



The Future of DevOps

GitOps 2.0



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 codefresh

@todaywasawesome





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 codefresh



@vfarcic





Victor Cuascut

Director of DevOps

The Veeva logo, featuring the word "Veeva" in a stylized orange font where the "V" is composed of two triangles.

Agenda

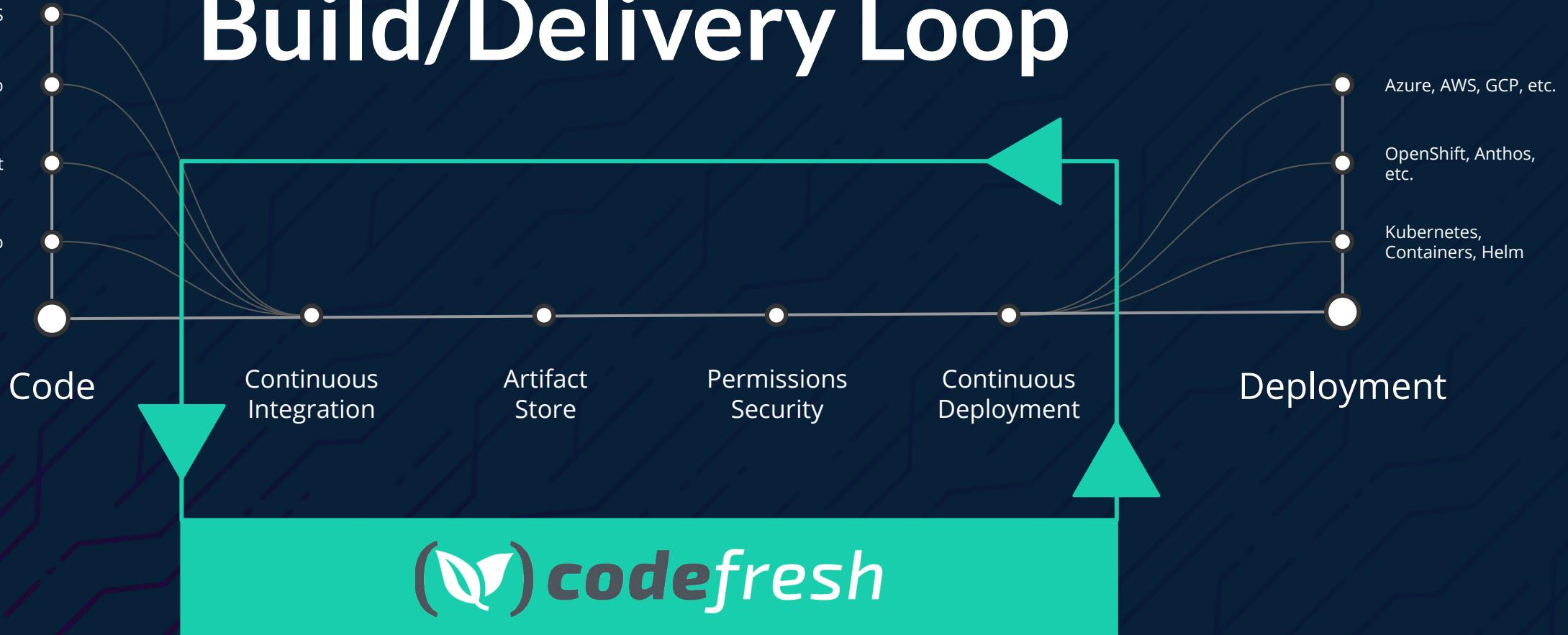
1 10 MINUTES
What is GitOps 2.0

2 20 MINUTES
Customer Story

3 15 MINUTES
Live demo

4 10 MINUTES
Q/A

The Code Build/Delivery Loop





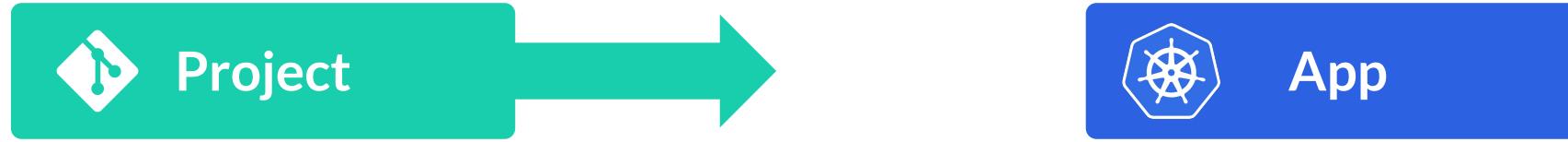


- Declarative Configuration
- Version controlled, immutable storage
- Automated delivery
- Software Agents
- Closed loop

<https://codefresh.io/devops/announcing-gitops-working-group/>

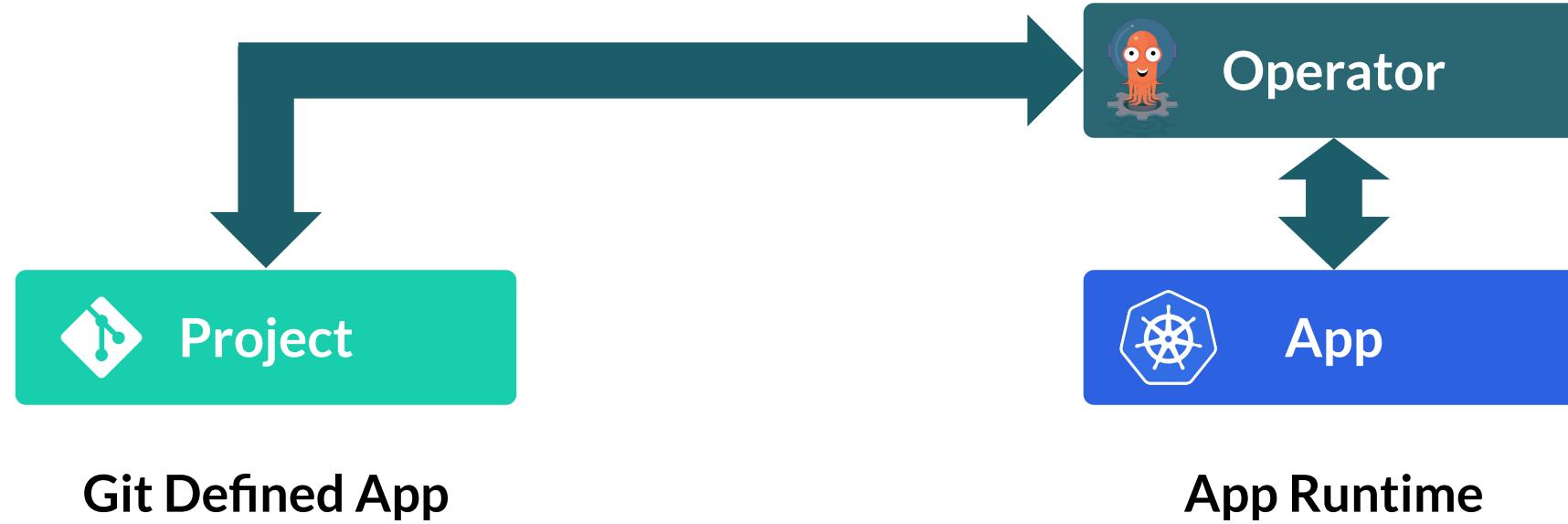
<https://thenewstack.io/codefresh-launches-gitops-2-0-as-a-gitops-working-group-takes-flight/>

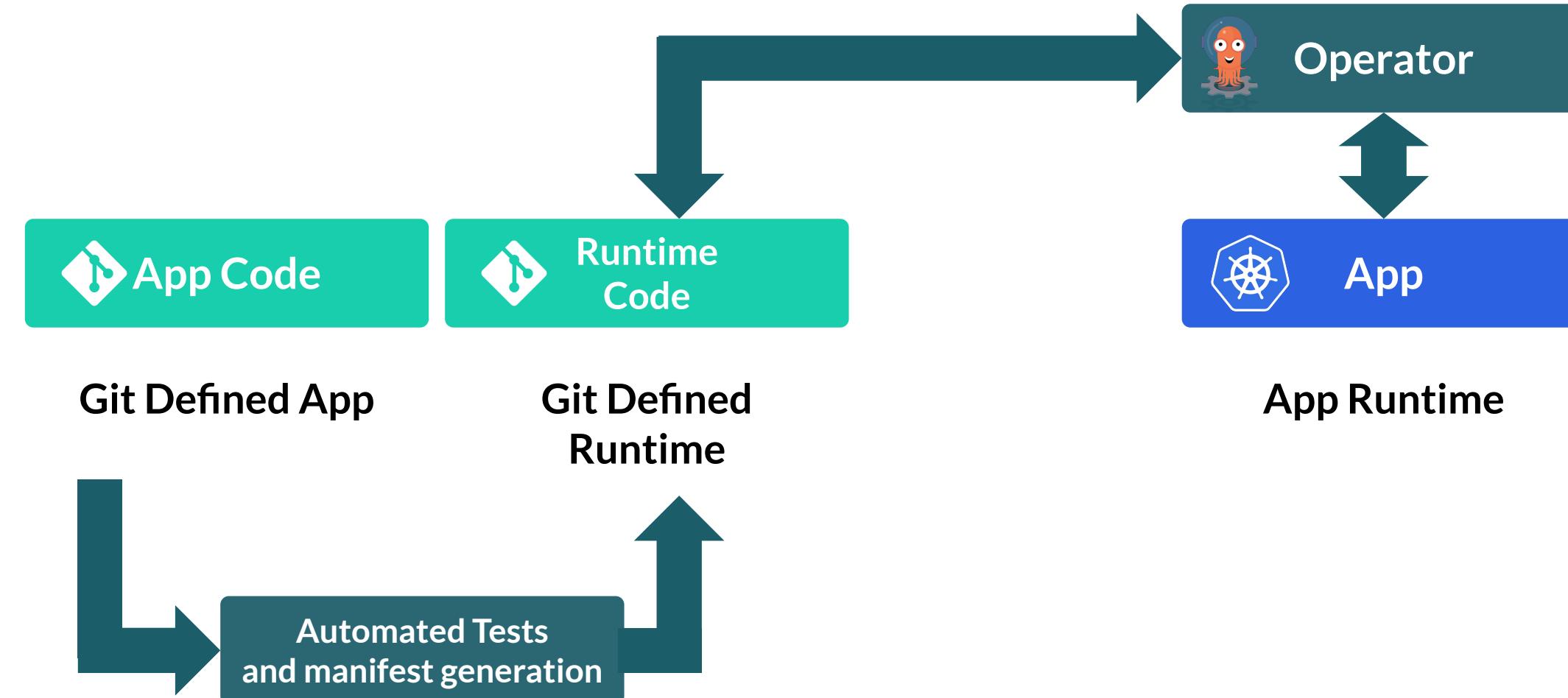
<https://www.weave.works/blog/announcing-gitops-working-group>

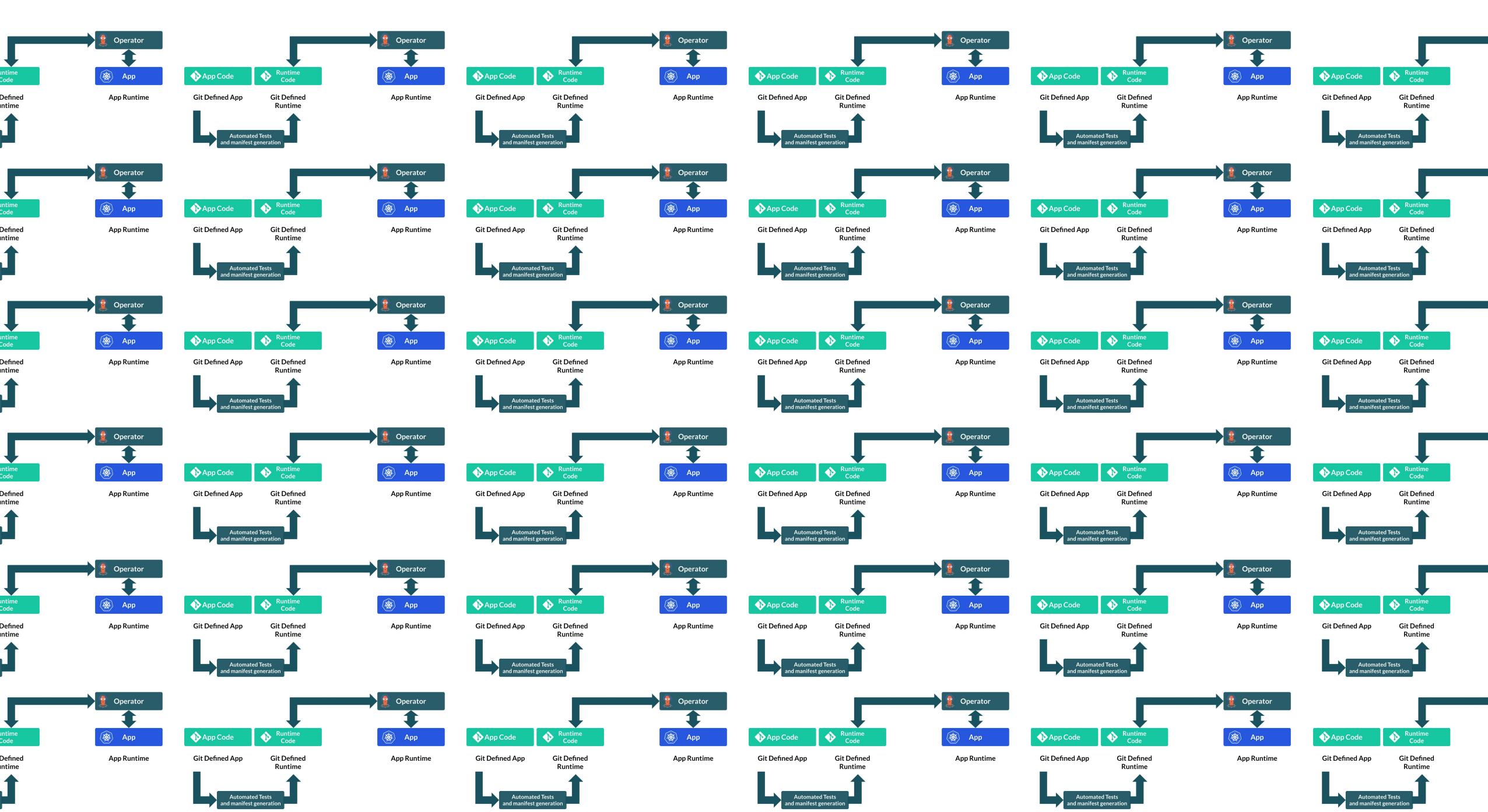


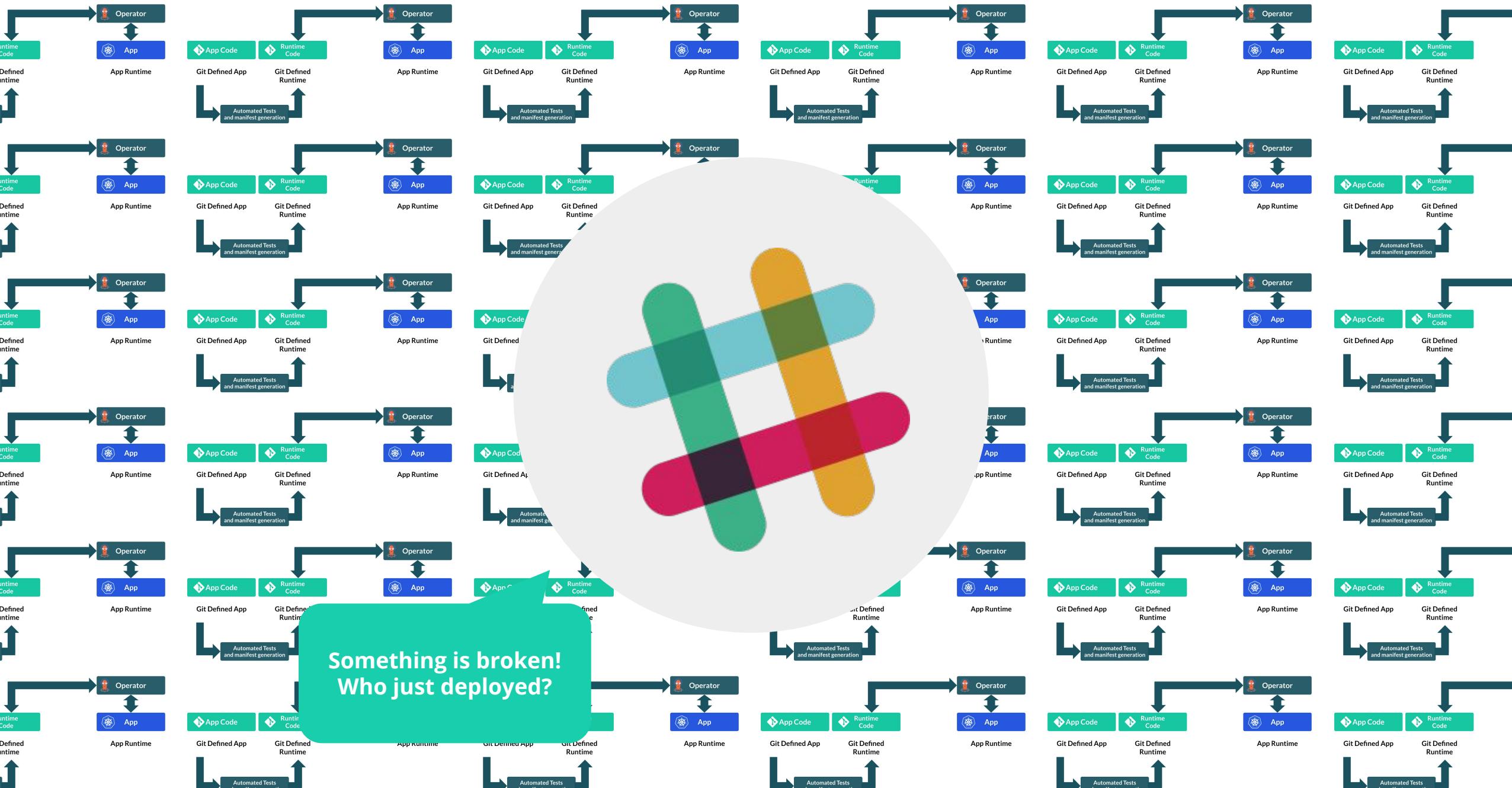
Git Defined App

App Runtime









Something is broken! Who just deployed?



How do we identify regressions?

- When did a regression start?
- When did changes take place?
- What was changed?
- What issues were being addressed?
- Who worked on it?



GitOps 2.0



Built for modern pipelines

NEW

The next level of GitOps, from commit to deploy.

1

Advanced declarative
Kubernetes deployments
powered by Argo CD

2

Complete GitOps CI and CD
solution from builds to
rollbacks

3

Full traceability



ROLLING OUT

SYNC
SyncedURL
g.codefresh.comCLUSTER
codefresh@prodNAMESPACE
defaultHELM RELEASE
productionSERVICES
15 0 0 0DEPLOYMENTS
15 0 0 0PODS
15 0 0 0

OPEN IN ARGO

REFRESH

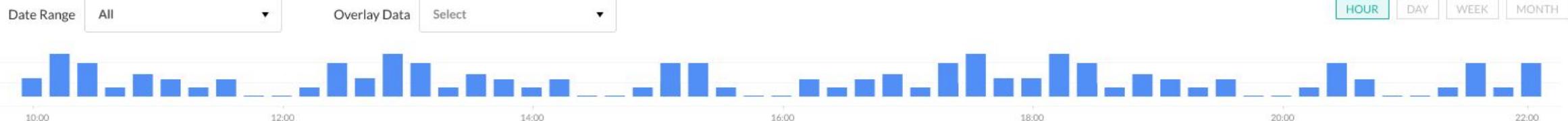
⋮

ROLL OUTS

SERVICES

+ ADD FILTER

Search Deployments



ROLLING OUT monitoring-heartbeat / test-build-issue / 5eb7bbf4f760e68a187594f0

an hour ago 04:00s

CURRENT VERSION

Pull Requests 3

#1234 #5132 #1245

Issues 6

SAAS-1563 SAAS-1563 SAAS-1563 SAAS-1563 SAAS-1563 SAAS-1563

Committers 2

Idan Arbel (iarbel) Oleg V(verchol)

GMT

Updated Services 2

cf-api directxman12/k8s-prometheus-ada... 3/4 → prom/consul-exporter:v0.4.0 1/4

ROLLING OUT

Secrets 0

NO UPDATES

Config Maps 0

myconfig View Changes

KUBERNETES

cf-ui

grafana/grafana:6.6.2 0/0 → kiwigrid/k8s-sidecar:0.1.99 4/4

UPDATED

> monitoring-heartbeat / test-build-issue / 5eb7bbf4f760e68a187594f0

May 4 04:00s

> monitoring-heartbeat / test-build-issue / 5eb7bbf4f760e68a187594f0

May 4 04:00s

> runtime-cluster-monitoring / cf-installer-cli / 5eb7bbf2f760e635037594ec

May 4 04:00s

Pull Requests

The screenshot shows a dashboard interface with a sidebar on the left and a main content area on the right.

Left Sidebar:

- Settings gear icon
- Ship wheel icon
- helm icon
- Docker ship icon
- Cloud icon with a '4' (highlighted by a large black arrow pointing to the main content area)
- File icon
- Document icon
- Build icon
- User icon

Main Content Area:

- Top Bar:** ADD FILTER, Date Range (All), Overlay Data (Select).
- Chart:** A bar chart showing data over time (10:00, 12:00, 14:00).
- Card:** A card for a deployment: **ROLLING OUT** monitoring-heartbeat / test-build-issue / 5eb7bbf4f760e68a187594f0.
- Issues Section:** Pull Requests (3) #1234, #5132, #1245; Issues (6) SAAS-1563, SAAS-1563, SAAS-1563, SAAS-1563.
- Updated Services Section:** cf-api (directxman12/k8s-prometheus-ada... 3/4 → prom/consul-exporter:v0.4.0 1/4) and cf-ui (grafana/grafana:6.6.2 0/0 → kiwigrid/k8s-sidecar:0.1.99 4/4).
- Log Entries:** Three log entries with green arrows pointing to them:
 - monitoring-heartbeat / test-build-issue / 5eb7bbf4f760e68a187594f0
 - monitoring-heartbeat / test-build-issue / 5eb7bbf4f760e68a187594f0
 - runtime-cluster-monitoring / cf-installer-cli / 5eb7bbf2f760e635037594ec

Jira Issues

The screenshot shows a dashboard interface with a teal sidebar on the left containing various icons. A large black arrow points from the 'Jira Issues' section towards the main dashboard area.

Dashboard Top Bar:

- + ADD FILTER
- Date Range: All
- Overlay Data: Select

Chart: A bar chart showing activity over time, with major ticks at 10:00, 12:00, and 14:00.

Card 1 (Top):

- ROLLING OUT monitoring-heartbeat / test-build-issue / 5eb7bbf4f760e68a187594f0
- Pull Requests: 3
- Issues: 6
- Links: #1234, #5102, #1234
- Labels: SAAS-1563, SAAS-1563, SAAS-1563, SAAS-1563

Card 2:

- Updated Services: 2
- cf-api → directxman12/k8s-prometheus-ada... 3/4 → prom/consul-exporter:v0.4.0 1/4
- cf-ui → grafana/grafana:6.6.2 0/0 → kiwigrid/k8s-sidecar:0.1.99 4/4

Card 3 (Bottom):

- monitoring-heartbeat / test-build-issue / 5eb7bbf4f760e68a187594f0
- monitoring-heartbeat / test-build-issue / 5eb7bbf4f760e68a187594f0
- runtime-cluster-monitoring / cf-installer-cli / 5eb7bbf2f760e635037594ec

Updated Services

The screenshot shows a dashboard interface with a teal sidebar on the left containing various icons for monitoring, configuration, and management. A large arrow points from the 'Updated Services' heading towards the main content area.

Top Bar:

- + ADD FILTER
- Date Range: All
- Overlay Data: Select

Chart: A bar chart showing activity over time, with major ticks at 10:00, 12:00, and 14:00.

Service Overview:

- ROLLING OUT** monitoring-heartbeat / test-build-issue / 5eb7bbf4f760e68a187594f0
- Pull Requests** 3: #1234, #5132, #1245
- Issues** 6: SAAS-1563, SAAS-1563, SAAS-1563, SAAS-1563

Updated Services:

Service	Image	Current Image	Status	Version
cf-api	directxman12/k8s-prometheus-ada...	3/4	→	prom/consul-exporter:v0.4.0 1/4
cf-ui	grafana/grafana:6.6.2	0/0	→	kiwigrid/k8s-sidecar:0.1.99 4/4

Recent Events:

- > monitoring-heartbeat / test-build-issue / 5eb7bbf4f760e68a187594f0
- > monitoring-heartbeat / test-build-issue / 5eb7bbf4f760e68a187594f0
- > runtime-cluster-monitoring / cf-installer-cli / 5eb7bbf2f760e635037594ec

Deployment Timeline

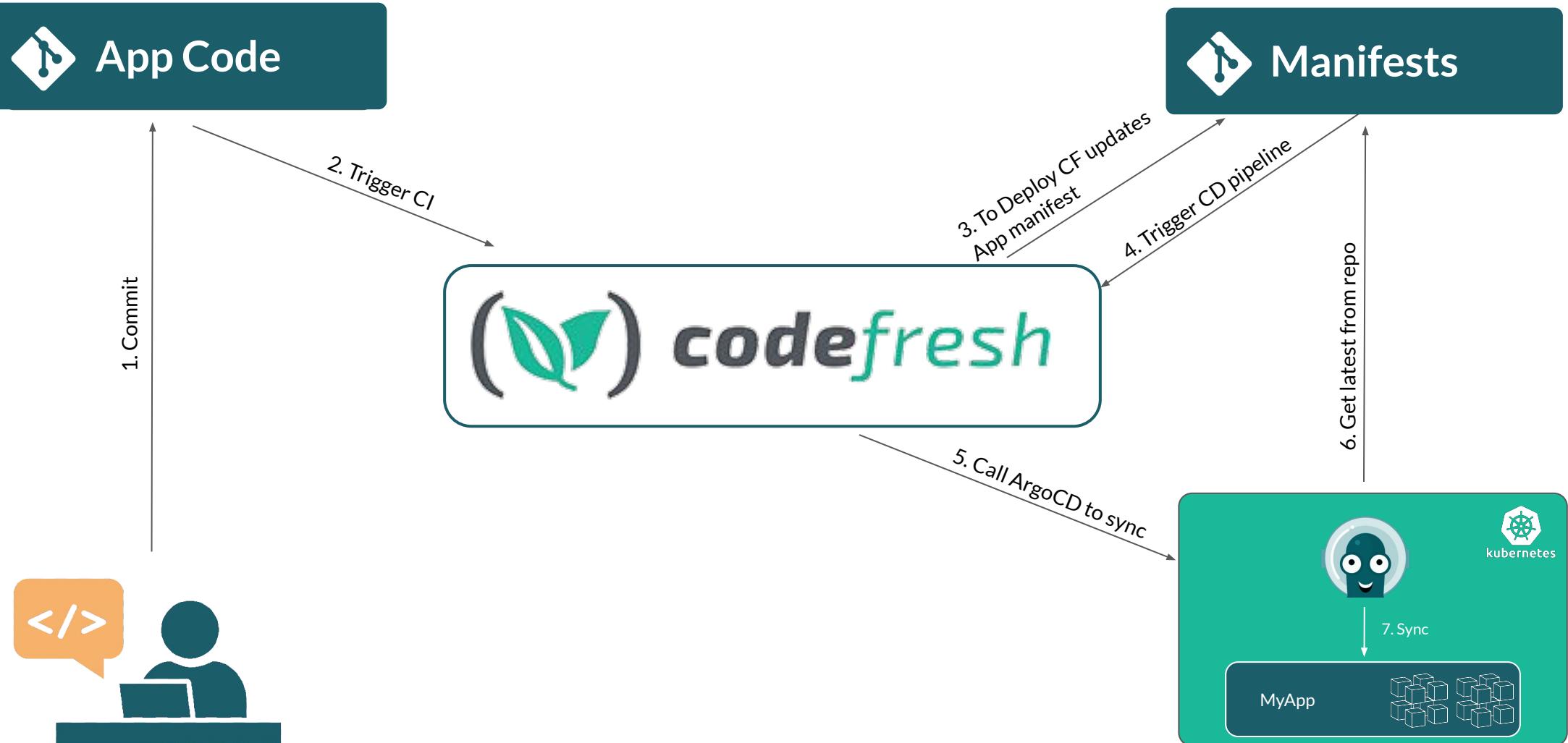
The screenshot shows a deployment timeline interface. On the left, a vertical sidebar lists various service icons: gear, ship, sun, gear, cloud, document, gear, and user. A large black arrow points from the top of this sidebar towards the main dashboard area. The main dashboard features a header with a green 'ADD FILTER' button, a date range selector set to 'All', and an 'Overlay Data' dropdown set to 'Select'. Below this is a bar chart showing deployment activity over time, with major ticks at 10:00, 12:00, and 14:00. The chart consists of blue bars of varying heights. The main content area displays a deployment summary for the commit `5eb7bbf4f760e68a187594f0`, which is labeled as 'ROLLING OUT'. It includes sections for 'Pull Requests' (3: #1234, #5132, #1245), 'Issues' (6: SAAS-1563, SAAS-1563, SAAS-1563, SAAS-1563), and 'Updated Services':

- `cf-api` → `directxman12/k8s-prometheus-ada...` 3/4 → `prom/consul-exporter:v0.4.0` 1/4
- `cf-ui` → `grafana/grafana:6.6.2` 0/0 → `kiwigrid/k8s-sidecar:0.1.99` 4/4

Below this, three deployment logs are listed:

- monitoring-heartbeat / test-build-issue / 5eb7bbf4f760e68a187594f0
- monitoring-heartbeat / test-build-issue / 5eb7bbf4f760e68a187594f0
- runtime-cluster-monitoring / cf-installer-cli / 5eb7bbf2f760e635037594ec

GitOps





ROLLING OUT	SYNC Synced	URL g.codefresh.com	CLUSTER codefresh@prod	NAMESPACE default	HELM RELEASE production	SERVICES 15 0 0	DEPLOYMENTS 15 0 0	PODS 15 0 0	OPEN IN ARGO REFRESH	
-----------------------------	----------------	--	---------------------------	----------------------	----------------------------	----------------------	-------------------------	------------------	--------------------------------------	--

[DASHBOARD](#) [ROLL OUTS](#) [SERVICES](#) [MAP](#)Date Range [All](#)

LAST DEPLOYMENT

1 day ago

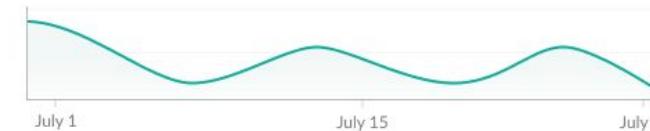
6 Issues

2 PRs

1 Services

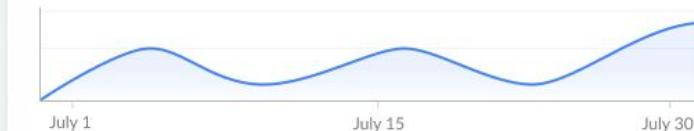
Average Deployment Duration

4m 52s 22%



Success Rate

89% 14%



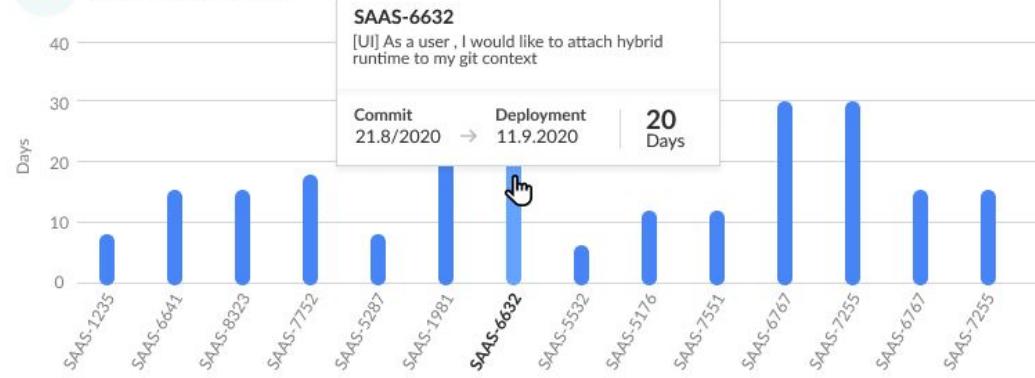
Deployment History



Top updated services

#	Service	Updates
1	cf-api	15
2	dind	11
3	steps	8
4	nginx	6
5	broadcaster	3

issue to deployment



CUSTOMER STORY

Victor Cuascut | Veeva Systems



Where We Started

Building a
Infrastructure from Scratch



So why GitOps?



1 Simplicity

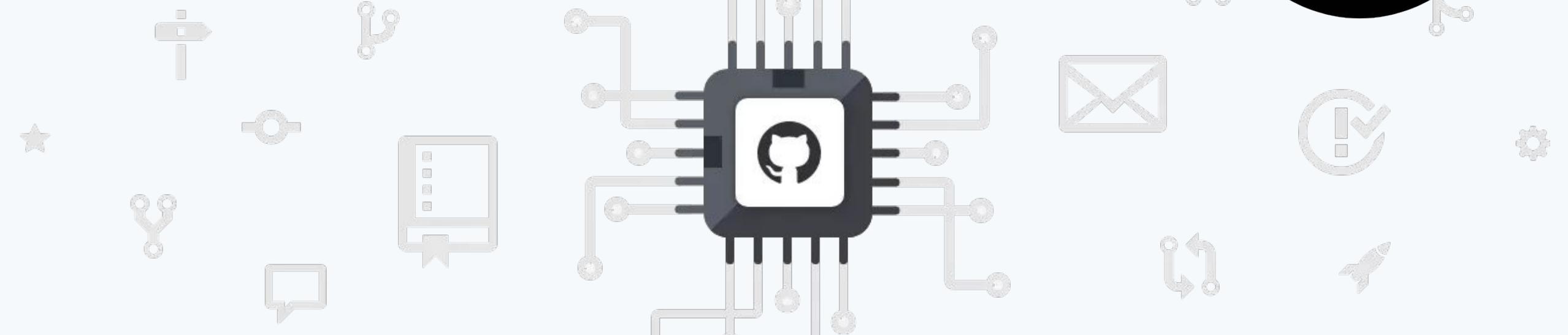
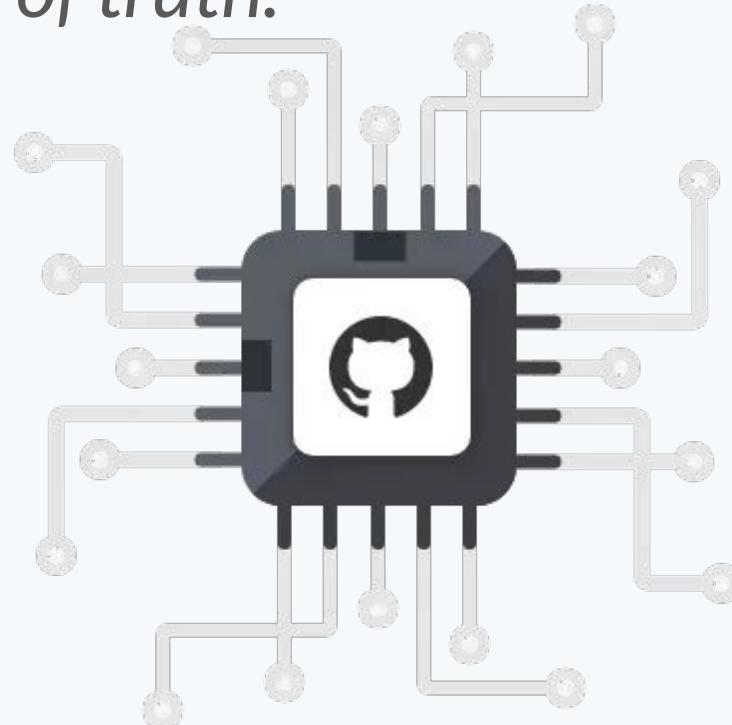
2 Speed

3 Reproducible

4 Auditable



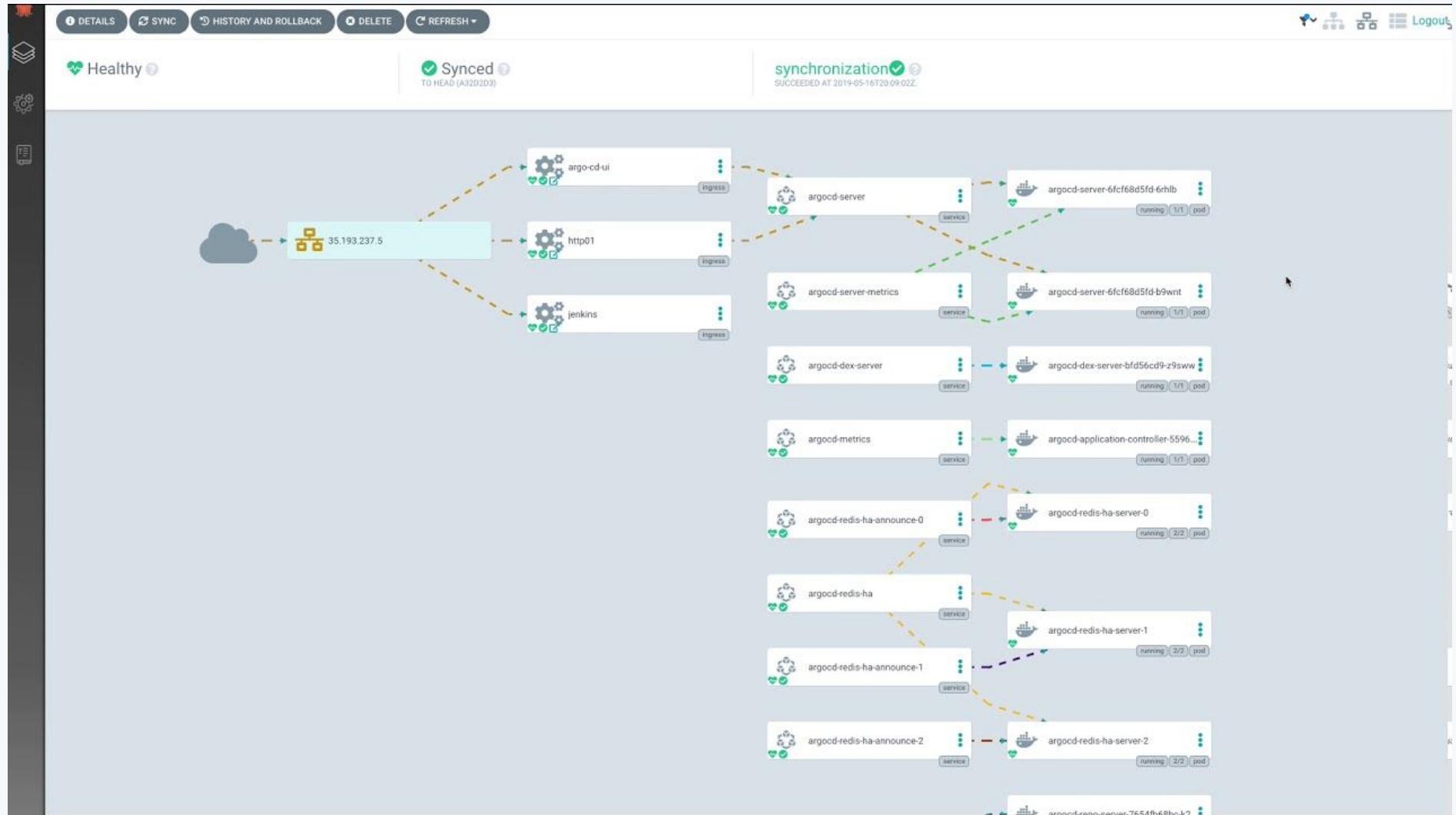
*This is what Gitops provided us.
All with a single source of truth.*



veeva

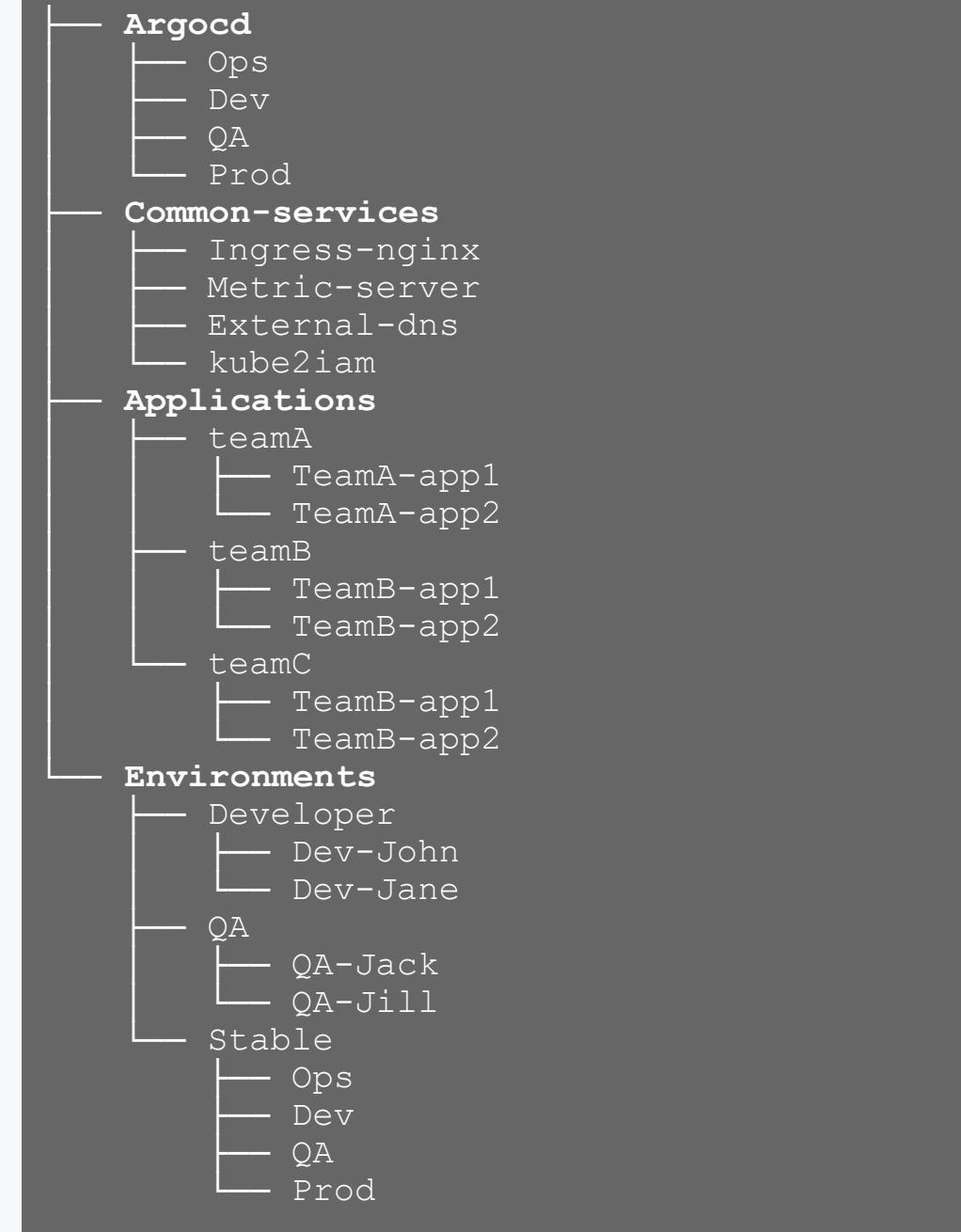


argo





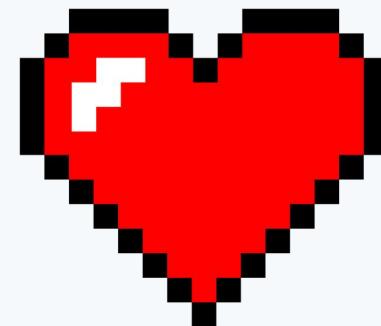
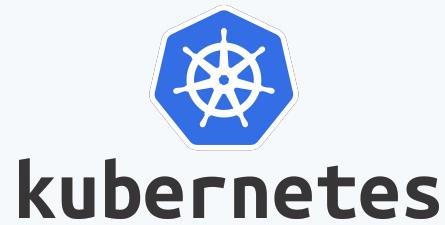
Breaking down your Repo



veeva

Reusable Templates

 kustomize.io

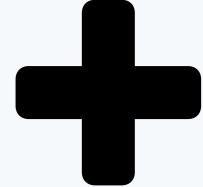




Kustomize

base.yaml

```
apiVersion: v1
kind: Pod
metadata:
  name: myapp
  labels:
    app: myapp
spec:
  containers:
  - name: myapp
  image: myimage
  command: ['app']
```



patch.yaml

```
apiVersion: v1
kind: Pod
metadata:
  name: myapp
  labels:
    env: dev
spec:
  containers:
  - name: myapp
  image: myimage:dev
  command: ['app', '-dev']
```



output.yaml

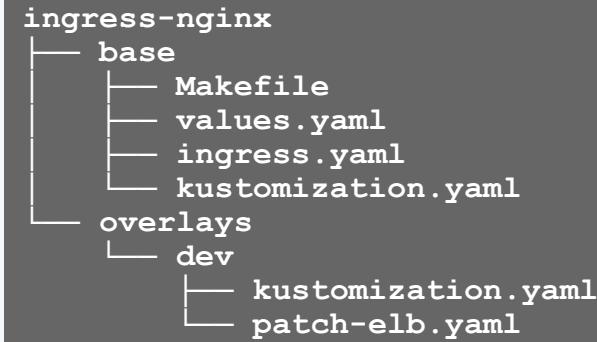
```
apiVersion: v1
kind: Pod
metadata:
  labels:
    app: myapp
    env: dev
  name: myapp
spec:
  command:
  - 'app'
  - '-dev'
  containers:
  - name: myapp
  image: myimage:dev
```



What to do with all of our Helm Charts?

patch-elb.yaml

```
apiVersion: v1
kind: Service
metadata:
  annotations:
    service.beta.kubernetes.io/aws-load-balancer-backend-protocol: http
    service.beta.kubernetes.io/aws-load-balancer-connection-idle-timeout: '60'
    service.beta.kubernetes.io/aws-load-balancer-cross-zone-load-balancing-enabled: 'true'
    service.beta.kubernetes.io/aws-load-balancer-ssl-cert:
      arn:aws:acm:us-east-1:123456789:certificate/12345678-1234-1234-1234-12345678
      service.beta.kubernetes.io/aws-load-balancer-ssl-ports: https
      service.beta.kubernetes.io/aws-load-balancer-type: elb
      external-dns.alpha.kubernetes.io/hostname: stable.dev.acme.com
  name: ingress-nginx-controller
```



```
CHART_VERSION=3.11.1

search:
  helm search repo ingress-nginx/ingress-nginx
update:
  helm template \
    ingress-nginx/ingress-nginx \
    --name-template=k8s \
    --values values.yaml \
    --version=${CHART_VERSION} \
    > ingress.yaml
```

Makefile



Codefresh and ArgoCD

codefresh

Getting Started

BUILD → TEST → DEPLOY

- Projects
- Pipelines
- Builds
- Steps

DEVOPS INSIGHTS

- Kubernetes
- Helm
- GitOps
- Environments

ARTIFACTS

- Images
- Helm Charts
- Compositions

SETTINGS

- Account Settings
- User Settings

GitOps

+ ADD FILTER

Show 10 / page ▾

1-10 of 85 items

APPLICATION	SOURCE	DESTINATION	LAST UPDATE	STATUS	⋮
app-of-apps	https://github.com/argoproj/app-of-apps	rgocd	July 25, 2020 21:12	SYNCED	SUSPENDED
guestbook	...github.com/argoproj/guestbook	rgoproj	July 25, 2020 12:33	SYNCED	MISSING
helm-guestbook	...com/argoproj/argocd-example-apps/kustomise-guestbook	sync-waves	July 23, 2020 5:50	SYNCED	HEALTHY
helm-hooks	...ithub.com/argoproj/argocd-example-apps/blue-green	rgocd	July 20, 2020 12:30	SYNCED	PROGRESSING
Kustomize-guestbook	.../argoproj/argocd-example-apps/kustomise-guestbook	in-cluster/ingress	July 15, 2020 20:20	SYNCED	ROLLING BACK
socksshopgithub.com/argoproj/argocd-example-apps/sockshop	in-cluster/prometheus-operator	July 15, 2020 14:10	SYNCED	SUSPENDED
sync-waves	...github.com/argoproj/argocd-example-apps/sync-waves	in-cluster/argocd	July 13, 2020 10:10	SYNCED	UNKNOWN
argoproj	...ps://github.com/argoproj/argocd-example-apps/plugins	in-cluster/argoproj	July 12, 2020 9:12	SYNCED	DEGRADED
blue-green	...github.com/argoproj/argocd-example-apps/blue-green	in-cluster/argocd	July 12, 2020 11:40	SYNCED	HEALTHY
pre-post-sync	...hub.com/argoproj/argocd-example-apps/pre-post-sync	in-cluster/ingress	July 1, 2020 12:15	SYNCED	HEALTHY

10 / page ▾

1-10 of 85 items

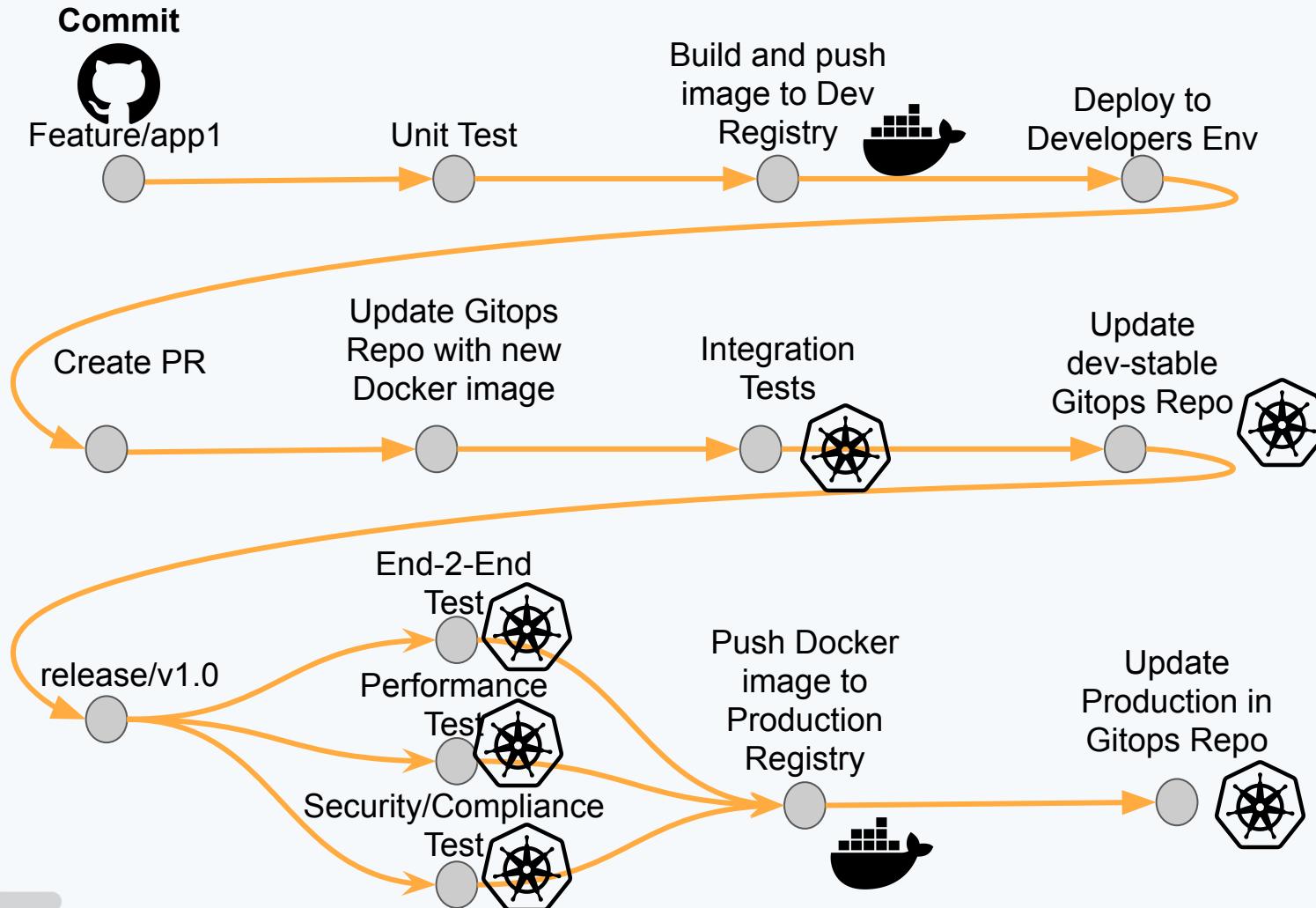
Contact Sales Help arbel CODEFRESH ▾

Search Applications + ADD APPLICATION

1 4 5 6 7 8 ... 50 >

veeva

Continuous Integration & Automated Continuous Deployment

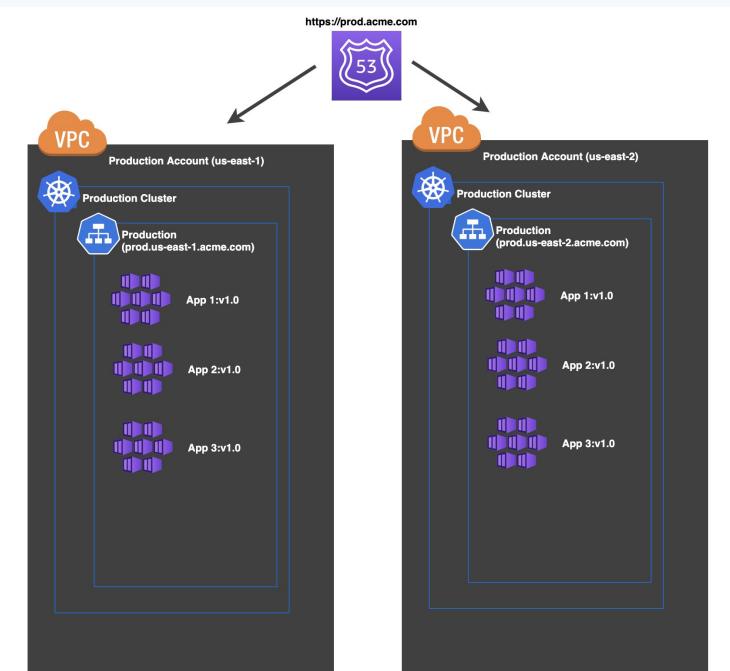


Deployed Infrastructure

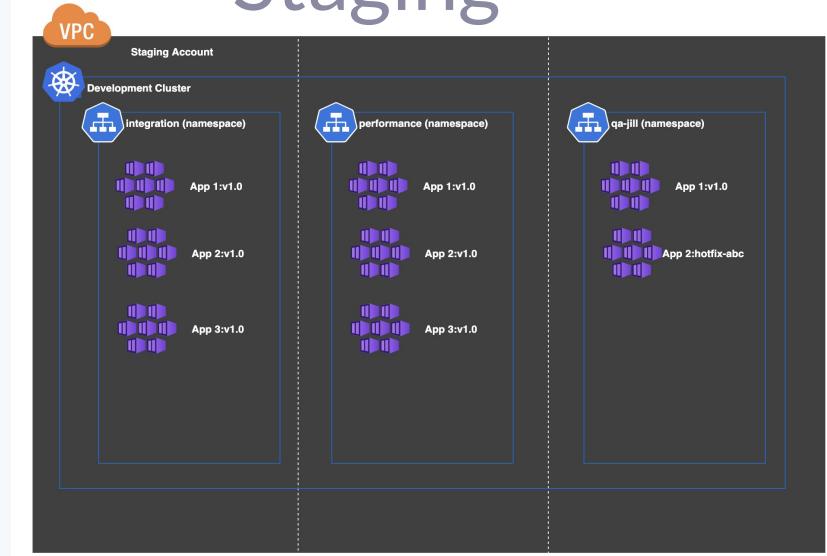
Development



Production



Staging



Declarative infrastructure

GitOps

iOS & Android builds

Parallel builds & deployments

LIVE DEMO

Viktor Farcic

Easy fixes = so

Shared dependencies

Provisioning envi

Microservices = tons of pipelines

Scaling pipeline variations

Monorepos

Git providers

Kubernetes

Scaling pipeline variations

Monorepos



Want more?

Livestream discussion with Viktor & Victor on
our Codefresh Youtube channel on [12/15](#)





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