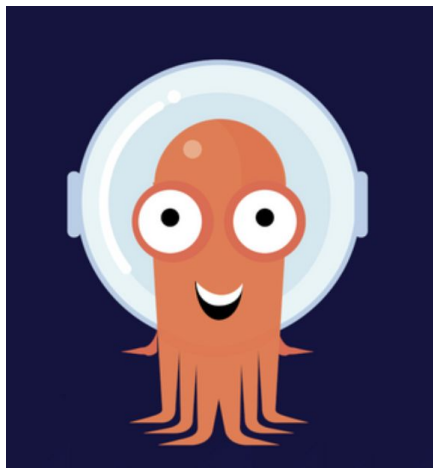




Canary Deployment with Analysis using

Argo Rollouts



- **Ninad Desai (Sr. Site Reliability Engineer)**
@InfraCloud(We're hiring!)



Argo Rollouts with Analysis

- ❖ Argo Rollouts provides several ways to perform analysis to drive progressive delivery.
 - Background Analysis
 - Inline Analysis
 - BlueGreen Pre Promotion Analysis
 - BlueGreen Post Promotion Analysis

- ❖ Purpose is to decide if to rollout or rollback and in what scenario to do the same



Canary - Background Analysis

- ❖ Analysis is performed in the background, while the rollout is progressing through its steps
- ❖ Started at the beginning of an update, and stopped when the new version is fully promoted

```
apiVersion: argoproj.io/v1alpha1
kind: Rollout
metadata:
  name: guestbook
spec:
  ...
  strategy:
    canary:
      analysis:
        templates:
          - templateName: success-rate
            startingStep: 2 # delay starting analysis run until setWeight: 40%
            args:
              - name: service-name
                value: guestbook-svc.default.svc.cluster.local
        steps:
          - setWeight: 20
          - pause: {duration: 10m}
          - setWeight: 40
          - pause: {duration: 10m}
          - setWeight: 60
          - pause: {duration: 10m}
          - setWeight: 80
          - pause: {duration: 10m}
```



Canary - Inline Analysis

- ❖ Analysis can also be performed “inline,” as a blocking step in the rollout
- ❖ Suitable for more heavyweight analysis where recurrence may not be desired (e.g. benchmarking, load/stress testing, integration tests)

```
apiVersion: argoproj.io/v1alpha1
kind: Rollout
metadata:
  name: guestbook
spec:
  ...
  strategy:
    canary:
      steps:
        - setWeight: 20
        - pause: {duration: 5m}
        - analysis:
            templates:
              - templateName: success-rate
            args:
              - name: service-name
                value: guestbook-svc.default.svc.cluster.local
```



BlueGreen - Pre/Post Promotion Analysis

- ❖ prePromotionAnalysis runs *before* active service cutover (e.g. for testing the preview stack)
- ❖ postPromotionAnalysis runs *after* active service cutover (e.g. verifying everything is still okay after serving production traffic)

```
apiVersion: argoproj.io/v1alpha1
kind: Rollout
metadata:
  name: guestbook
spec:
  ...
  strategy:
    blueGreen:
      activeService: active-svc
      previewService: preview-svc
      prePromotionAnalysis:
        templates:
          - templateName: smoke-tests
            args:
              - name: service-name
                value: preview-svc.default.svc.cluster.local
        #####
      scaleDownDelaySeconds: 600 # 10 minutes
      postPromotionAnalysis:
        templates:
          - templateName: smoke-tests
            args:
              - name: service-name
                value: preview-svc.default.svc.cluster.local
```



Rollout Spec - Analysis Template

Kubernetes job AnalysisTemplate

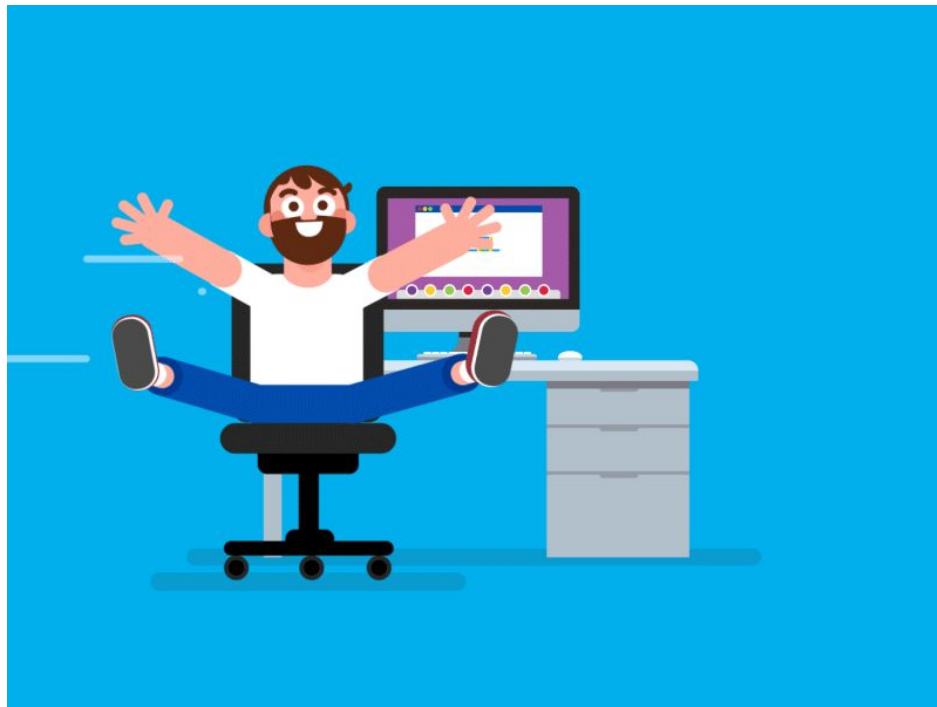
```
kind: AnalysisTemplate
apiVersion: argoproj.io/v1alpha1
metadata:
  name: canary-check
spec:
  metrics:
  - name: test
    provider:
      job:
        spec:
          backoffLimit: 1
          template:
            spec:
              containers:
              - name: busybox
                image: busybox
                restartPolicy: Never
```

Prometheus AnalysisTemplate

```
apiVersion: argoproj.io/v1alpha1
kind: AnalysisTemplate
metadata:
  name: success-rate
spec:
  args:
  - name: service-name
  metrics:
  - name: success-rate
    interval: 5m
    # NOTE: prometheus queries return results in the form of a vector.
    # So it is common to access the index 0 of the returned array to obtain the value
    successCondition: result[0] >= 0.95
    failureLimit: 3
    provider:
      prometheus:
        address: http://prometheus.example.com:9090
        query: |
          sum(irate(
            istio_requests_total{reporter="source",destination_service=~"{{args.service-name}}",response_code!="5.*"}[5m]
          )) /
          sum(irate(
            istio_requests_total{reporter="source",destination_service=~"{{args.service-name}}"}[5m]
          ))
```



Hands-On lab for Canary with Analysis strategy





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Thank you!