

# Deploy N Applications to N Clusters using Argo CD ApplicationSet

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# 👋 Hey!! I'm Dewan

- Developer Advocate @ Red Hat
- From Moncton, NB (Atlantic Canada)
- 📝 I write YAMLs and MDs
- 🛠️ Focus on DevOps/GitOps tools
- Besides work: 🎮 & 🏀 & Career Coaching



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# Agenda

- GitOps - Likely more than you think it is
  - Quick background on Argo CD - a GitOps CD tool for K8s
  - The 'What' & 'Why' of ApplicationSets
  - The 'How' of ApplicationSets
  - 🌟 Demo
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- Q&A | Resources



## GitOps in 1 slide

- GIT as the **SINGLE** source of truth of a system
- GIT as the **SINGLE** place where we operate (create, update, destroy envs)
- ALL changes are **observable/verifiable**

# GitOps on K8s - B.O.M.

- Git repo(s)
- K8s cluster(s)
- Manifest generation tool (optional)
- A CI tool (CI servers should **NOT** do CD)
- A way to group K8s resources

# What is Argo CD?



**git**



**argo**

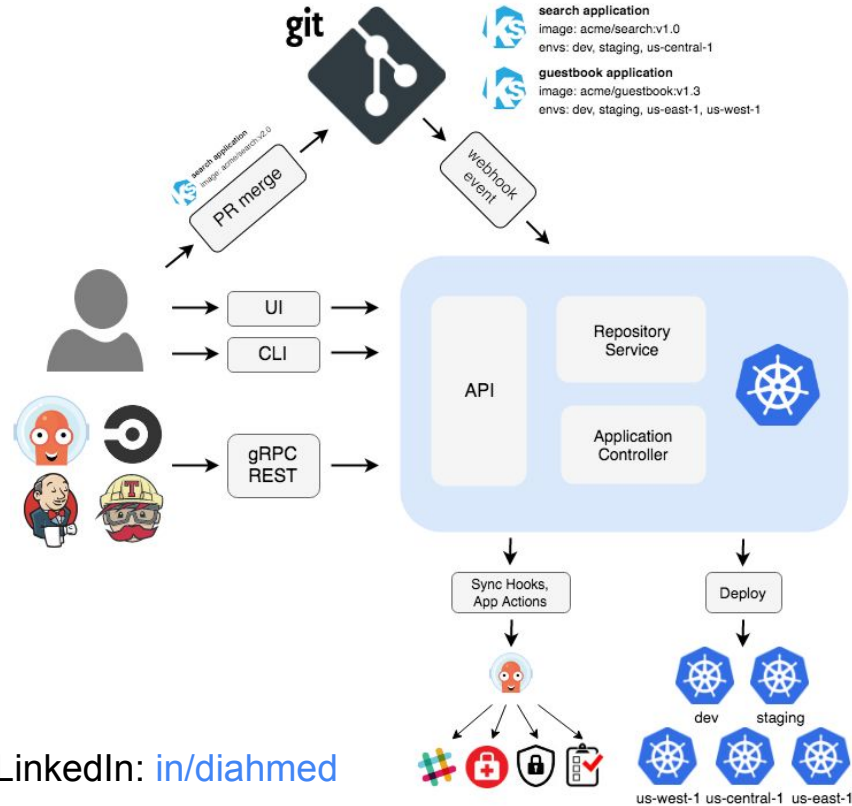


**cluster**

# Why Argo CD?

- Git as the single source of truth
- Developer centric
- Declarative
- Security, compliance, and auditing
- Trivialises rollback
- Observable - detect configuration drift
- Velocity

# How Argo CD works





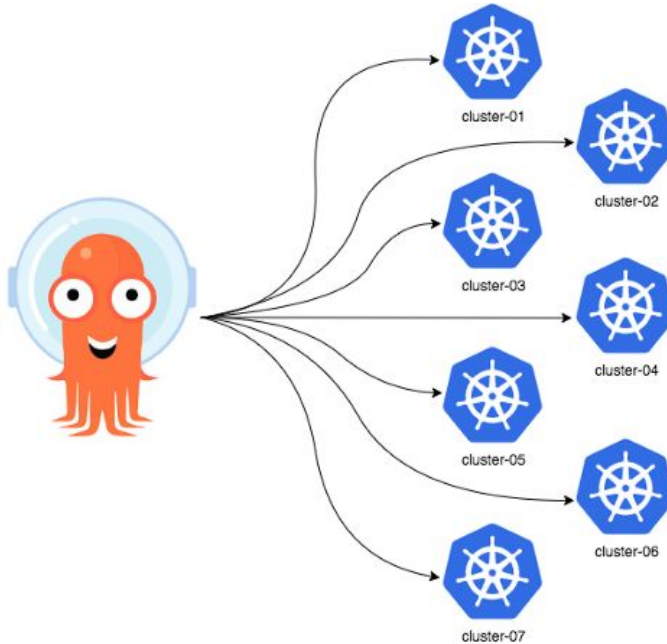
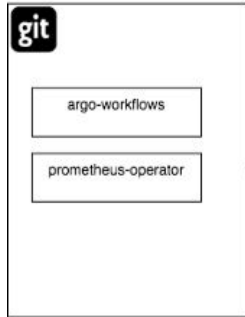
# Argo CD Demo



## But what if you want to...

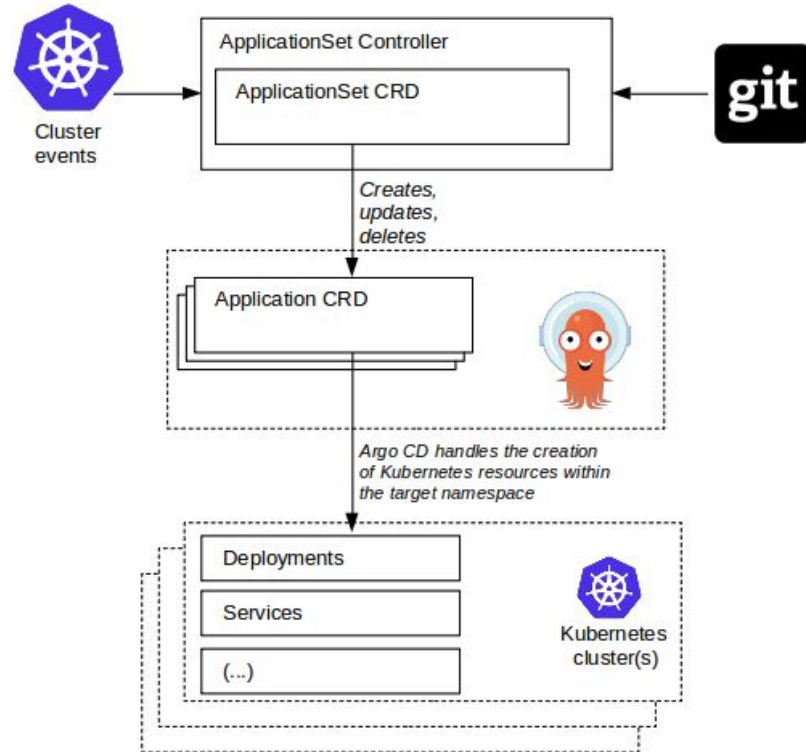
- Deploy Argo CD Applications to multiple Kubernetes clusters at once
- Deploy multiple Argo CD Applications from a single monorepo
- Allows unprivileged cluster users to deploy Argo CD Applications
- Do all of the above by only a single instance of Kubernetes CRD

# Introducing ApplicationSet Controller for Argo CD



```
1  apiVersion: argoproj.io/v1alpha1
2  kind: ApplicationSet
3  metadata:
4    name: guestbook
5  spec:
6    generators:
7      - list:
8          # Parameters are generated based on this cluster list, to be substituted
9          # into the template below.
10         elements:
11           - cluster: engineering-dev
12             url: https://1.2.3.4
13           - cluster: engineering-prod
14             url: https://2.4.6.8
15           - cluster: finance-preprod
16             url: https://9.8.7.6
17     template:
18       # An Argo CD Application template, with support for parameter substitution
19       # with values from parameters generated above.
20       metadata:
21         name: '{{cluster}}-guestbook'
22       spec:
23         project: default
24         source:
25           repoURL: https://github.com/argoproj-labs/applicationset.git
26           targetRevision: HEAD
27           path: examples/list-generator/guestbook/{{cluster}}
28         destination:
29           server: '{{url}}'
30           namespace: guestbook
```

# How does ApplicationSet Controller work?



# ApplicationSet Generators

- [List Generator](#)
- [Cluster Generator](#)
- [Git Generator \(Directory & File\)](#)
- [Matrix Generator](#)
- [SCM Provider Generator](#)
- [Cluster Decision Resource Generator](#)

# Argo CD ApplicationSet Controller Demo



# Get hands-on with open source



<https://dn.dev/summit-connect>

# Thank you!

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## Questions?

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