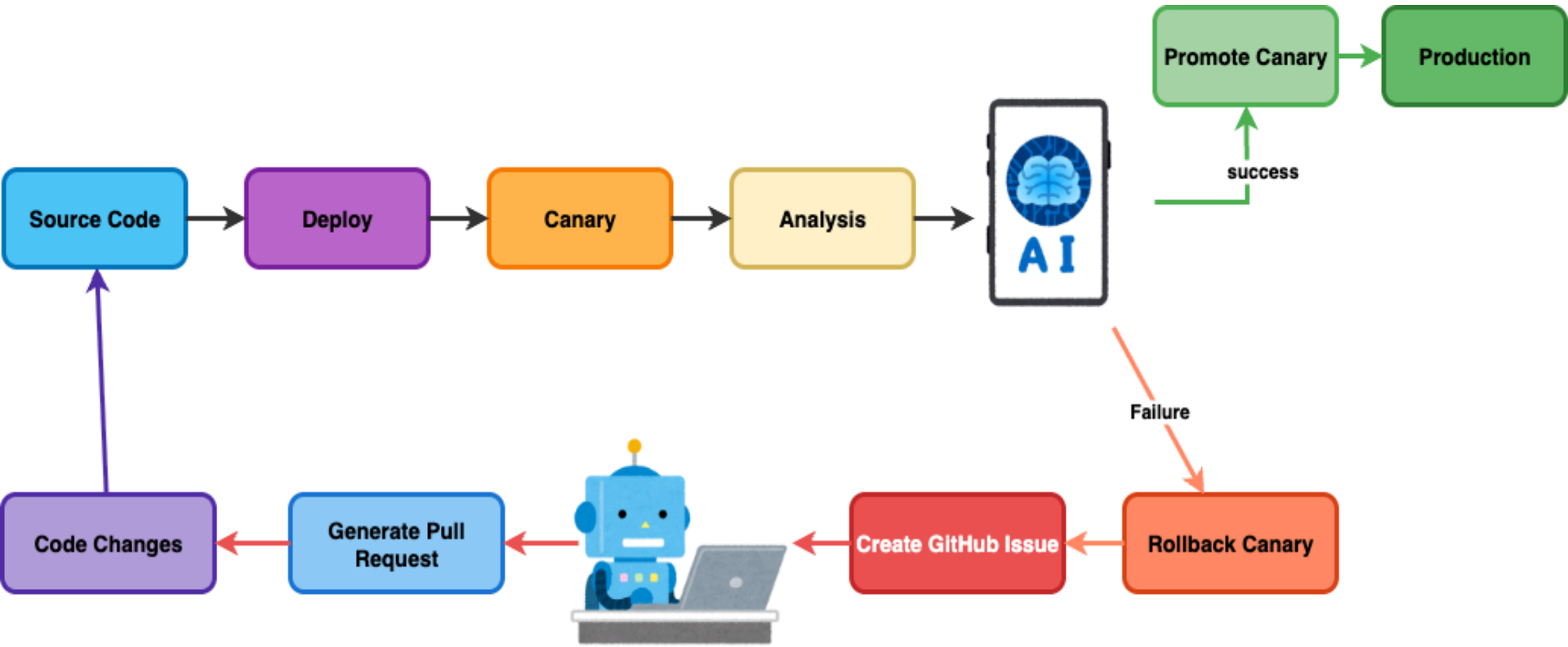
ARGO ROLLOUTS

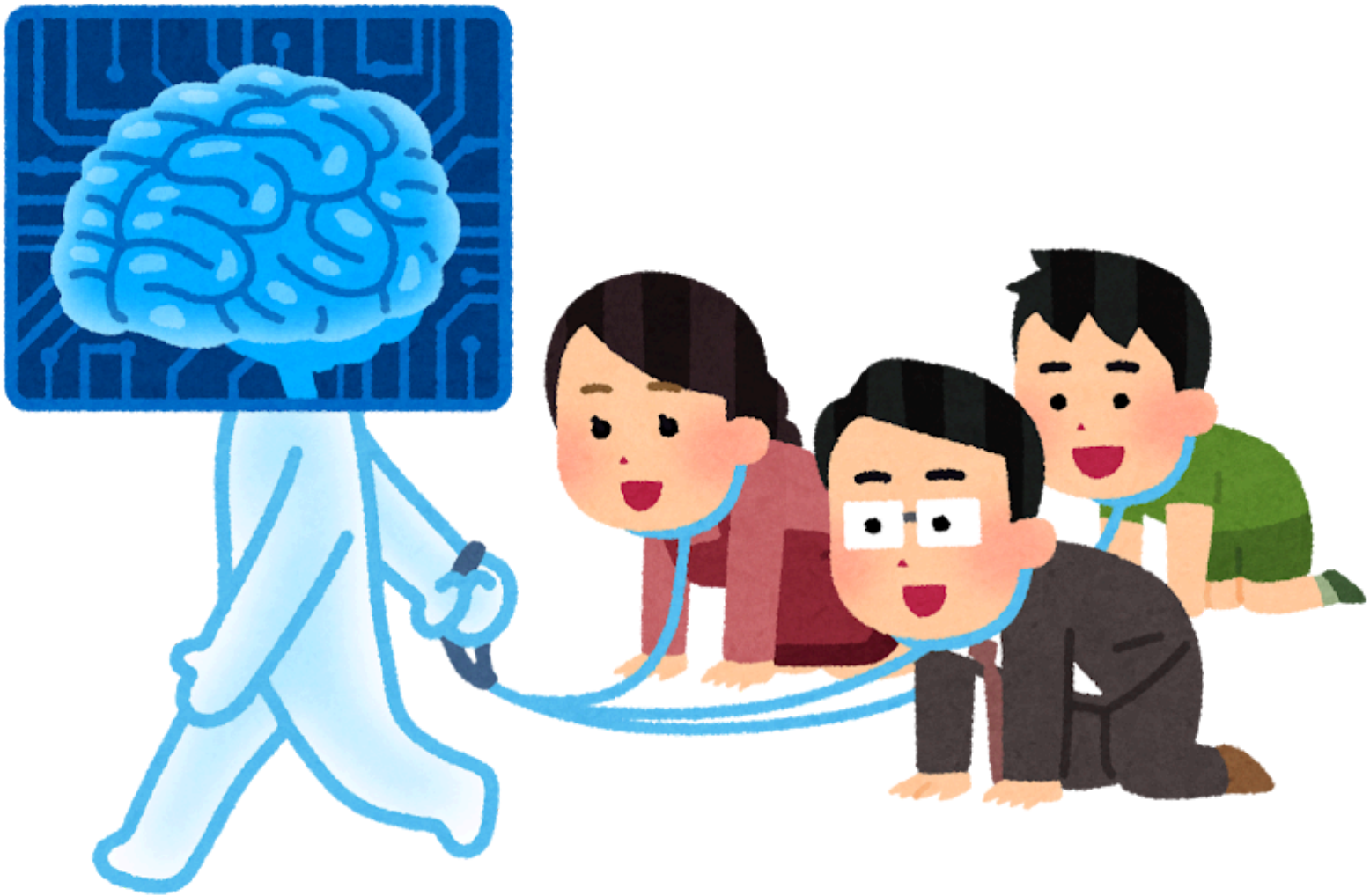
provides advanced deployment capabilities such as blue-green, canary, canary analysis, experimentation, and progressive delivery features to Kubernetes.

ARGO ROLLOUTS




Source Code
Deploy
Canary
Analysis
AI
Promote Canary
Production
success
Failure
Rollback Canary


Source Code
Deploy
Canary
Analysis
AI
Promote Canary
Production
success
Failure
Rollback Canary
Create GitHub Issue
Generate Pull Request
Code Changes



Rolling out changes to all users at once is risky

Canary rollouts and feature flags are safer

AI Agents can automate the loop fixing the failures

argoproj.github.io/rollouts

github.com/argoproj-labs/rollouts-plugin-metric-ai

github.com/carlossg/rollouts-demo

csanchez.org / csanchez / carlossg

Adobe