Deploy N Applications to N Clusters using Argo CD ApplicationSet

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DEVCONF.us

open source community conference

👋🏼Hey!! I'm Dewan

- Developer Advocate @ Red Hat
- From Moncton, NB (Atlantic Canada)
- ❤️ everything cloud-native
- 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

- Q&A | Resources

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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
- A CI tool
- A way to group K8s resources

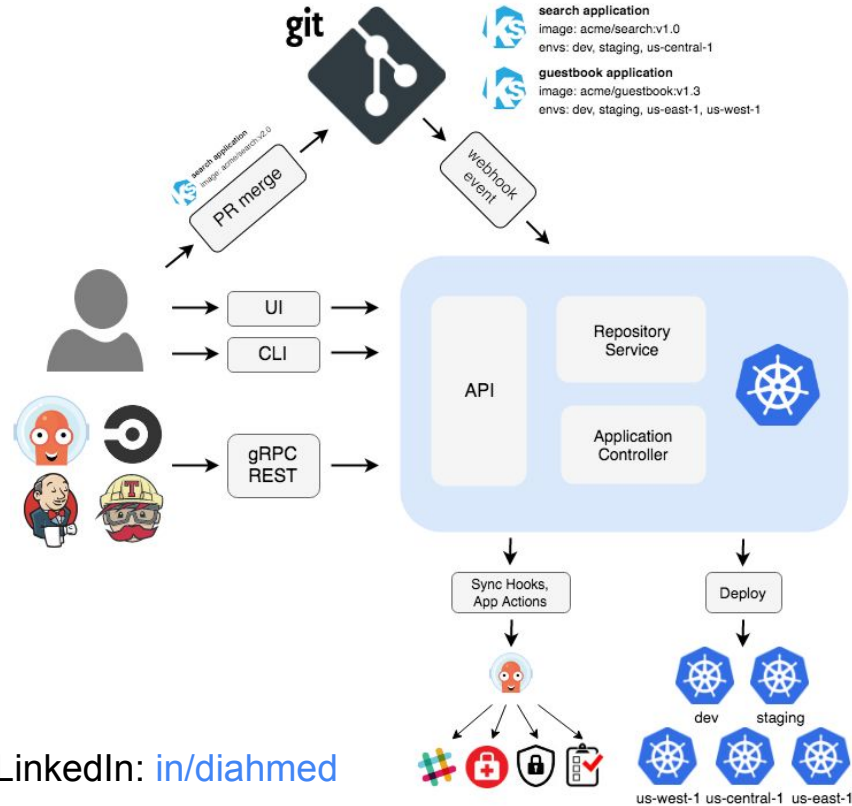Twitter: @DewanAhmed | LinkedIn: in/diahmed

What is Argo CD?

Why Argo CD?

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

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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

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Introducing ApplicationSet Controller for Argo CD
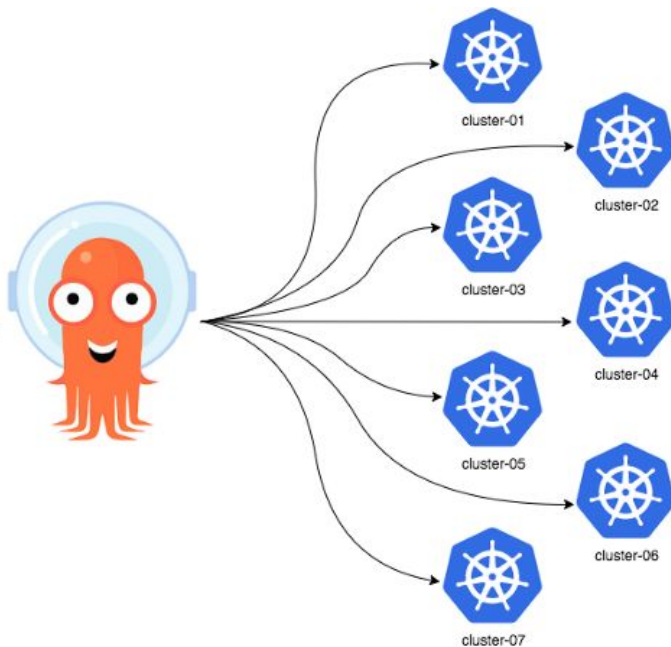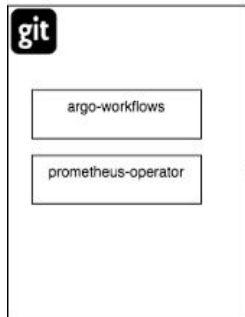

```
1   apiVersion: argoproj.io/v1alpha1
2   kind: ApplicationSet
3   metadata:
4     name: guestbook
5   spec:
6     generators:
7     - list:
8         # Parameters are generated based on this cluster list, to be substituted
9         # into the template below.
10        elements:
11        - cluster: 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?
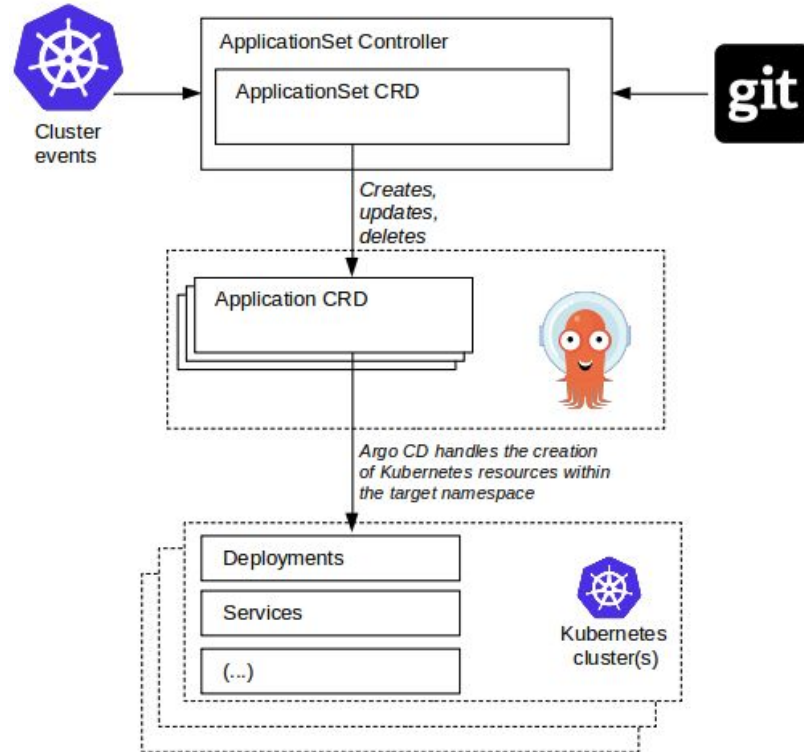
ApplicationSet Generators

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

Argo CD ApplicationSet Controller Demo

Thank you!

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Questions?

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