

The Business Benefits of GitOps

DevOps Enterprise Summit
May 2021

Cornelia Davis
CTO, Weaveworks
@cdavisafc • cornelia@weave.works

Me?

Developer (wasn't Ops)

Web architectures for ~15 years

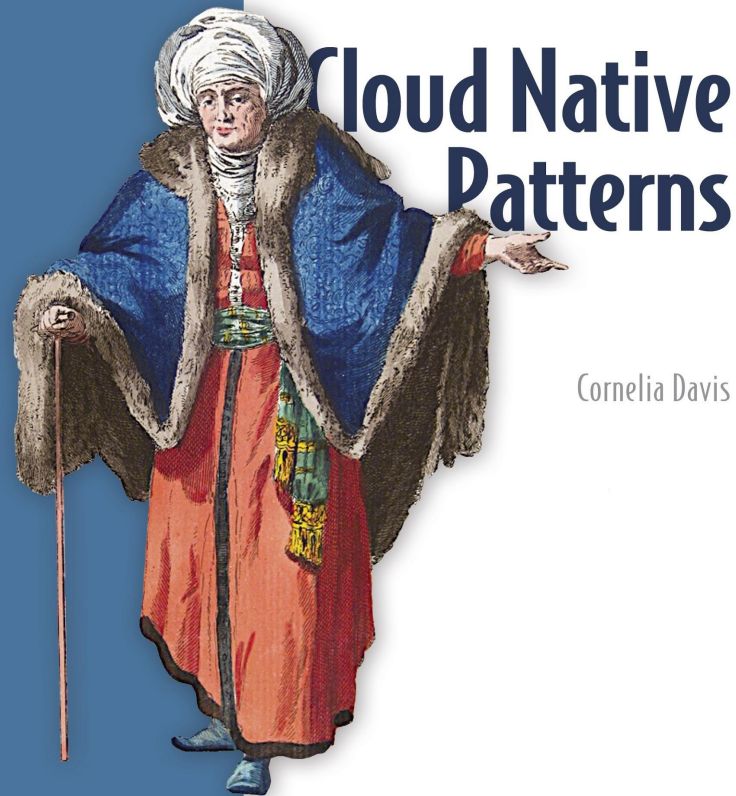
Cloud-native for nearly a decade

Cloud Foundry for 8+ years

K8s for more than 5

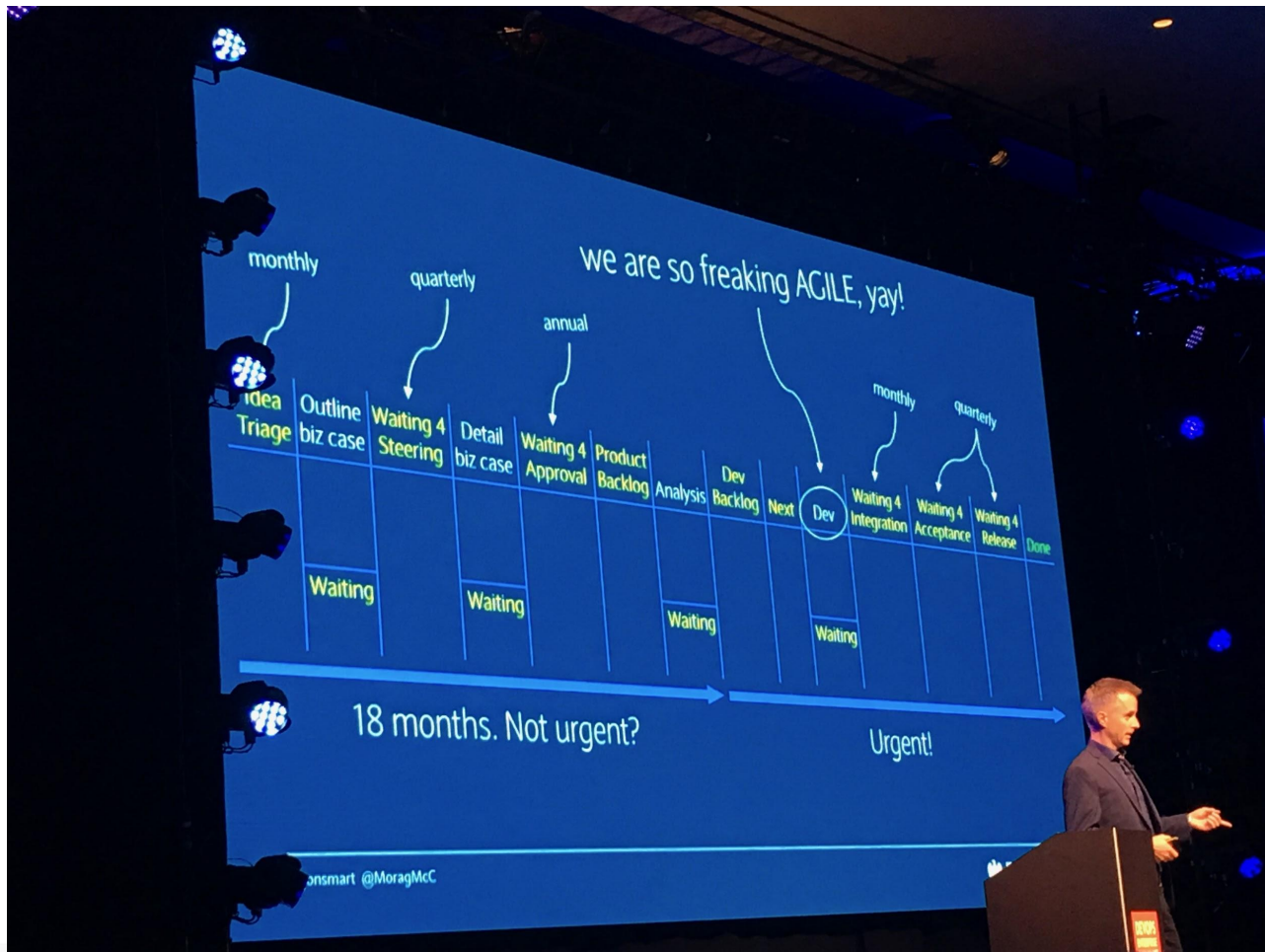
DOES programming committee

CTO at Weaveworks



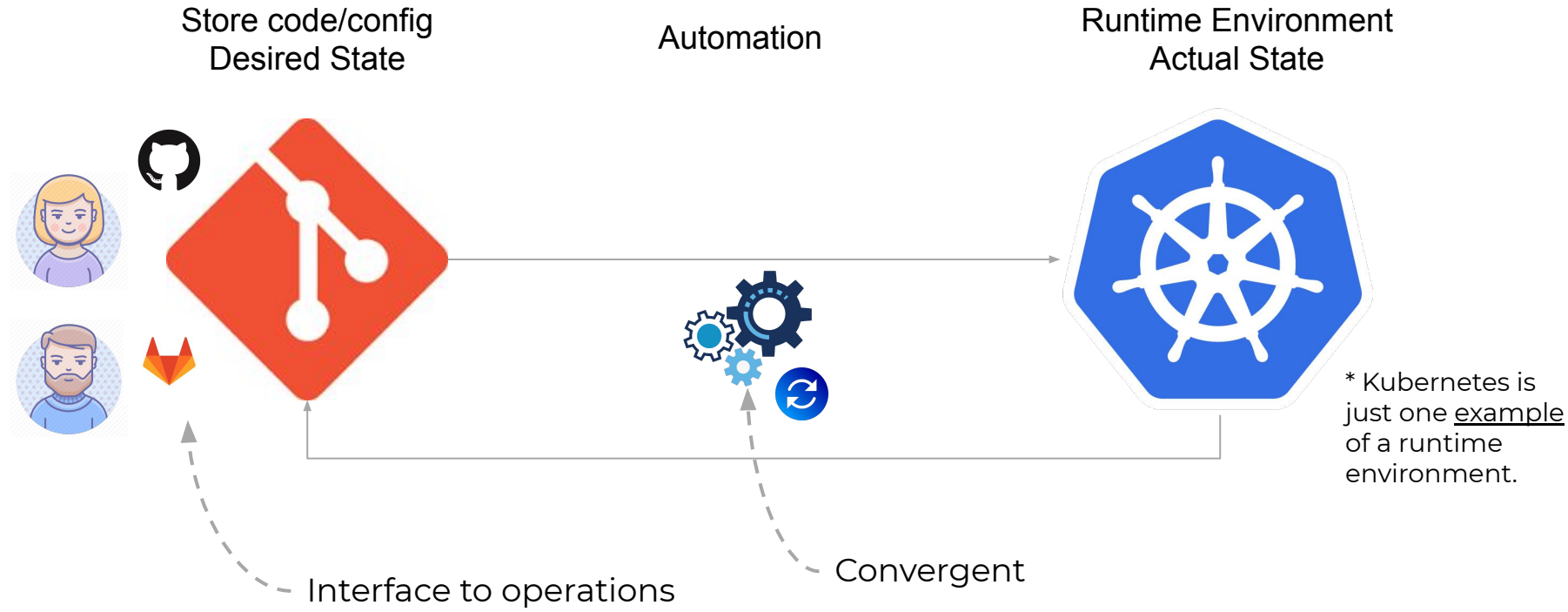
GitOps Takes Cloud-native all the way to Operations

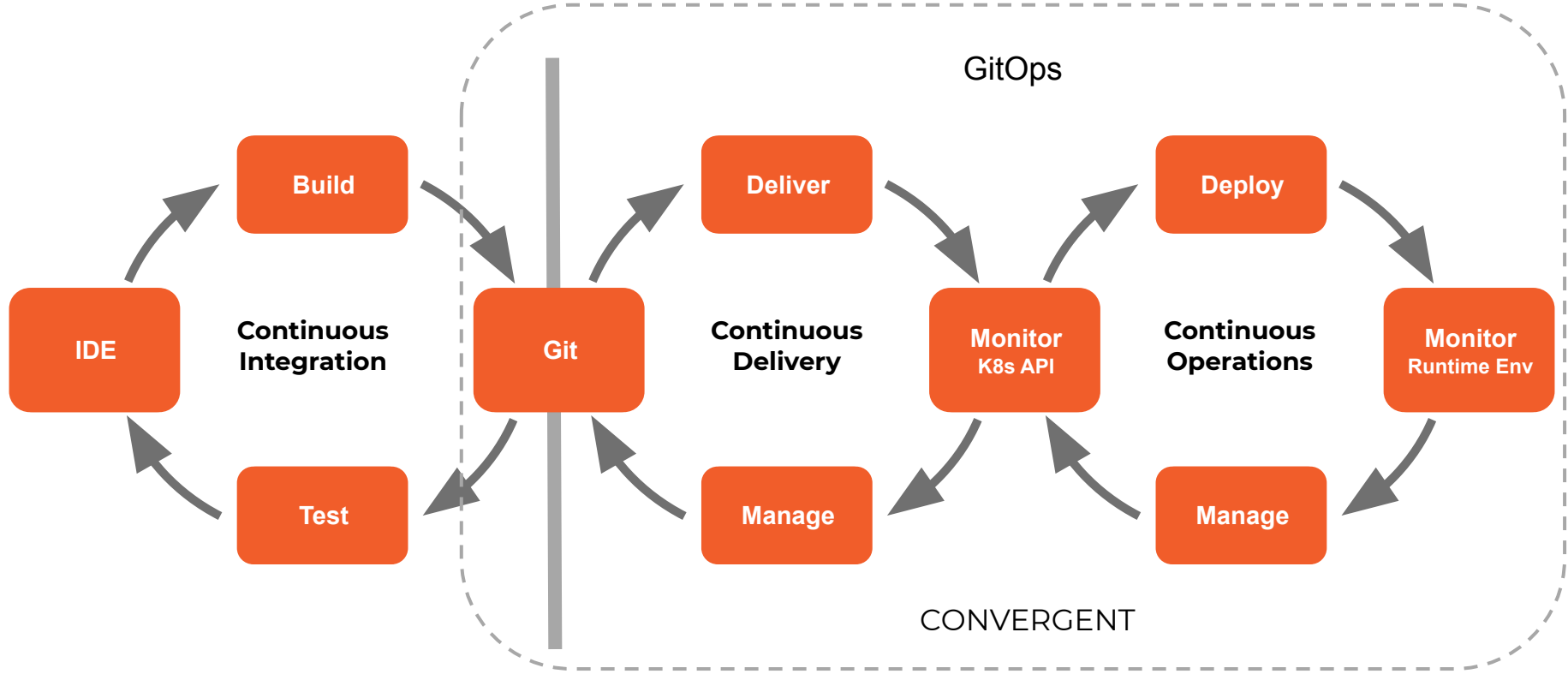




What is GitOps?







But really...

what are you trying to do?



Get better at doing software



Aspect of Software Delivery Performance*	Elite	High	Medium	Low
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<https://cloud.google.com/blog/products/devops-sre/the-2019-accelerate-state-of-devops-elite-performance-productivity-and-scaling>



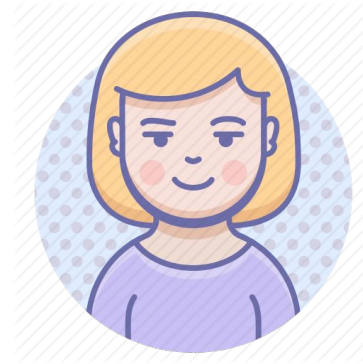
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- Enable application (DevOps) teams to release more frequently, reduce lead time & operate cloud native applications more effectively


Familiar Tooling




Familiar Tools

1 similar comment

 **k8s-ci-robot** merged commit `cf13f8d` into `kubernetes:master` 20 hours ago
18 checks passed [View details](#)


 **k8s-ci-robot** added this to the **v1.19** milestone 20 hours ago

 **tosi3k** mentioned this pull request 18 hours ago
Update kube-addon-manager to v9.1.1 #91240

Fix permissions in kube-addon-manager #91261

Merged k8s-ci-robot merged 1 commit into `kubernetes:master` from `tosi3k:ae-patch-1` 20 hours ago

Conversation 4 Commits 1 Checks 0 Files changed 2 +5 -2

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I tested the newly built image (v9.1.1) using the presubmit tests and it works.


Which issue(s) this PR fixes:
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Special notes for your reviewer:
/sig scalability
/assign wojtek-t


Does this PR introduce a user-facing change?:
NONE


Additional documentation e.g., KEPs (Kubernetes Enhancement Proposals), usage docs, etc.:

 Fix permissions in kube-addon-manager ✓ 3c5585b


 **k8s-ci-robot** assigned **wojtek-t** yesterday



 **k8s-ci-robot** added `release-note-none` `kind/bug` `area/provider/gcp` `sig/scalability` `cnf-cla: yes` `needs-priority` `area/provider/gcp` `sig/cloud-provider` labels yesterday


 **k8s-ci-robot** requested review from **cheftako** and **MrHohn** yesterday

 **wojtek-t** commented yesterday

im
prove

 **k8s-ci-robot** added the `lgim` label yesterday

Reviewers
 **cheftako**
 **MrHohn**

Assignees
 **wojtek-t**

Labels
`approved`
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`cnf-cla: yes`
`kind/bug`
`lgim`
`needs-priority`
`release-note-none`
`sig/cloud-provider`
`sig/scalability`
`area/KS`





Projects
None yet

Milestone
v1.19

Linked issues
Successfully merging this pull request may close these issues.
None yet

Notifications Customize
[Subscribe](#)

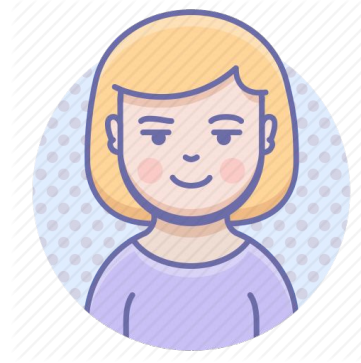
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4 participants
   



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Familiar Tooling
Self Service



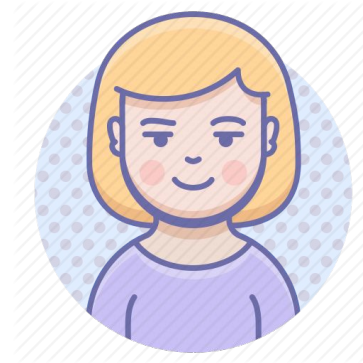
Self Service Ops

(not self-service infra)



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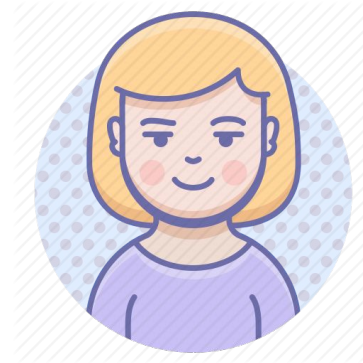
- While Platform teams maintain security, compliance, resilience & cost management

Security & Compliance
Resilience



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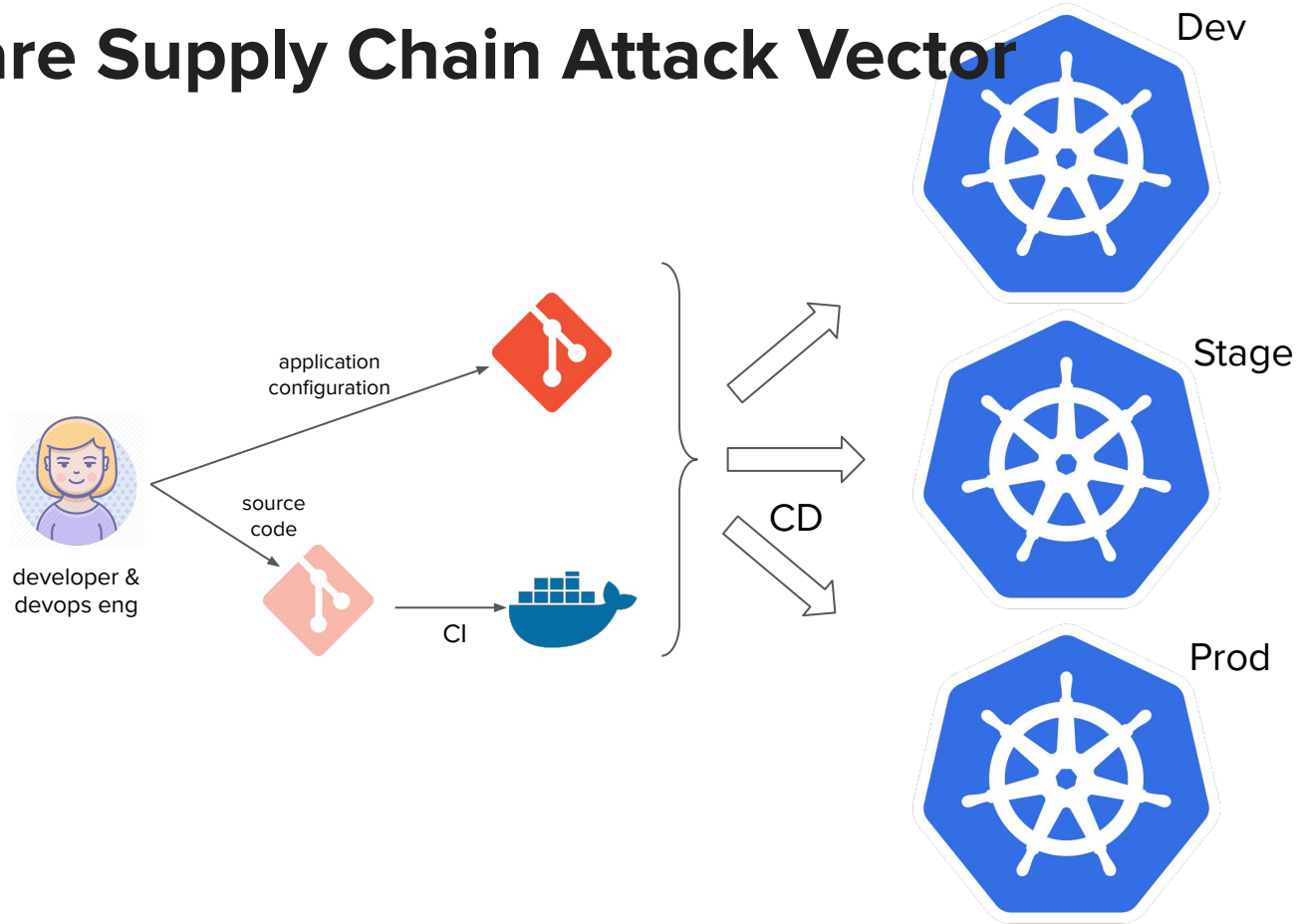


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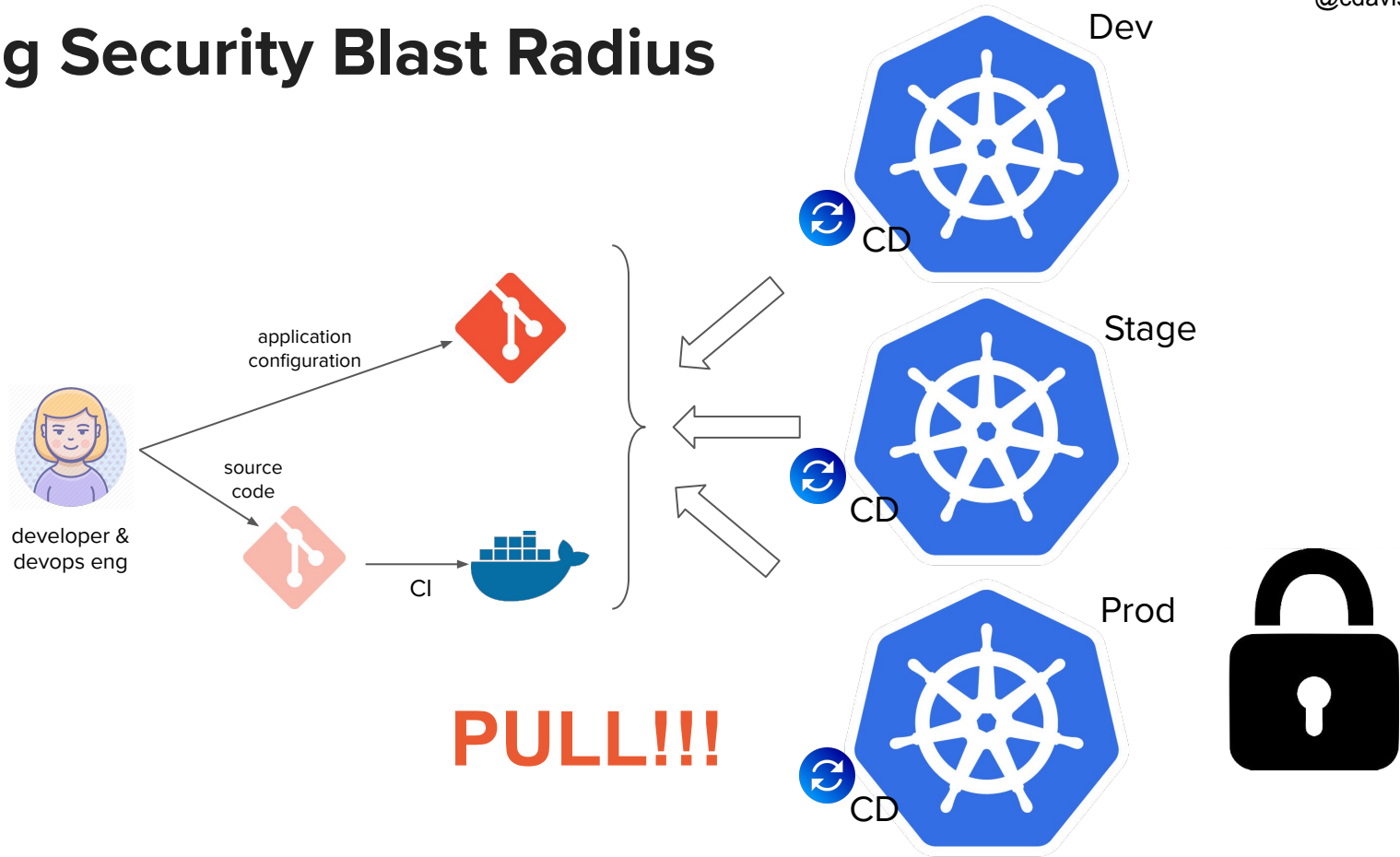
Security & Compliance
Resilience



Software Supply Chain Attack Vector



Limiting Security Blast Radius



Compliance GitOps

```

less
commit 119c3905b3c0a975e313556f7b2049492a8252ac (HEAD -> master, origin/master, origin/HEAD)
Merge: 5433c28d 7377aae0
Author: Hidde Beydals <hiddeco@users.noreply.github.com>
Date: Mon May 18 21:00:34 2020 +0200

Merge pull request #3060 from circa10a/docs/helm-operator-integration

commit 7377aae0c1e3e01021c818a1d4dd8b8487e51b5e
Author: Caleb Lemoine <caleblemoine@gmail.com>
Date: Fri May 15 19:48:40 2020 -0500

docs: update helm operator integration glob patterns

commit 5433c28dd96585ee9db160f9ea4068ee4ed7b713
Merge: f6b18042 83c084e3
Author: Hidde Beydals <hiddeco@users.noreply.github.com>
Date: Wed May 13 12:42:36 2020 +0200

Merge pull request #3053 from maruina/secret-annotations

commit 83c084e3e3ddb99d6b81e1e932ebcf15379f150b
Author: Matteo Ruina <matteo.ruina@skyscanner.net>
Date: Mon May 11 16:38:33 2020 +0200

Support annotations in secret

Do not bump chart

Fix value used

commit f6b1804221699e38af85ef6ff5da1474d4317c83
Merge: 0ad6a83e e969cd71
Author: Hidde Beydals <hiddeco@users.noreply.github.com>
Date: Tue May 12 17:50:37 2020 +0200

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wojtek-t commented yesterday Member

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Reviews

- cheftako
- MrHohn

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- wojtek-t

Labels

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- kind/bug
- lgim
- needs-priority
- release-note-none
- sig/cloud-provider
- sig/scalability
- size/XS

Projects

None yet

Milestone

v1.19

Linked issues

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Notifications

Customize

Subscribe

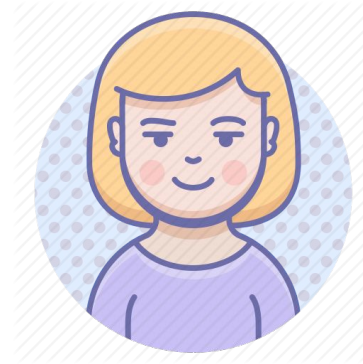
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Git Semantics

versioned

```
less
commit 119c3905b3c0a975e313556f7b2049492a8252ac (HEAD -> master, origin/master, origin/HEAD)
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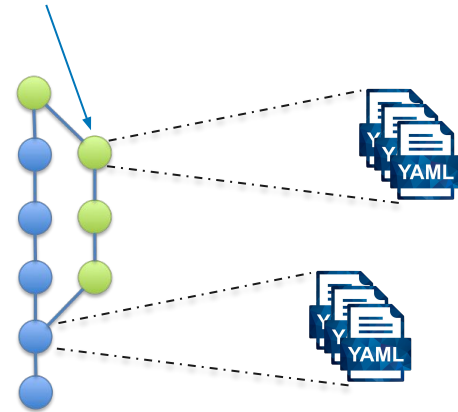
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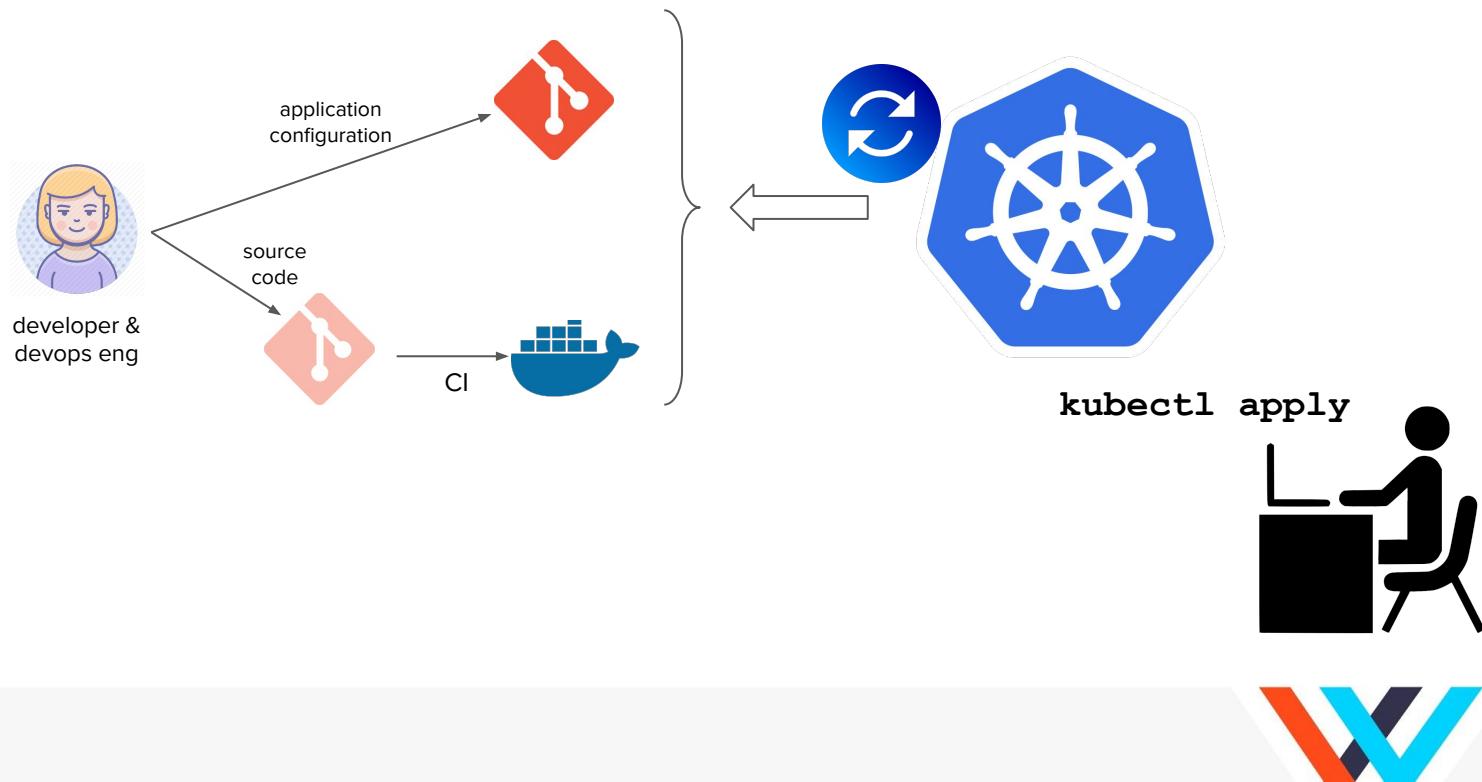
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each version is a complete representation



immutable

Drift detection and remediation



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cheftako

MrHohn

Assignees

wojtek-t

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area/provider/gcp

cncf-cla: yes

kind/bug

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needs-priority

release-note-none

sig/cloud-provider

sig/scalability

size/XS

Projects

None yet

Milestone

v1.19

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None yet

Notifications

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4 participants



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/lgtn
/approve

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1 similar comment

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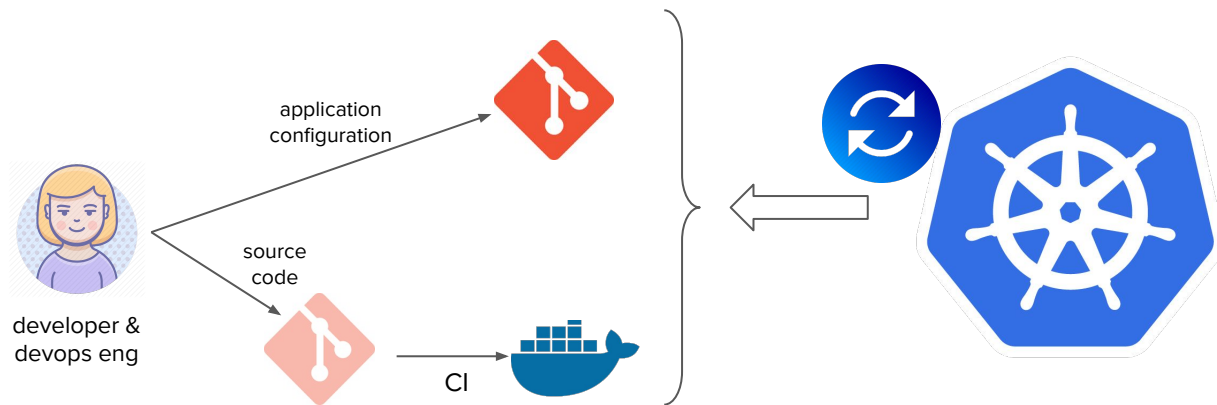
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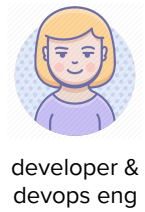
Update kube-addon-manager to v9.1.1 #91240

[Open](#)





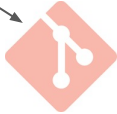
Progressive Delivery



application configuration

source code

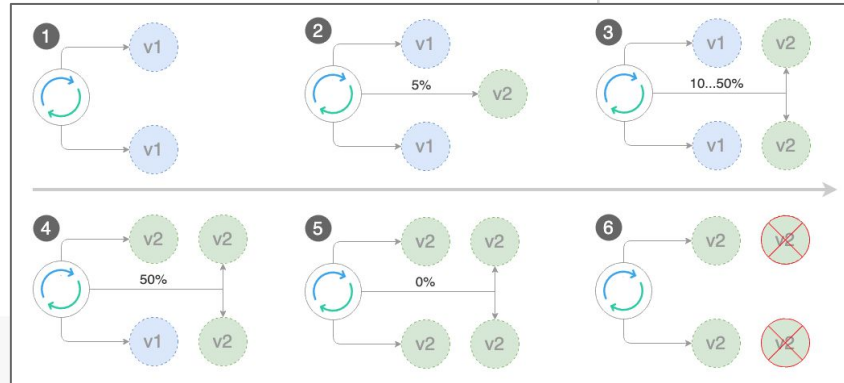
CI

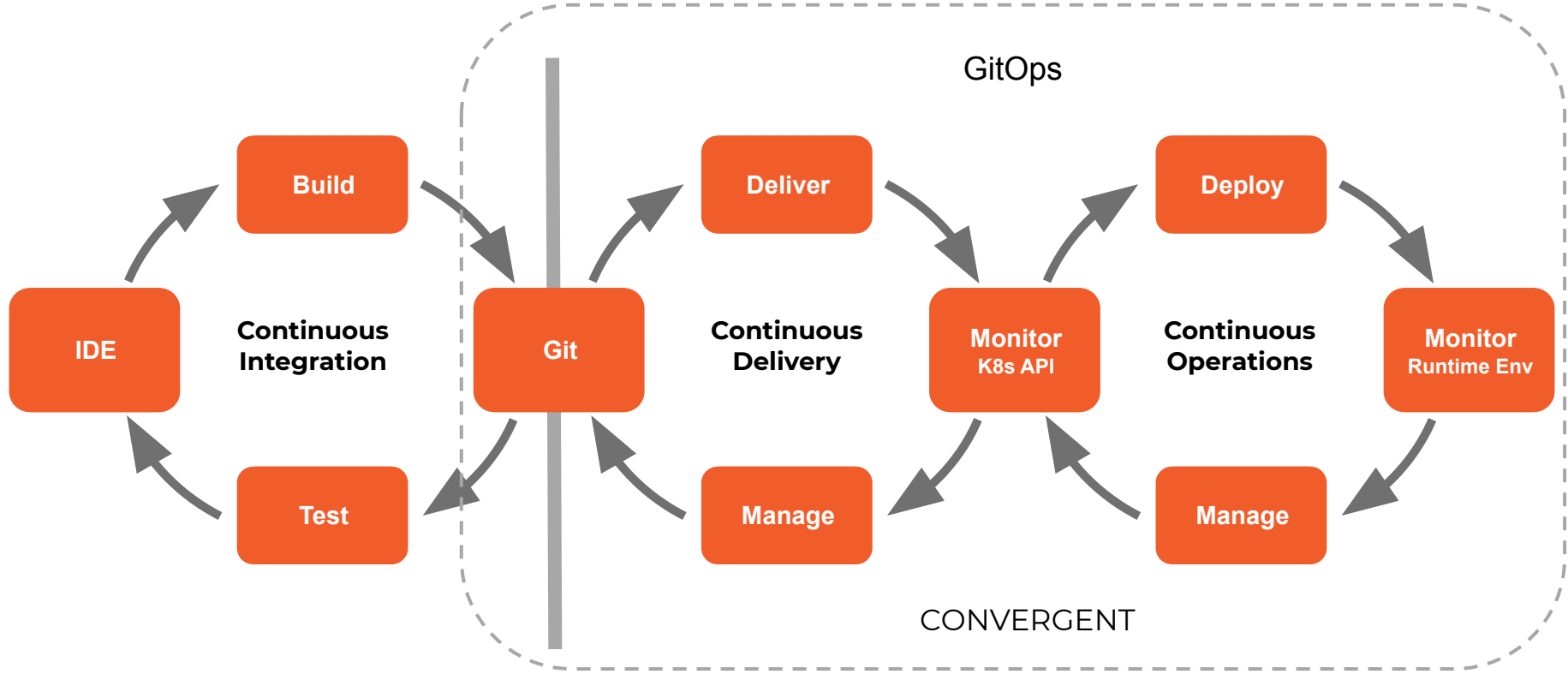


Delivery



Operations





GitOps
=
Continuous Delivery
+
Continuous Operations



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- Familiar Tools - git
- Self Service
- Pull-based (security)
- Implicit audit log (compliance)
- Resilience
 - Versioned, immutable store
 - Complete representation
 - Drift detection and remediation
- Config reviews in Git
- Progressive Delivery

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Summarizing



Thesis:

GitOps supports the DevOps agenda in a particularly effective manner. (where Git is the interface for operational actions.)



Definition of GitOps:

- Owners of the operational activities democratize changes using git-based workflows as the interface for operational actions
- Automation that actively ensures that actual state matches desired state



IaC + Process + Automation = GitOps



谢谢
Thank You
Danke
Obrigado
Спасибо!
Merci
شكرا



Cornelia Davis
CTO, Weaveworks
@cdavisafc • cornelia@weave.works