KENZAN

Digital Consulting + Software Engineering

Zero-to-Canary with Spinnaker
Part IV: Canary Releases in the Enterprise

Transforming businesses that use technology
into technology organizations that do business.

Agenda

What is Canary?

Why is Automated Canary Analysis Difficult?

Canary Deployments w/ Spinnaker

What is Canary?

Canary is a software release pattern.

Release with Confidence

To perform a *canary release* is to introduce a production change with a minimal amount of risk. This is often performed by exposing the new change to a small slice of the production environment (often a percentage of user traffic).

Canary is not Blue/Green

Blue/green refers to complete stack transitions while canary is gradual introduction.

Canary is not A/B

A/B testing are about experiments between two alternatives and results may never yield a move forward. Canary is about moving forward.

Automated Canary Analysis (ACA)

Today canary processes are manual, but ACA is public although it needs robust instrumentation to function.

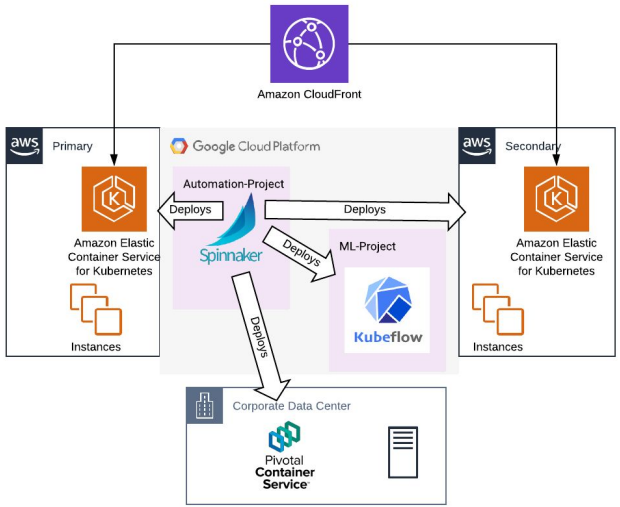
Canary do not Replace Quality Tests

But they most definitely expose the quality of your tests!

Why is Automated Canary so Difficult?

We need proper Observability to enable Automated Canary Analysis

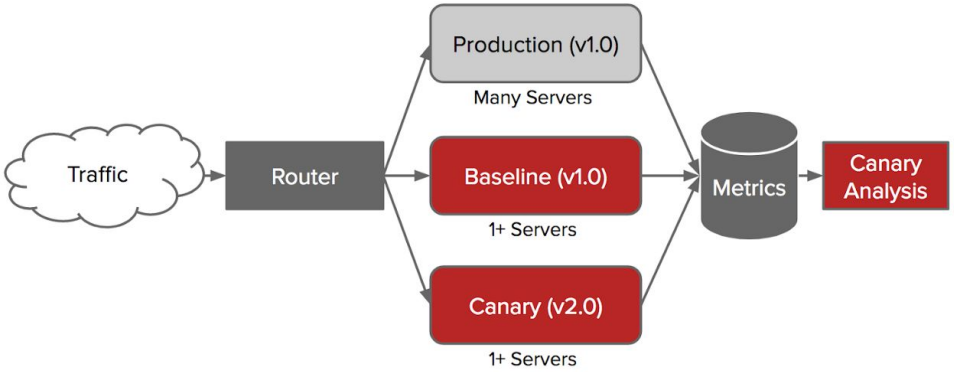
- Proper instrumentation can be non-trivial
  - Prometheus hierarchical Federation in an HADR set-up
    - Which Prometheus api endpoint? Impacts of Downsampling?
  - Use DataDog or Signal FX or StackDriver
    - How much does that cost?
- Did you Instrument the correct thing(s)?
  - Example App Stack:
    - Frequently changing stateless UX in AWS
    - Machine Learning System in GCP
    - Infrequent changing stateful backend composed of cloud native and legacy
  - Example Update
    - A canary release in the stateless cloud may succeed. However, the change may cause a problem in the stateless backend that is not instrumented



Instrumentation refers to what you use to gather measurements

Canary Deployments w/ Spinnaker

- Canary capabilities have deep Integration with Spinnaker
- **Kayenta** is a purpose built microservice within Spinnaker
- Kayenta performs the metric collection and performs the Judgement
- Metric stores include StackDriver, Prometheus, SignalFx, Datadog



Community Collaboration

This Canary capability provided via efforts of people at Netflix and Google

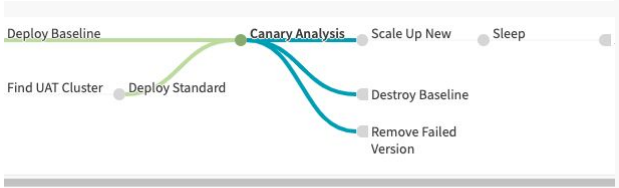
For Kubernetes, traffic management with Spinnaker is being improved

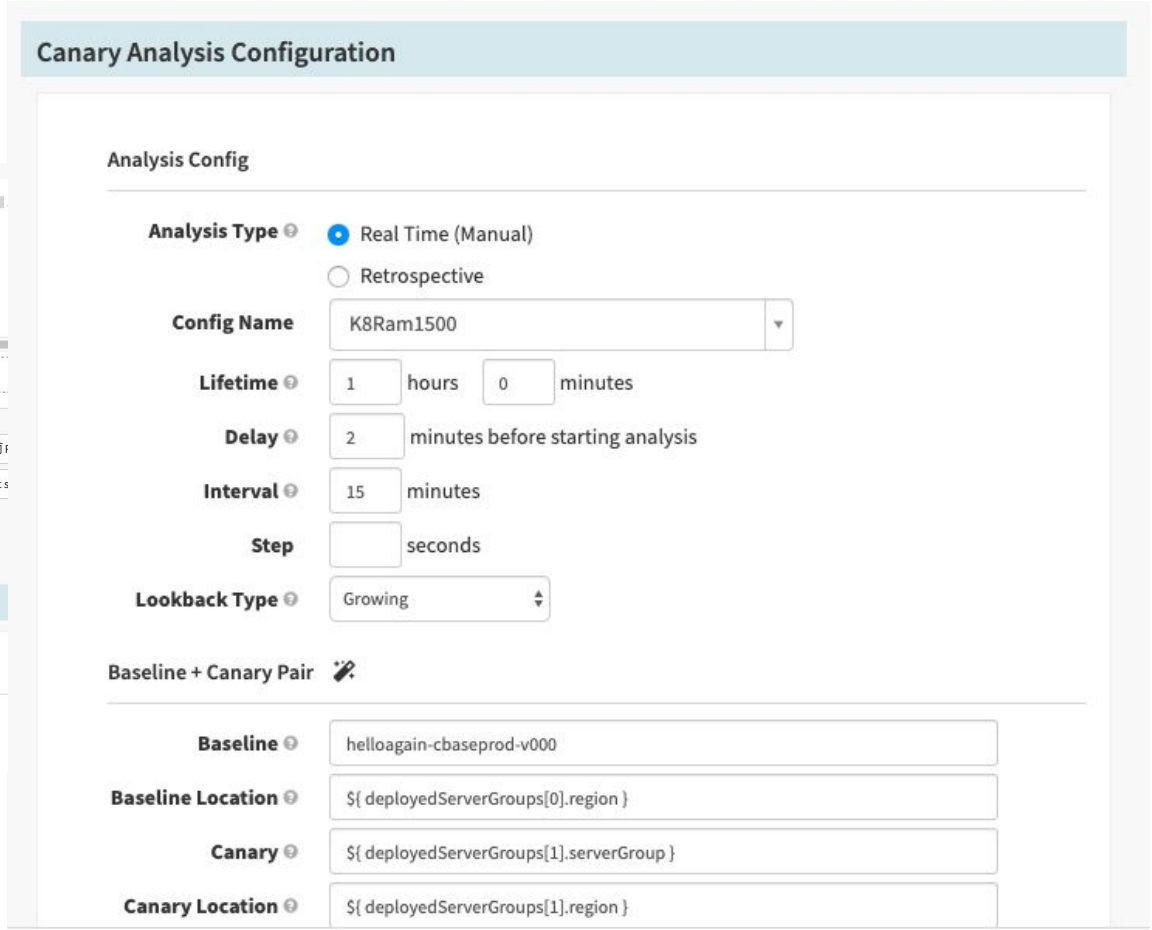
For More information

https://medium.com/netflix-techblog/automated-canary-analysis-at-netflix-with-kayenta-3260bc7acc69

Canary Deployments w/ Spinnaker

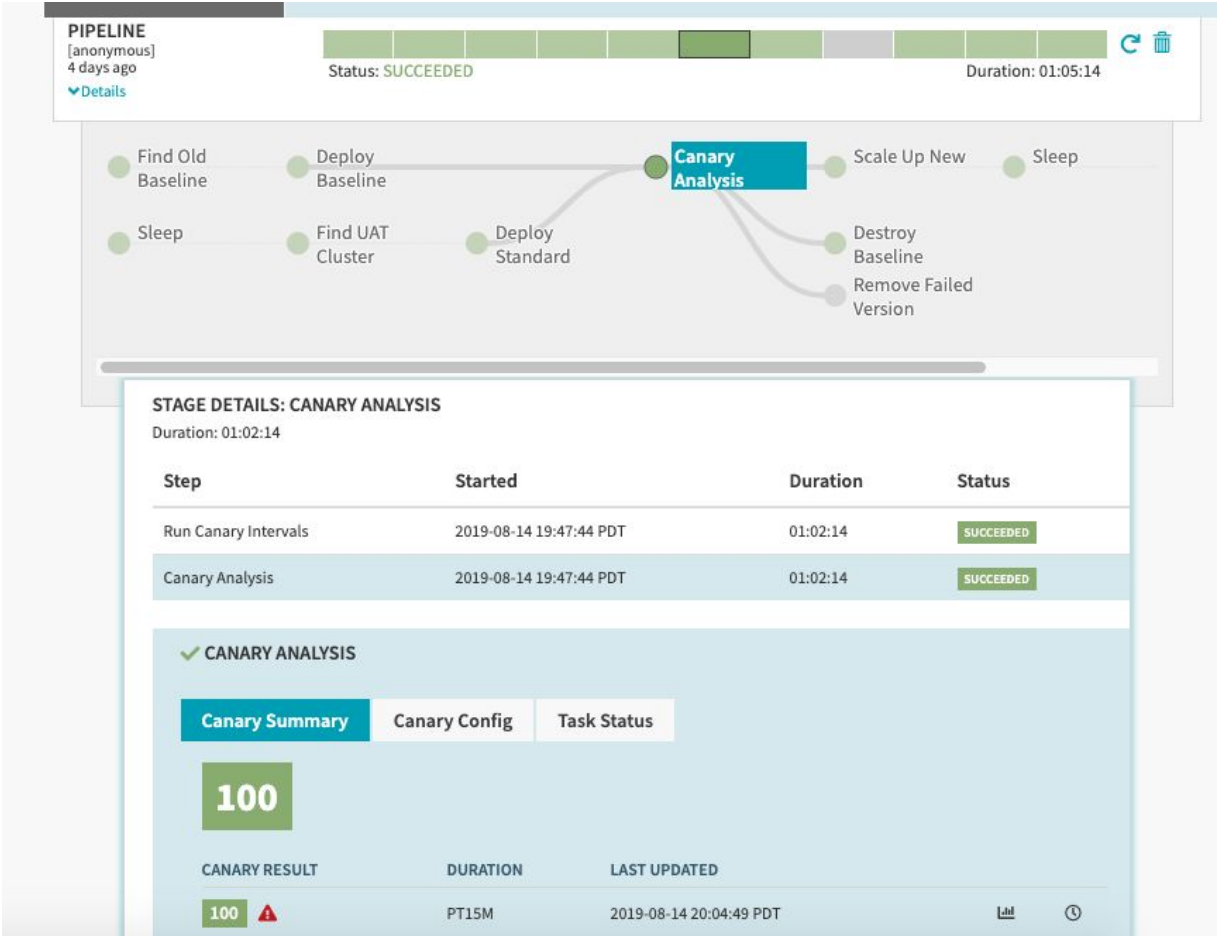
Canary Analysis Configuration





Canary Deployments w/ Spinnaker

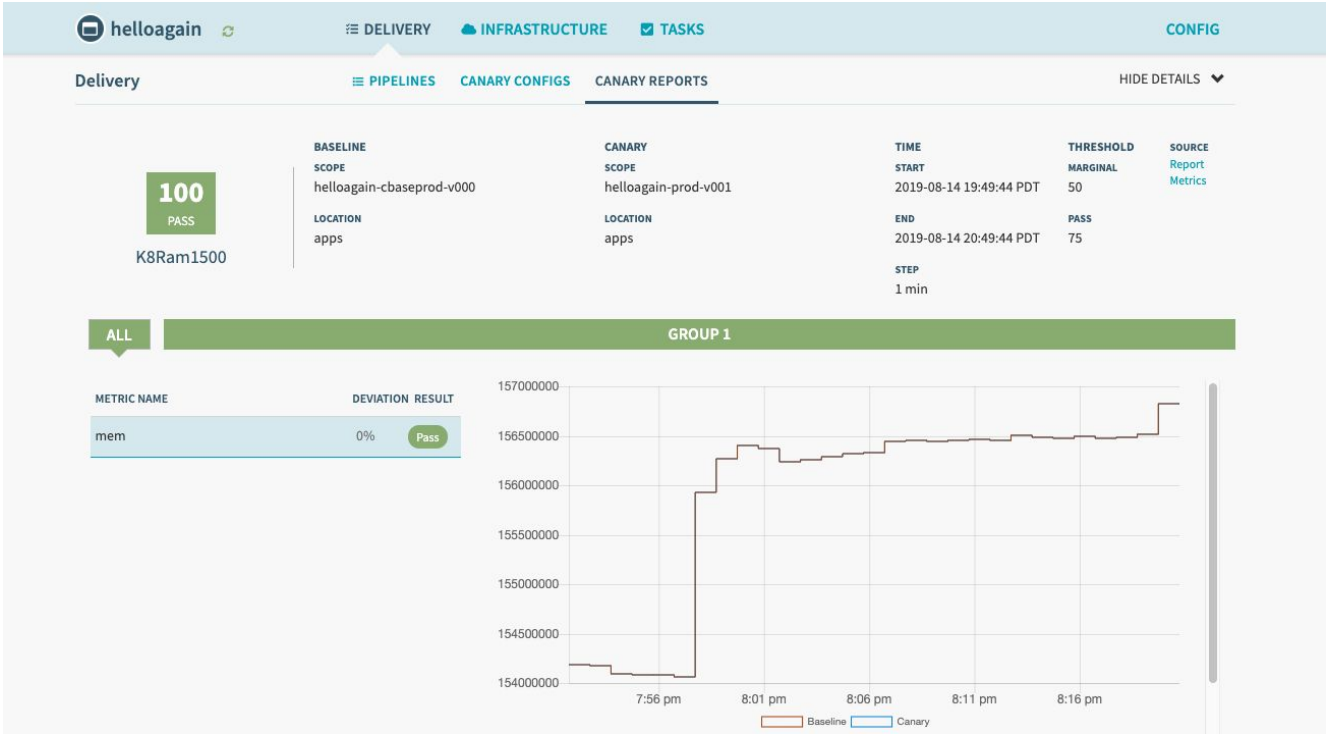
Canary Pipeline Analysis



Canary Deployments w/ Spinnaker

Multiple reports available after you run your pipelines.

Canary Reports



Time to Play!

Canary Lesson in GitHub