

# **Rendering Accurate Argo CD Diffs Directly on Pull Requests**



# Problem



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examples/helm/applications/nginx.yaml

@@ -11,7 +11,7 @@ spec:

```
11 11     sources:
12 12     - chart: ingress-nginx
13 13       repoURL: "https://kubernetes.github.io/ingress-nginx"
14 14     - targetRevision: 4.10.0
14 14     + targetRevision: 4.11.1
15 15     helm:
16 16       valuesObject:
17 17       controller:
```

examples/helm/applications/nginx.yaml

@@ -2

```
23 23     {{- if and .Values.ingress.className (semverCompare ">=1.18-0"
24 24     {{- end }}
25 25     spec:
26 26     + {{- if and .Values.ingress.className (semverCompare ">=1.18-0"
27 27     + .Capabilities.KubeVersion.GitVersion) }}
28 28     + ingressClassName: {{ .Values.ingress.className }}
29 29     + {{- end }}
30 30     {{- if .Values.ingress.tls }}
31 31     tls:
32 32     {{- range .Values.ingress.tls }}
```

apps/backend/env/staging/kustomization.yaml

@@ -13,11 +13,11 @@ patchesStrategicMerge:

```
13 13
14 14     patches:
15 15     - patch: |-
16 16         - op: replace
17 17         path: /spec/rules/0/host
16 16     + - op: remove
17 17     + path: /spec/rules/1
18 18         value: backend.staging.double.dev
19 19     - op: replace
20 20     path: /spec/rules/1/host
20 20     + path: /spec/rules/0/host
21 21         value: staging.double.app
22 22     target:
23 23     kind: Ingress
```

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What Changed?

examples/helm/applications/nginx.yaml

@@ -11,7 +11,7 @@ spec:

11 11 sources:

12 12 - chart: ingress-nginx

13 13 repoURL: "https://kubernetes.gi

14

15

16

17

examples/helm/applications/nginx.yaml

@@ -2

23 23 {

24 24 {{- end }}

25 25 spec:

26 + {{- if and .Values.ingress.className (semverCompare ">=1.18-0"

27 + ingressClassName: {{ .Values.ingress.className }}

28 + {{- end }}

26 29 {{- if .Values.ingress.tls }}

27 30 tls:

28 31 {{- range .Values.ingress.tls }}

17 - path: /spec/rules/0/host

16 + - op: remove

17 + path: /spec/rules/1

18 18 value: backend.staging.double.dev

19 19 - op: replace

20 - path: /spec/rules/1/host

20 + path: /spec/rules/0/host

21 21 value: staging.double.app

22 22 target:

23 23 kind: Ingress

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We want a  
preview!

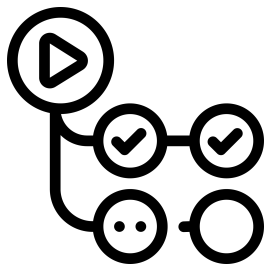


# terraform plan

Terraform will perform the following actions:

```
# module.kubernetes_cluster.kubernetes_cluster.example
+ resource "kubernetes_cluster" "example" {
  + id                = (known after apply)
  + name              = "example-cluster"
  + location          = "us-central1"
  + initial_node_count = 3
  + min_master_version = "1.24"
  + network            = "default"
  + node_config {
    + disk_size_gb = 100
    + machine_type = "n1-standard-2"
    + oauth_scopes = ["https://www.googleapis.com/auth/cloud-platform"]
  }
}
```

Plan: 1 to add, 0 to change, 0 to destroy.



[github.com/quizlet/  
argocd-diff-action](https://github.com/quizlet/argocd-diff-action)

★ 33

kubecheck✓s

[github.com/zapier/  
kubechecks](https://github.com/zapier/kubechecks)

★ 190

## Security



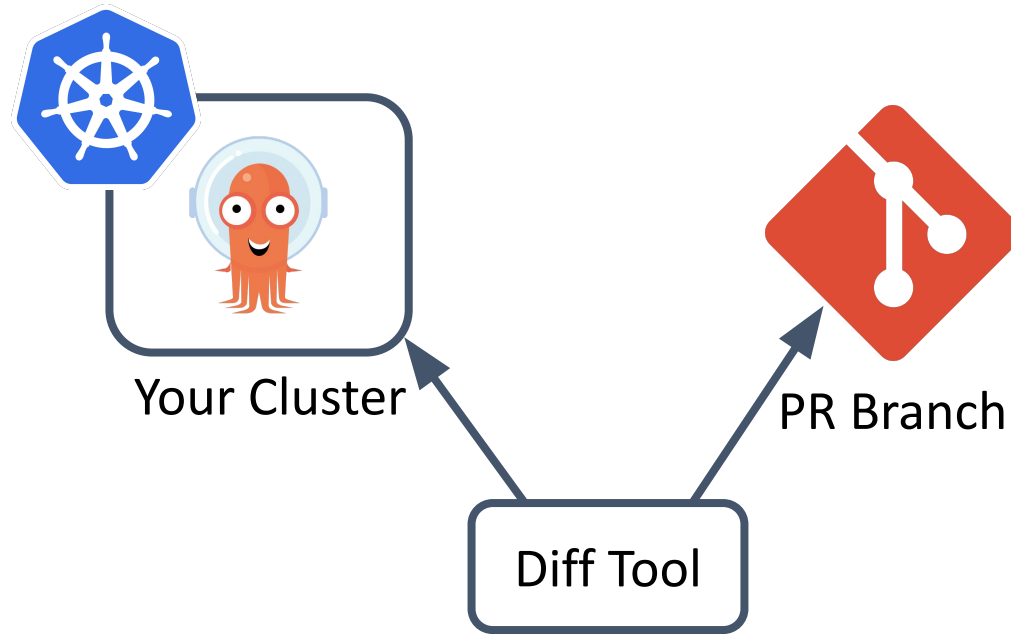
Connects directly to your  
Argo CD instance(s)

## Correctness



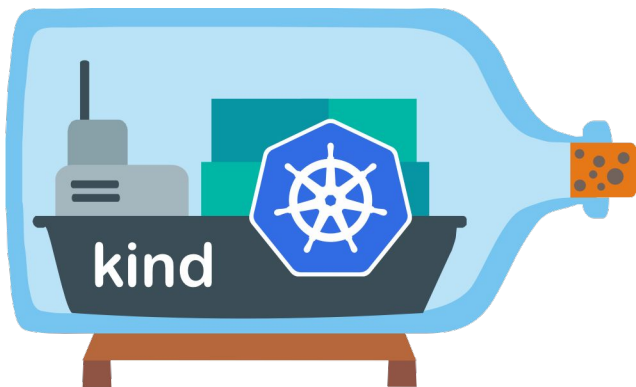
Compares Desired State  
with Live State





# Ephemeral Kubernetes Clusters

# Ephemeral Clusters

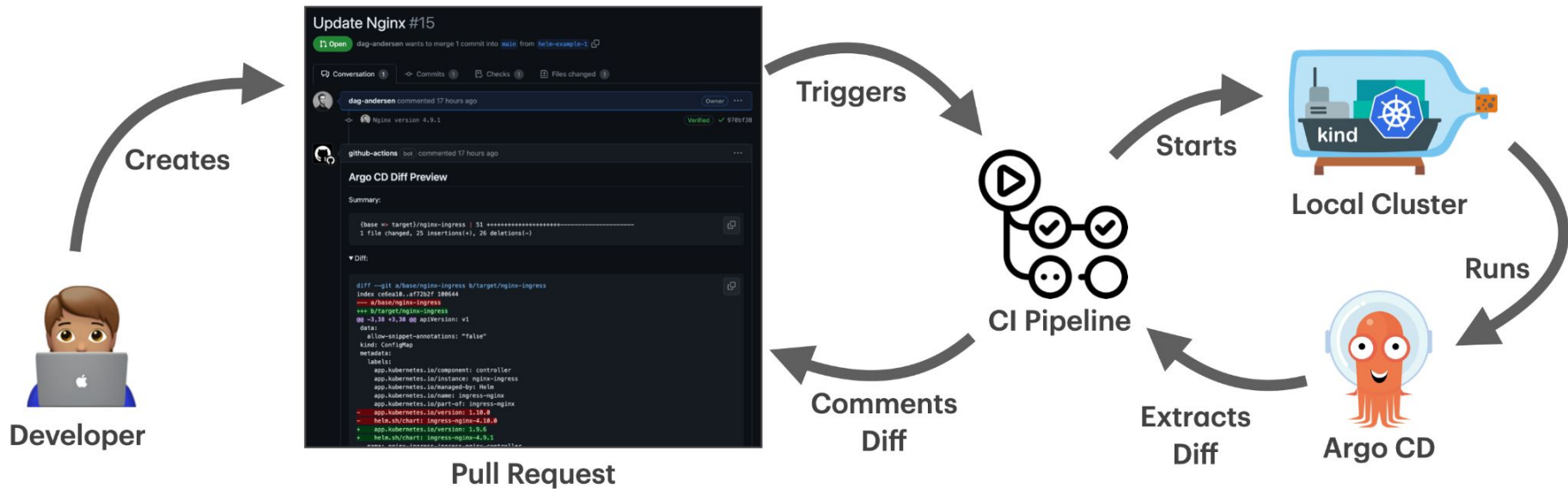


**kind**

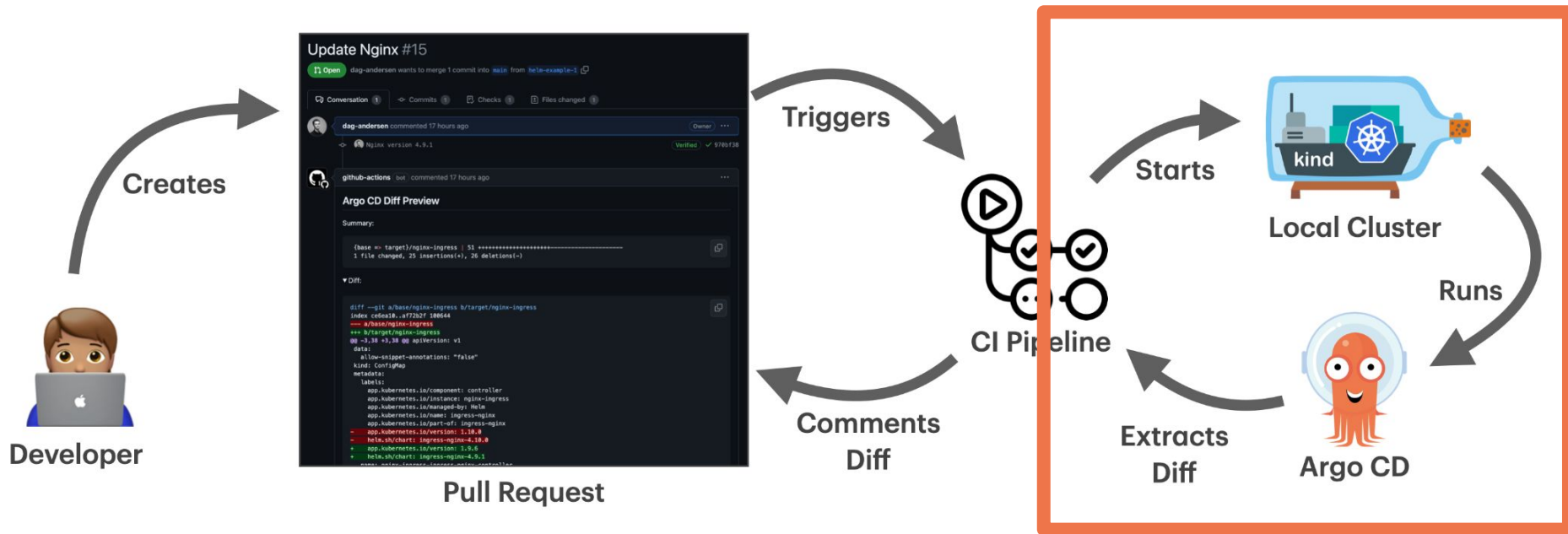


**minikube**

# The Flow



# The Flow





<https://github.com/dag-andersen/argocd-diff-preview>



github-actions bot commented 10 hours ago · edited ▾

...

## Argo CD Diff Preview

Summary:

```
{base-branch => target-branch}/my-service-production.yaml | 2 +-  
{base-branch => target-branch}/my-service-staging.yaml | 2 +-  
2 files changed, 2 insertions(+), 2 deletions(-)
```



▼ Diff:

```
diff --git a/base-branch/my-service-production.yaml b/target-branch/my-service-production.yaml  
index f433969..492189a 100644  
--- a/base-branch/my-service-production.yaml  
+++ b/target-branch/my-service-production.yaml  
@@ -36,7 +36,7 @@ spec:  
   - image: dag-andersen/myapp:latest  
     name: myapp  
     ports:  
-   - containerPort: 443  
+   - containerPort: 8080  
   resources:  
     limits:  
       memory: 512Mi  
  
diff --git a/base-branch/my-service-staging.yaml b/target-branch/my-service-staging.yaml  
index 7e06083..f88a514 100644  
--- a/base-branch/my-service-staging.yaml  
+++ b/target-branch/my-service-staging.yaml  
@@ -23,7 +23,7 @@ metadata:  
   name: staging-myapp  
   namespace: default  
   spec:  
-   replicas: 2  
+   replicas: 4  
   selector:  
     matchLabels:  
       app: myapp
```



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.github/workflows/generate-diff.yml

name: Argo CD Diff Preview

on:

pull\_request:

branches:

- main

jobs:

build:

runs-on: ubuntu-latest

permissions:

contents: read

pull-requests: write

**Just copy-paste the pipeline  
example from the docs**

```
--network=host \
-v /var/run/docker.sock:/var/run/docker.sock \
-v $(pwd)/main:/base-branch \
-v $(pwd)/pull-request:/target-branch \
-v $(pwd)/output:/output \
-e TARGET_BRANCH=${{ github.head_ref }} \
-e REPO=${{ github.repository }} \
dagandersen/argocd-diff-preview:v0.0.23
```

```
- name: Post diff as comment
  run: |
    gh pr comment ${ github.event.number } \
      --repo ${ github.repository } \
      --body-file output/diff.md
  env:
    GITHUB_TOKEN: ${ secrets.GITHUB_TOKEN }
```



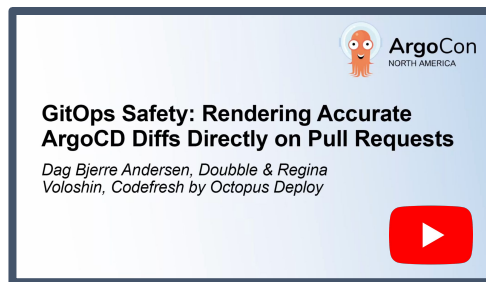
## Main benefits of using ephemeral clusters

- Security
  - Runs in complete isolation
- Correctness
  - Compares only the desired state (only looks at git)

## Main limitations

- Spinning up a local cluster and installing Argo CD is slow
  - Takes around 70 seconds

- Full session talk with an Argo CD maintainer
- Please come chat if you know of an even better technique for rendering manifests



[https://youtu.be/3aeP\\_qPSms](https://youtu.be/3aeP_qPSms)