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How To Build Production Grade DevOps Platform Using Argoproj

Alexander Matyushentsev Leonardo Luz Almeida

Introduction





Alexander Matyushentsev

Argo Project co-creator

Co-founder and Chief Architect at Akuity



Leonardo Luz AlmeidaArgo CD and Argo Rollouts maintainer
Staff Software Developer at Intuit

Argo CD Community



- 11k github starts
- 235 companies official Argo CD users
- 820 contributors
- #argo-cd channel 7834 members

Agenda



Decision Breakdown

- Tickets vs Gitops
- Deployment Repository
- Manifest Generation
- Multi-tenancy

Hands on

- o SSO
- RBAC
- Projects
- Application Sets



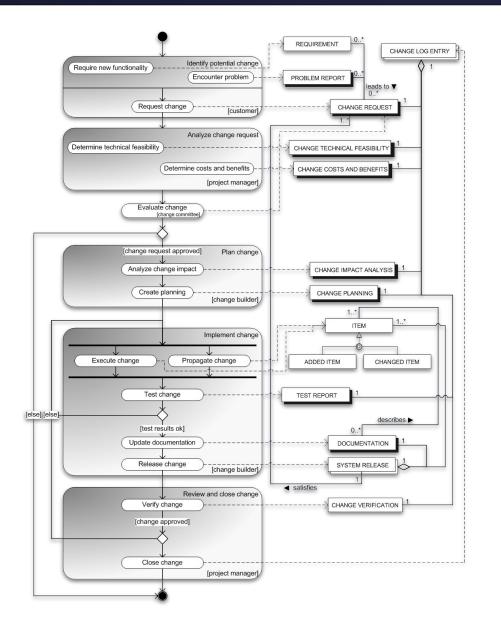
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The Decision Breakdown

The Decision Breakdown

Tickets vs Gitops

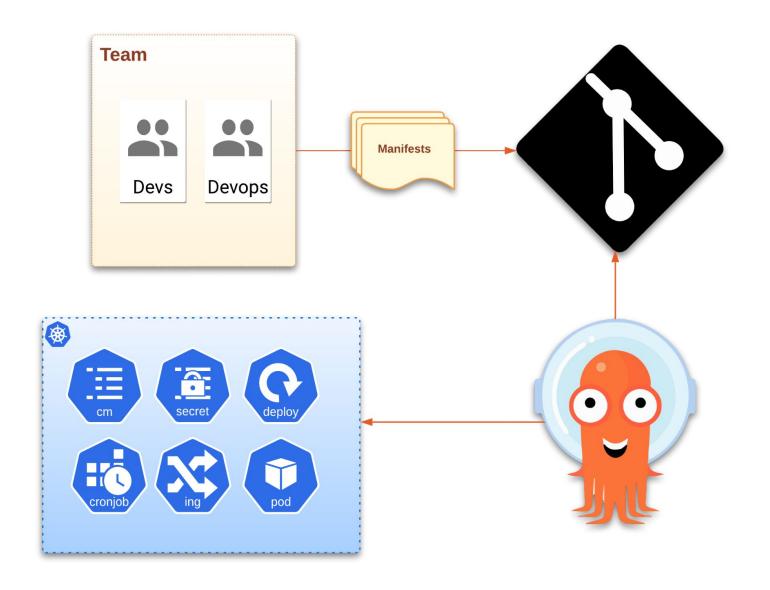




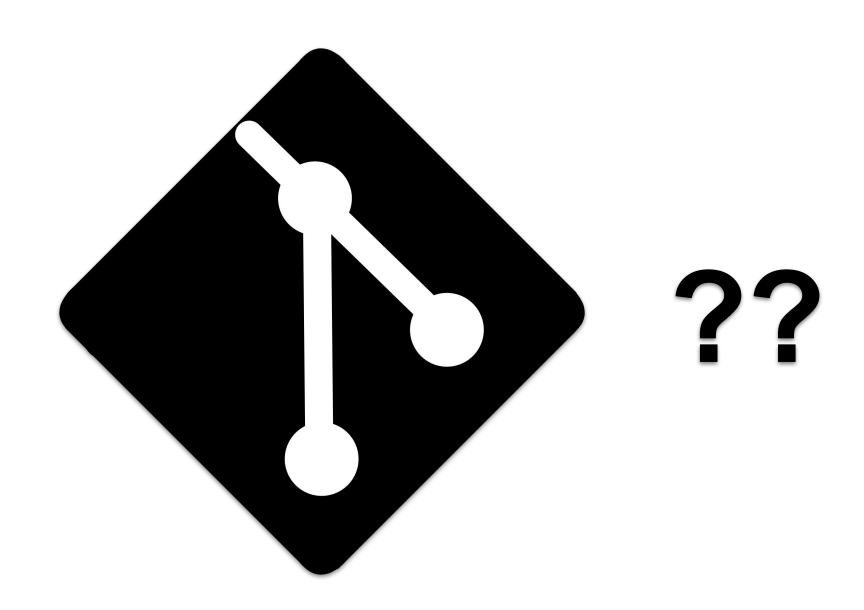


Tickets vs Gitops











Centralized Repo

Independent Repo



Centralized Repo

Pros

Source and config together

Cons

- Harder authn model
- Complex Cl
- Mixed history



Independent Repo

Pros

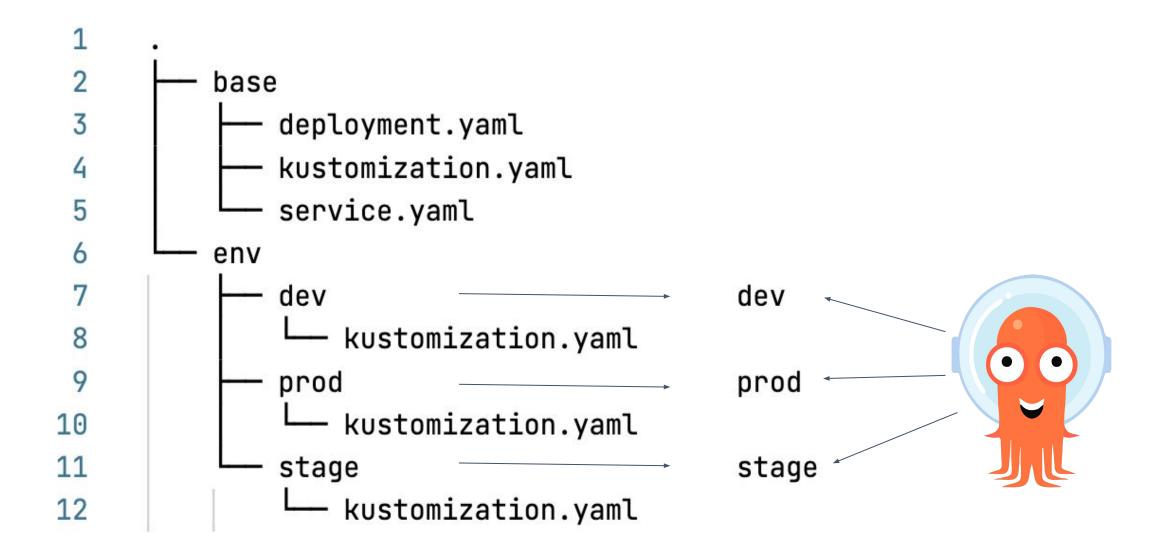
- Simpler CI (no CI?)
- Easier authn model
- Cleaner history

Cons

Decentralized

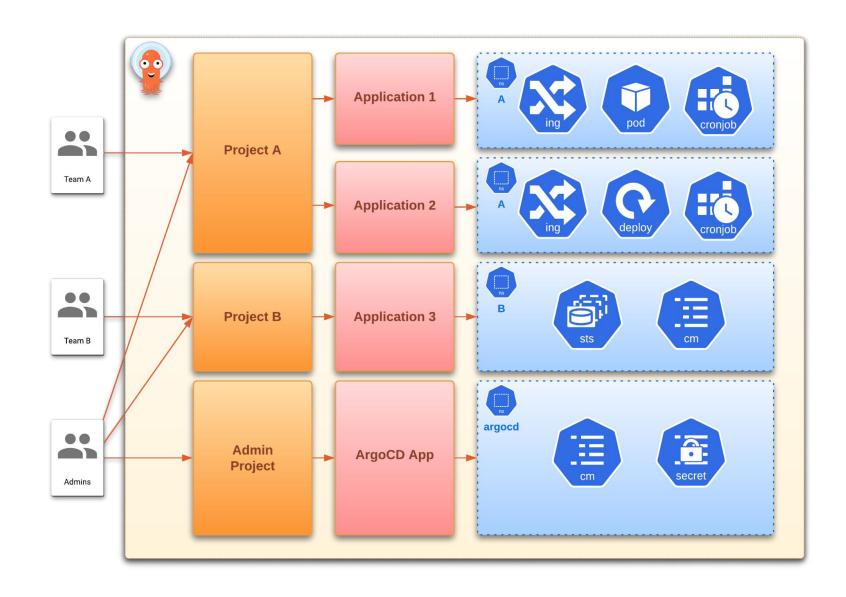
Manifest Generation





Multi-tenancy







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Hands On

Hands On

Single Sign-On



OIDC

- Argo CD supports the OIDC protocol
- Works out of the box with OIDC-compatible provides like Auth0, Okta, Azure Idp
- Uses received OIDC claims to authorize users

```
name: Okta
 1
     issuer: https://dev-123456.oktapreview.com
     clientID: aaaabbbbccccddddeee
     clientSecret: $oidc.okta.clientSecret
 5
     # Optional set of OIDC scopes to request.
 6
     requestedScopes:
     openid
8
     - profile
 9
     - email
10
     # Optional set of OIDC claims to request.
     requestedIDTokenClaims:
11
12
       groups: {"essential": true}
```

Access Control



- Argo CD uses role based access model (RBAC)
- Powered by Casbin (https://casbin.org/)
- Extremely flexible configuration
- Allows to define groups with arbitrary set of permissions

```
# Grant all members of the group 'my-org:team-alpha'
# the ability to sync apps in 'my-project'
p, my-org:team-alpha, applications, sync, my-project/*, allow
# Grant admin to all members of 'my-org:team-beta'
g, my-org:team-beta, role:admin
```

Projects

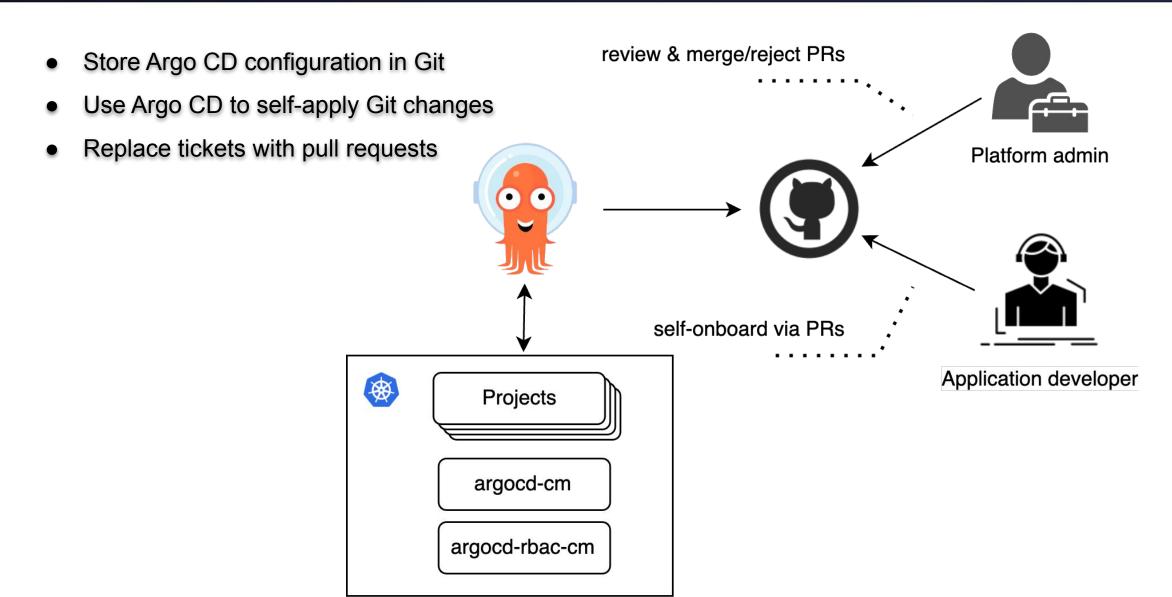


- Projects powers Argo CD multi-tenancy
- Provide a logical grouping for applications
- Allow to define boundaries and isolate teams from each other
- "Connect" SSO and RBAC settings

```
apiVersion: argoproj.io/v1alpha1
     kind: AppProject
     metadata:
       name: my-project
 5
     spec:
       sourceRepos:
         - '*'
       destinations:
         - namespace: 'my-team-ns'
           server: http://my-cluster:8001
10
       roles:
11
12
        - name: admin
13
         policies:
           - p, proj:my-project:read-only, applications, get, my-project/*, allow
14
15
         groups:
         - my-org/my-team
16
```

PRs instead of tickets







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Demo time!



https://github.com/kubecon-us-2022-argo/control-plane



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Questions?

Single Sign-On



Beyond OIDC

```
connectors:
Argo CD leverages Dex (<a href="https://dexidp.io/">https://dexidp.io/</a>) if
                                                   type: github
you need to use SAML, LDAP or any other
                                                      id: github
non OIDC provider
                                                      name: GitHub
Dex is bundled by default into Argo CD
                                                      config:
                                                        clientID: aabbccddeeff00112233
installation
                                             6
                                                        clientSecret: $dex.github.clientSecret
Dex configuration is defined in argocd-cm
                                                        loadAllGroups: true
ConfigMap
```