



// GITOPS BY EXAMPLE - REPOS, PATTERNS, PROMOTION, PROCESSES

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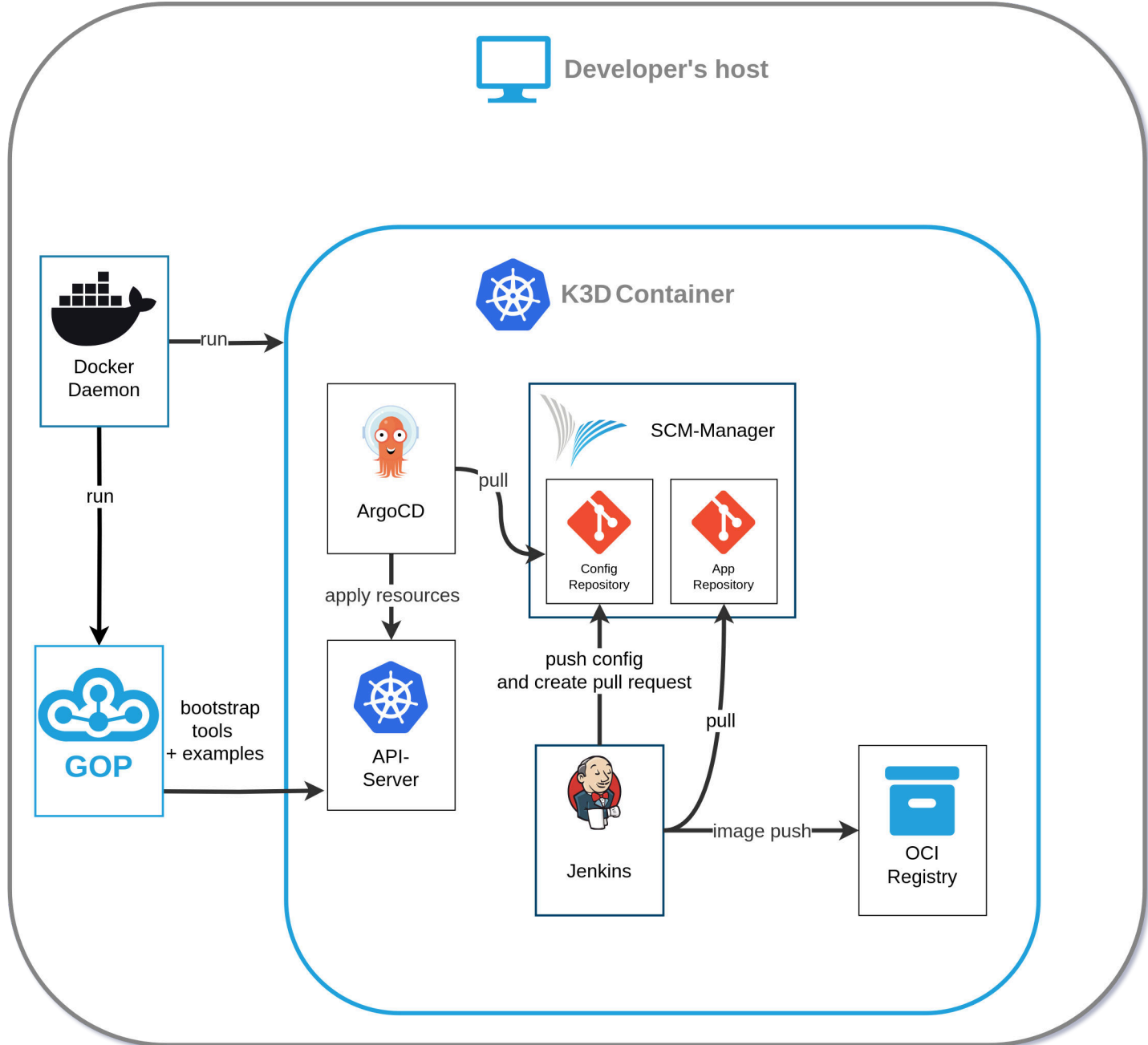
 @schnatterer@floss.social

 in/jschnatterer

Version: 202411132228-23a1be5

Live example





Meet GOP

a GitOps-based operational stack (platform)

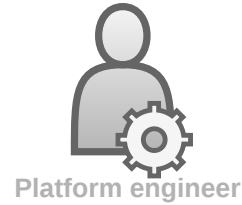
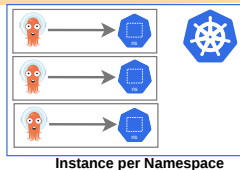
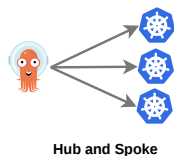
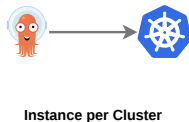


```
VERSION='0.8.0'
bash <(curl -s \
  "https://raw.githubusercontent.com/cloudogu/gitops-playground/$VERSION/scripts/init-cluster.sh") \
&& docker run --rm -t -u $(id -u) \
  -v ~/.config/k3d/kubeconfig-gitops-playground.yaml:/home/.kube/config \
  --net=host \
  ghcr.io/cloudogu/gitops-playground:$VERSION --yes --base-url=http://localhost --ingress-nginx --argocd
# Other interesting options --monitoring --vault=dev --mailhog --cert-manager
```

 [cloudogu/gitops-playground](https://github.com/cloudogu/gitops-playground)

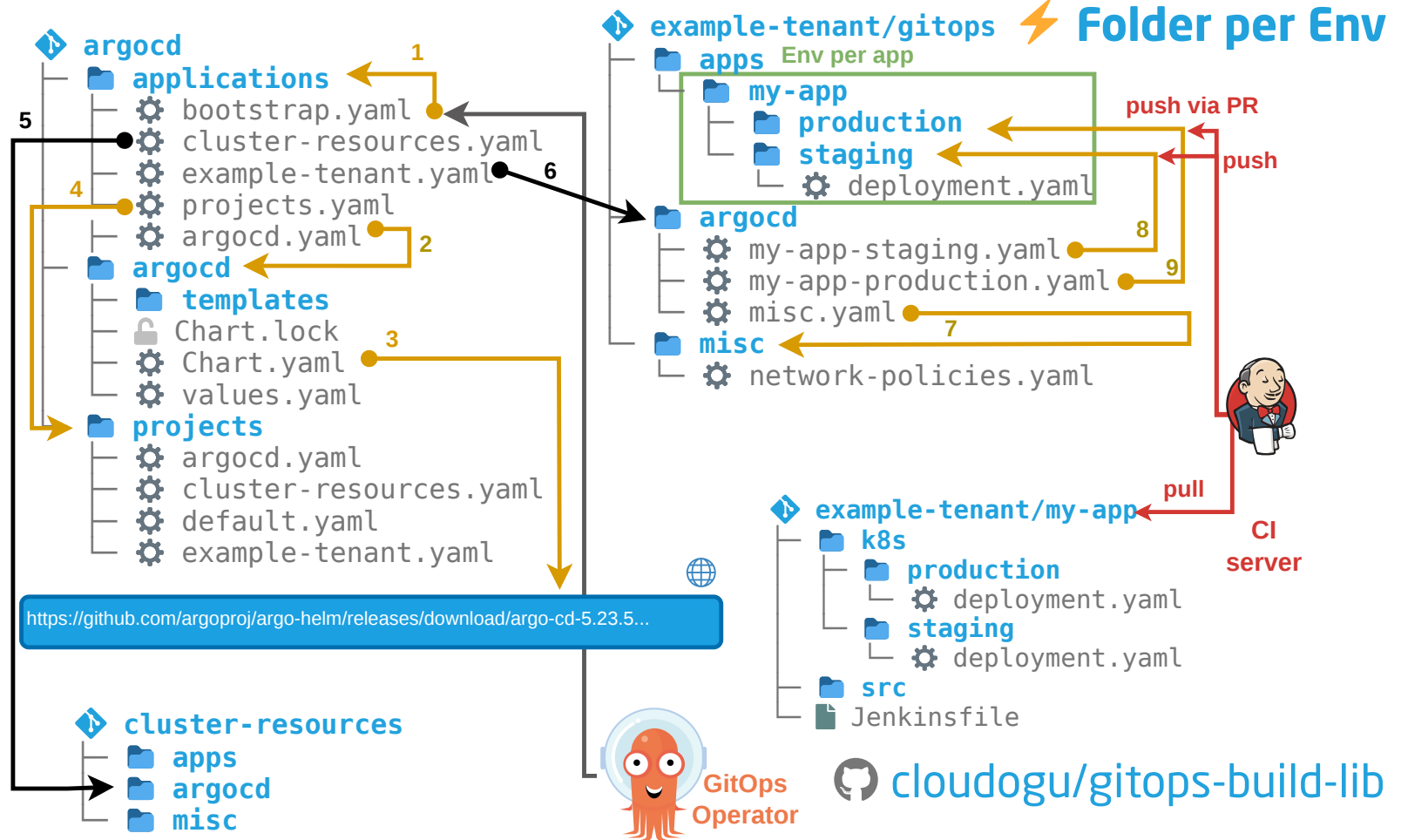
Example 1: GOP

- **Repo pattern:** Per team 🗑️ per app
- **Operator pattern:** Instance per Cluster (Hub and Spoke, Instance per Namespace)
- **Operator:** 🐙
- **Bootstrapping:** GOP (Helm, kubectl)
- **Linking:** 🐙 Application
- **Features:**
 - Operate ArgoCD with GitOps
 - Solution for cluster resources
 - Env per app
 - CI: Config update + replication, rendered Manifest 🚢
 - Multi-tenancy: N tenants on 1 cluster (namespace envs)
- **Source:** 🐙 [cloudogu/gitops-playground](https://github.com/cloudogu/gitops-playground)



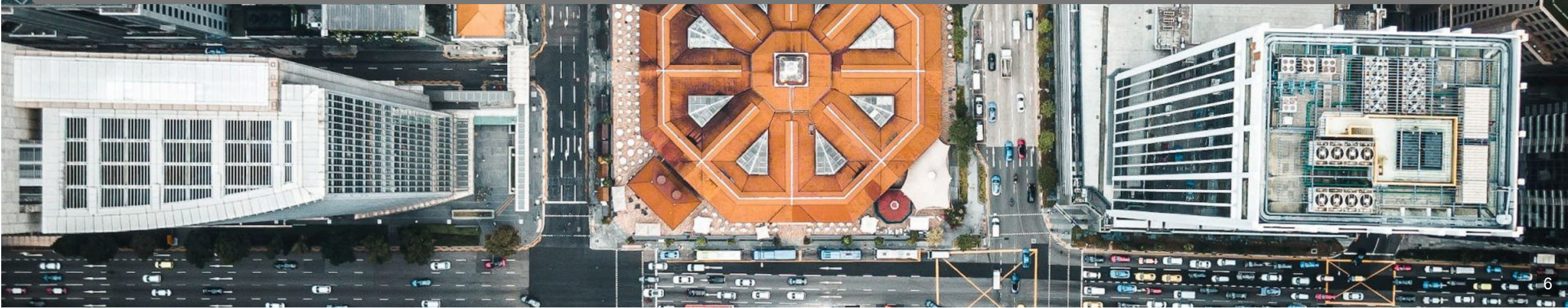
App of Apps

Umbrella Chart




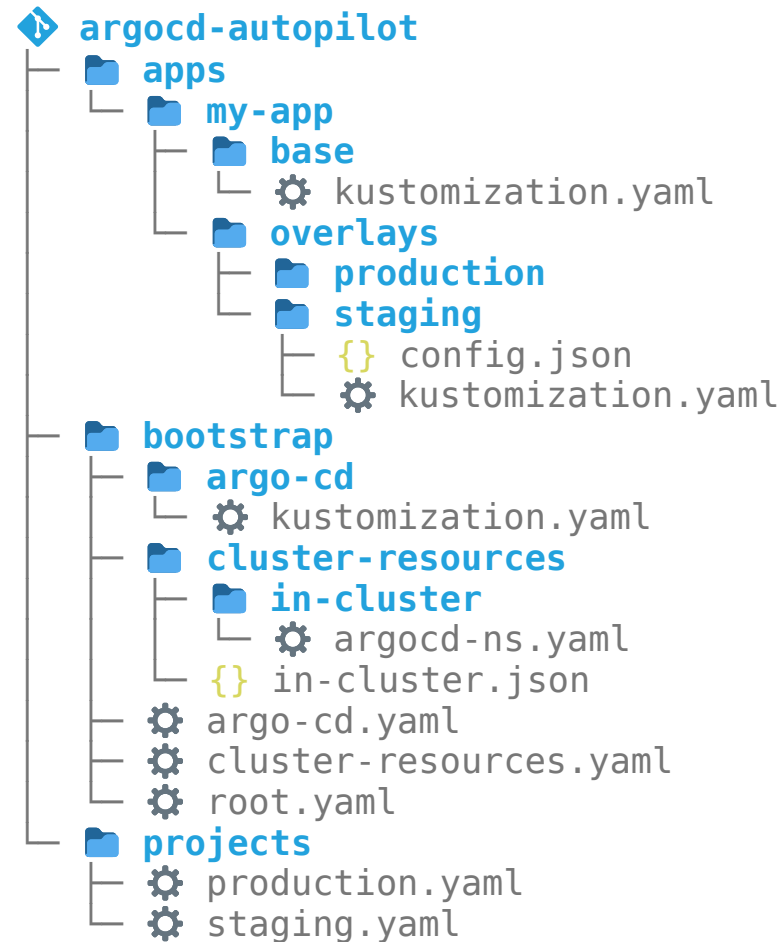


More examples



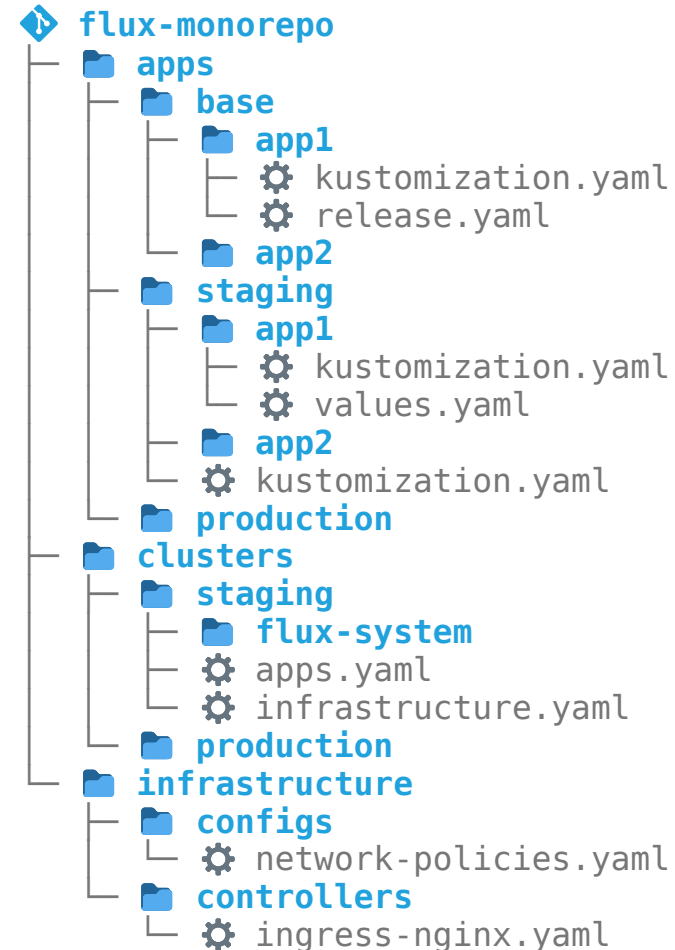
Example 2: ArgoCD autopilot

- **Repo pattern:** [Monorepo](#)
- **Operator pattern:**
Instance per Cluster / Hub and Spoke
- **Operator:** 🐙
- **Bootstrapping:** `argocd-autopilot`
- **Linking:** 🐙 Application, ApplicationSet, 
- **Features:**
 - Operate ArgoCD with GitOps
 - Solution for cluster resources
 - Env per app Pattern
 - Create structure and YAML via CLI
- **Source:**
 - 🔄 [argoproj-labs/argocd-autopilot](https://github.com/argoproj-labs/argocd-autopilot)
 - 📖 [gitops-book/argocd-autopilot-example](https://github.com/gitops-book/argocd-autopilot-example)









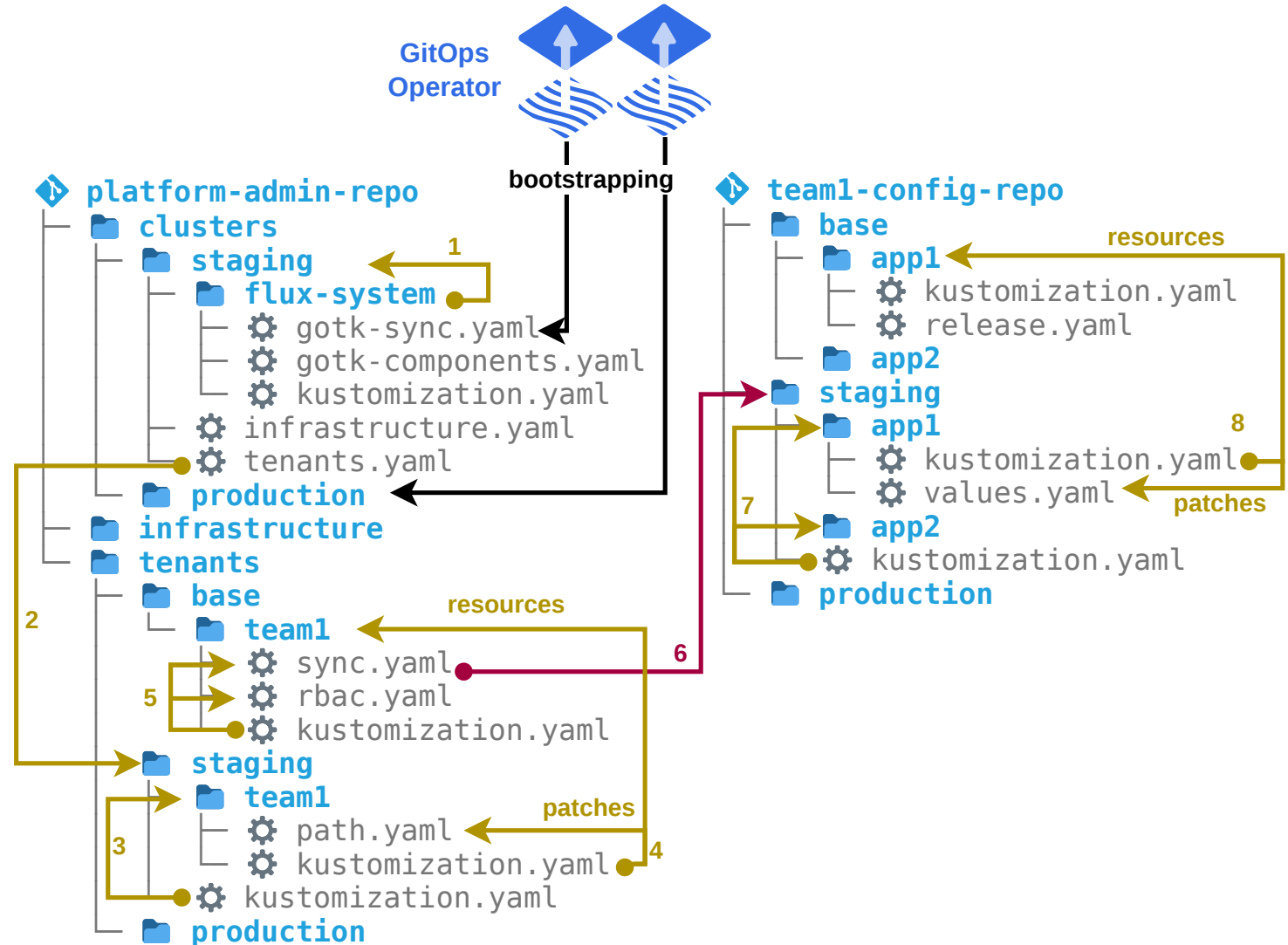
Example 3: Flux Monorepo

- **Repo pattern:** Monorepo
- **Operator pattern:** Instance per Cluster
- **Operator:** 
- **Bootstrapping:** flux
- **Linking:**  Kustomization, 
- **Features:**
 - Operate Flux with GitOps
 - Solution for cluster resources
- **Source:**
 -  [fluxcd/flux2-kustomize-helm-example#16](https://github.com/fluxcd/flux2-kustomize-helm-example#16)
 -  fluxcd.io/flux/guides/repository-structure
 -  [gitops-book/flux2-kustomize-helm-example](https://gitops-book.com/flux2-kustomize-helm-example)



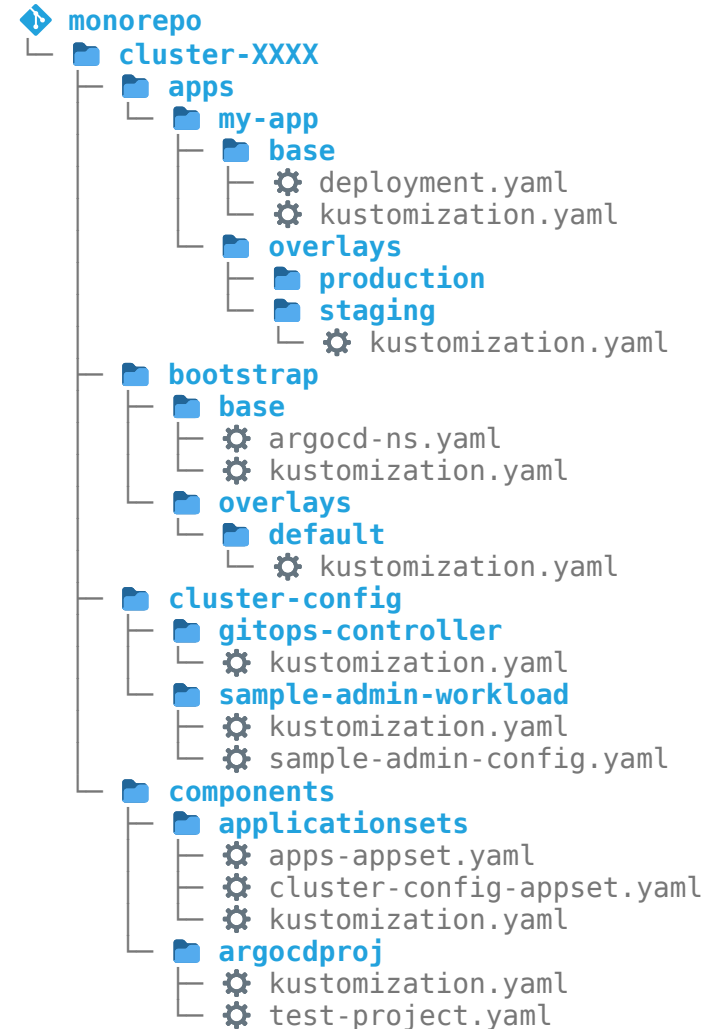
Example 4: Flux repo per team

- **Repo pattern:** Repo per team
- **Operator pattern:** Instance per Cluster
- **Operator:** 
- **Bootstrapping:** flux
- **Linking:**  Kustomization, 
- **Features:**
 - Operate Flux with GitOps
 - Solution for cluster resources
 - Multi-tenancy: N tenants on 1 cluster per env (cluster envs)
- **Source:**
 -  [fluxcd/flux2-multi-tenancy](https://github.com/fluxcd/flux2-multi-tenancy)
 -  fluxcd.io/flux/guides/repository-structure
 -  [gitops-book/flux2-multi-tenancy](https://gitops-book.com/flux2-multi-tenancy)



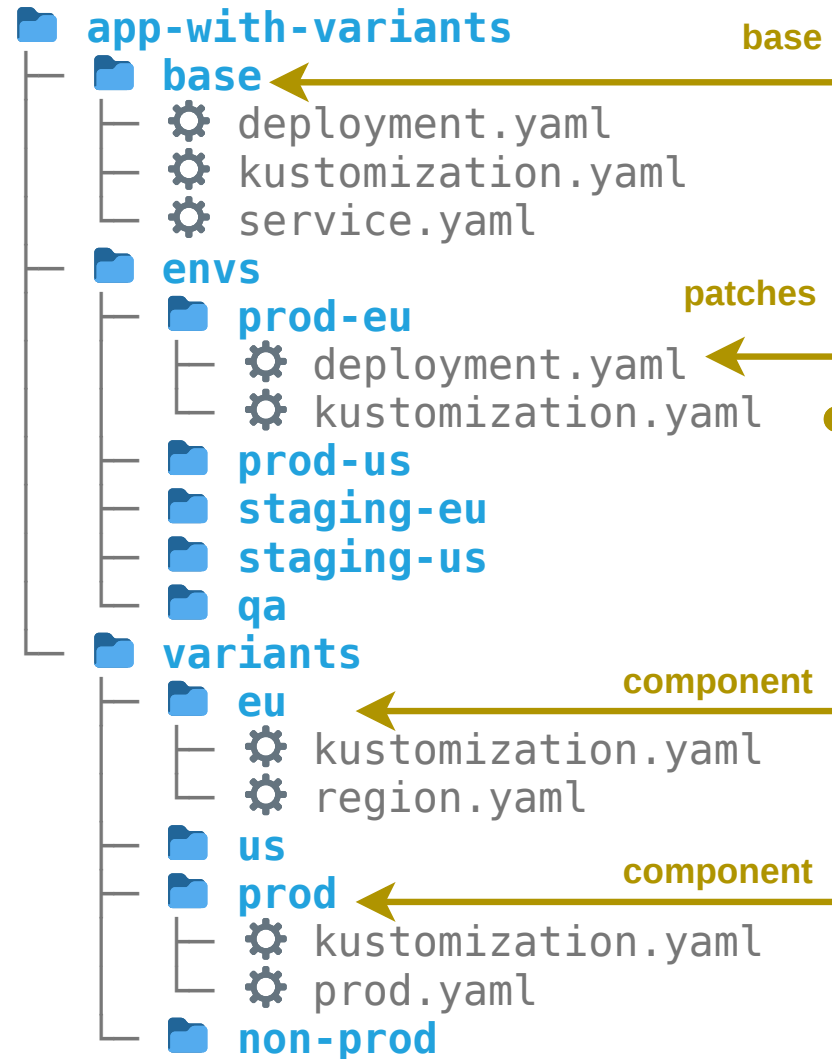
Example 5: ArgoCD and Flux alternative

- **Repo pattern:** Monorepo
- **Operator pattern:** Instance per Cluster
- **Operator:** 🧑‍🔧 ⚙️
- **Bootstrapping:** kubectl
- **Linking:** 🧑‍🔧 Application, ApplicationSet / ⚙️ Kustomization, 📁 K
- **Features:**
 - Solution for cluster resources
 - ArgoCD **and** Flux examples
- **Source:**
 - 🔄 [christianh814/example-kubernetes-go-repo](https://github.com/christianh814/example-kubernetes-go-repo)
 - 📖 C. Hernandez - The Path to GitOps






Example 6: Env variations single app

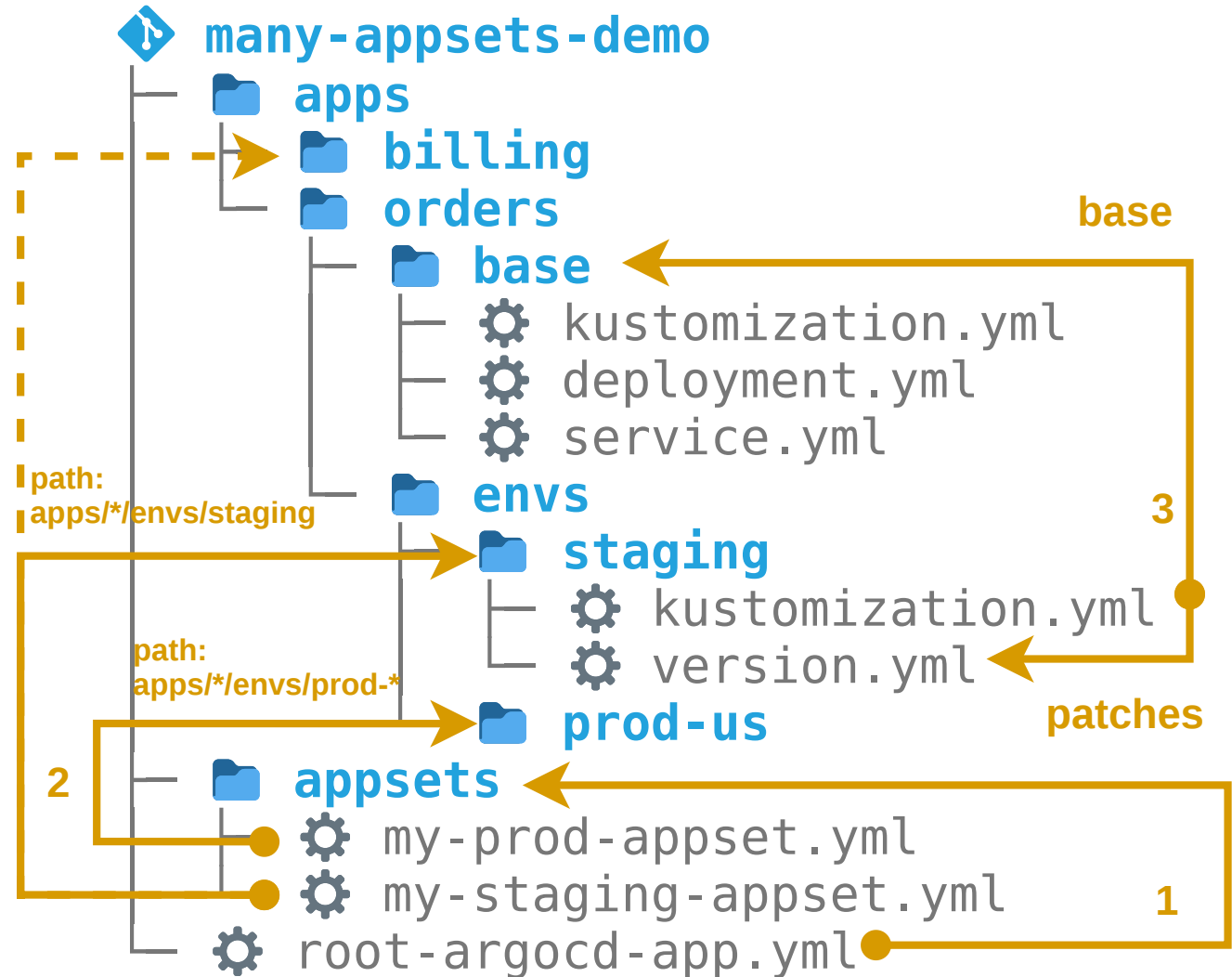
- **Operator:** 🐙 (🔗)
- **Linking:** 📄 K
- **Features:**
 - Env variants for a single app
 - Promotion "via cp"
 - Env per app Pattern
- **Source:**
 - 🔗 [kostis-codefresh/gitops-environment-promotion](https://github.com/kostis-codefresh/gitops-environment-promotion)






Example 7: Env variations multiple apps

- **Operator:** 
- **Linking:**  ,  ApplicationSet, (Application)
- **Features:**
 - Env variants for multiple apps with few appSets
 - Promotion "via cp"
 - Env per app Pattern
- **Source:**

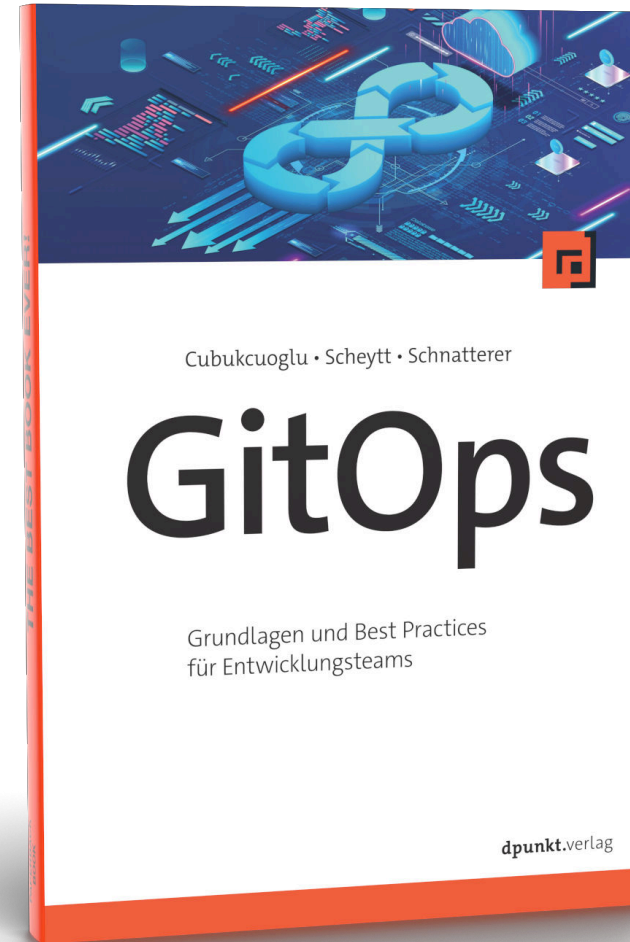
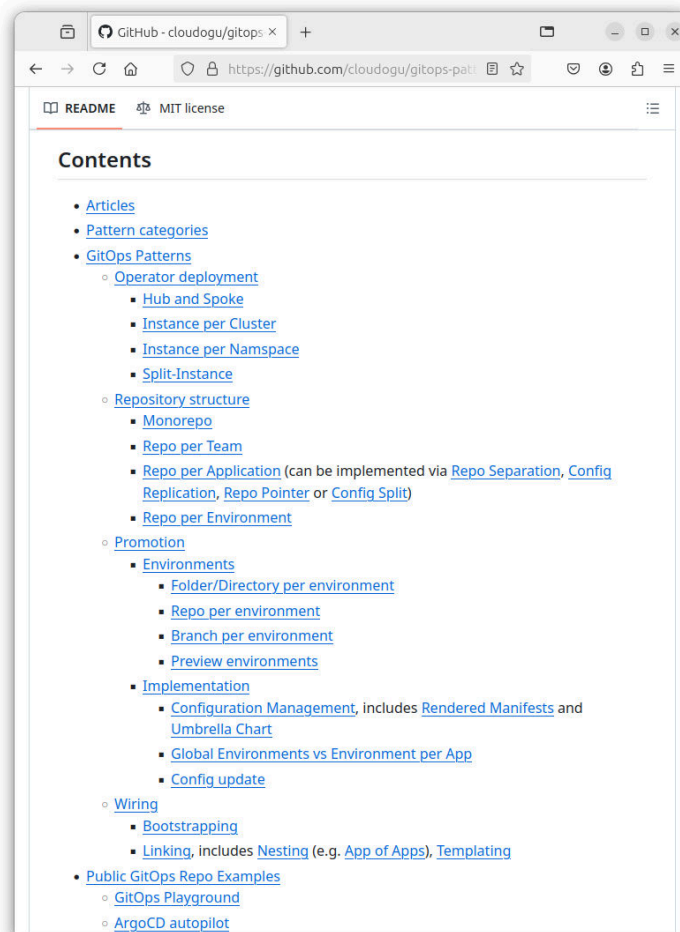
 [kostis-codefresh/many-appsets-demo](https://github.com/kostis-codefresh/many-appsets-demo)



Key Takeaways

- Repo: Monorepo or polyrepo?
- Bootstrapping: The only imperative step before GitOps
- Linking: 
 -  `Kustomization`
 -  `Application`, `ApplicationSet`
- Multi-tenancy: Repos, operators, clusters, namespaces
- ➔ Examples + patterns provide guidance, templates, ideas
- ➔ Find the structure that matches your use case

More patterns + further reading



 [cloudogu/gitops-patterns](https://github.com/cloudogu/gitops-patterns)

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Slides



 Join my team: cloudogu.com/join/cloud-engineer

Image sources

- Live Example:
<https://unsplash.com/photos/assorted-color-hot-air-balloons-during-daytime-DuBNA1QMpPA>
- More examples:
<https://unsplash.com/photos/XZc4f2XZc84>
- coloured-parchment-paper background by brgfx on Freepik:
https://www.freepik.com/free-vector/coloured-parchment-paper-designs_1078492.htm