



CNOE – Cloud Native Operational Excellence for Internal Developer Platforms

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Principal Architect
AWS

Manabu McCloskey

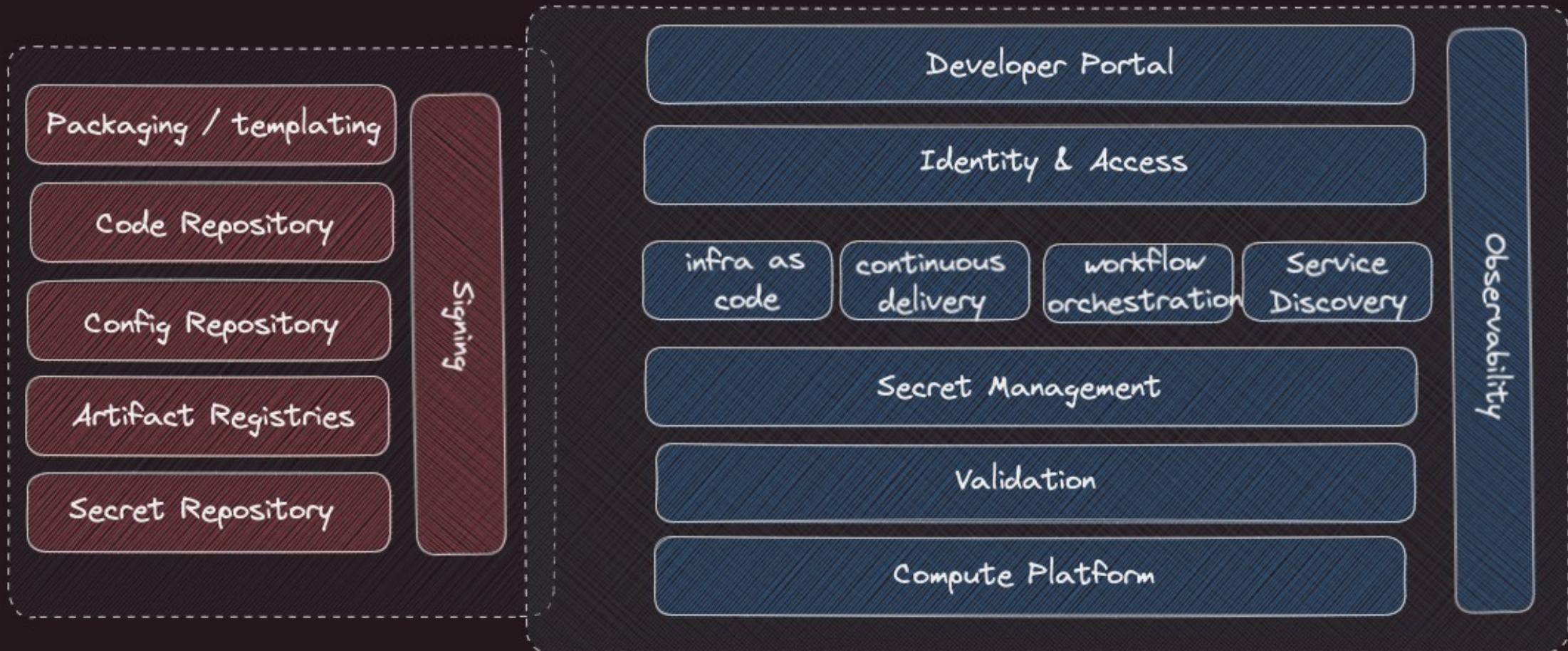
Senior Architect
AWS

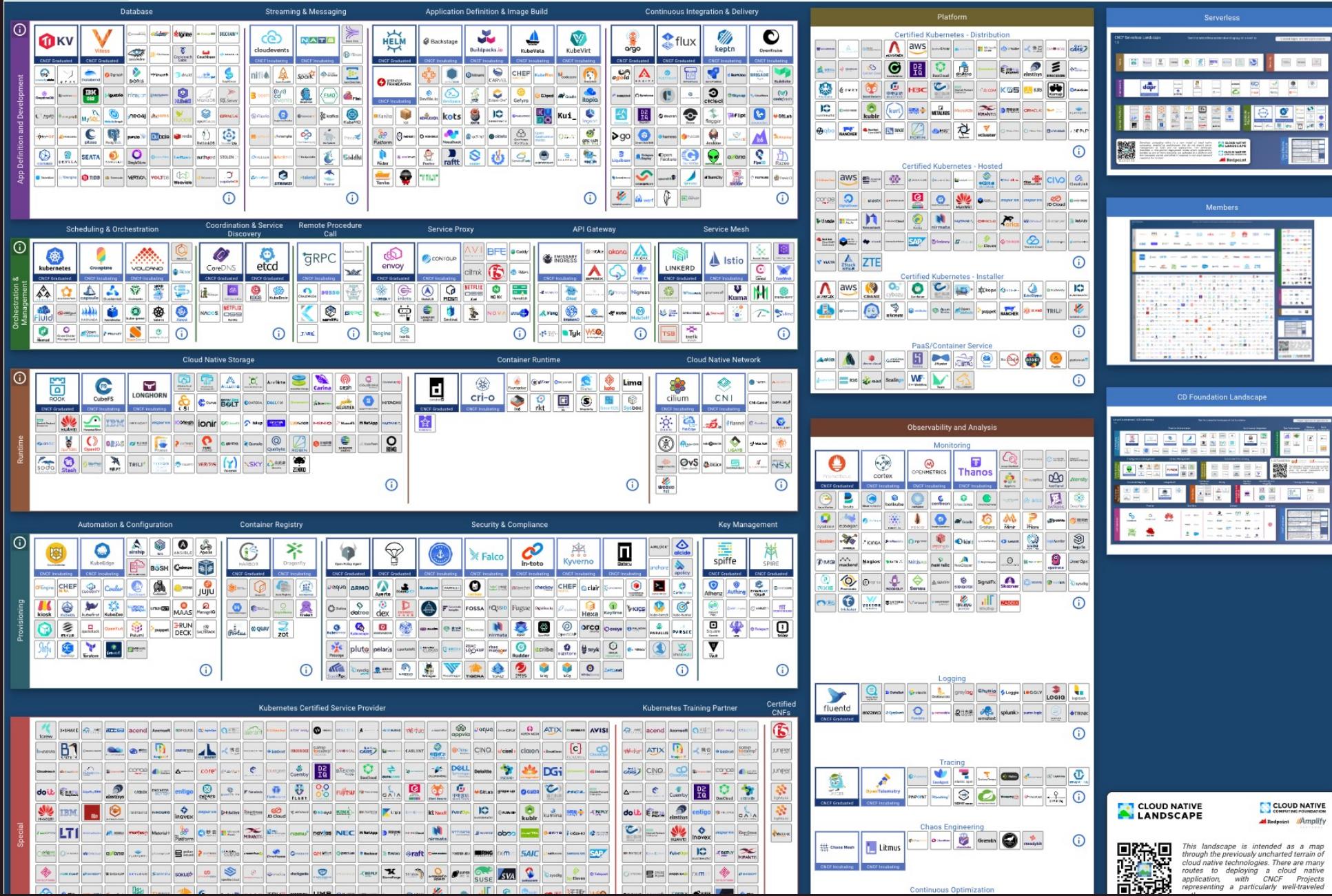
Brandon Leach

Sr Director of Dev Platforms
Autodesk

Background

Internal Developer Platform - Capabilities



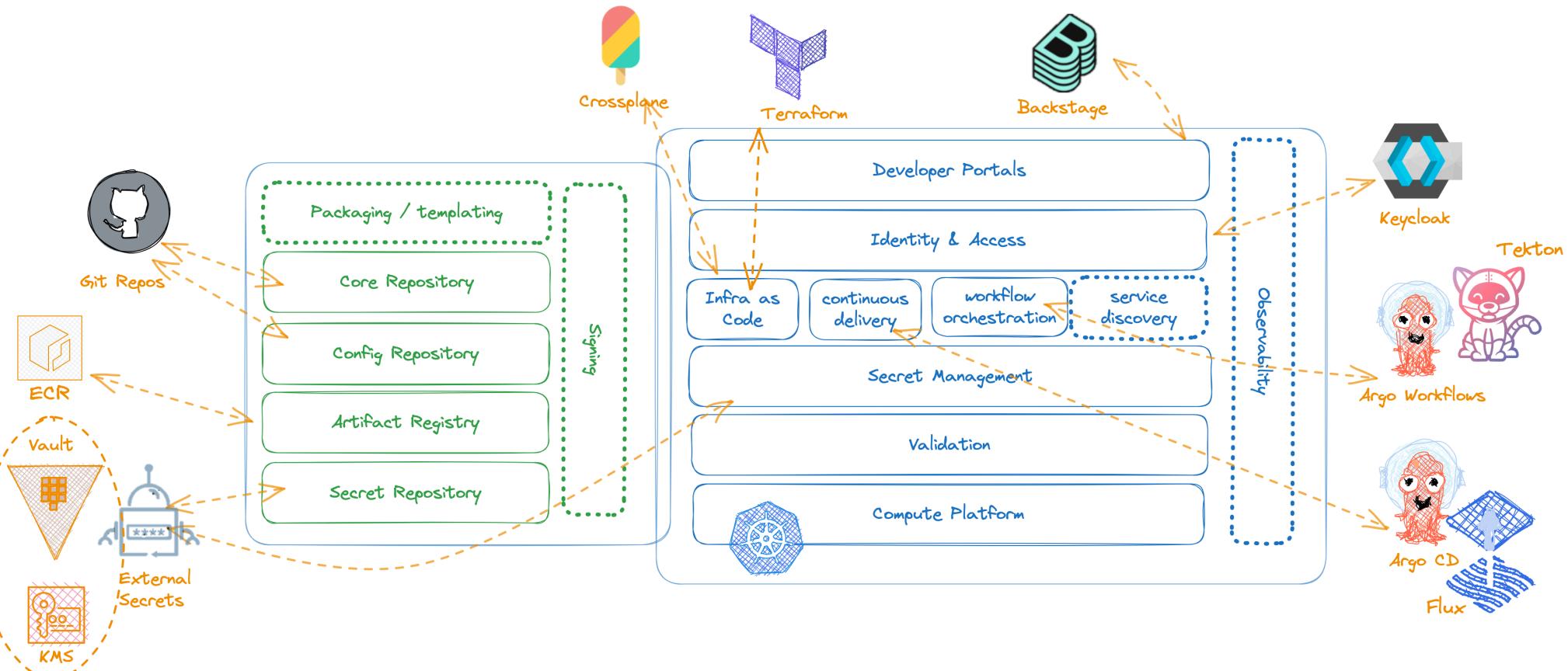


Have you seen a Solution?

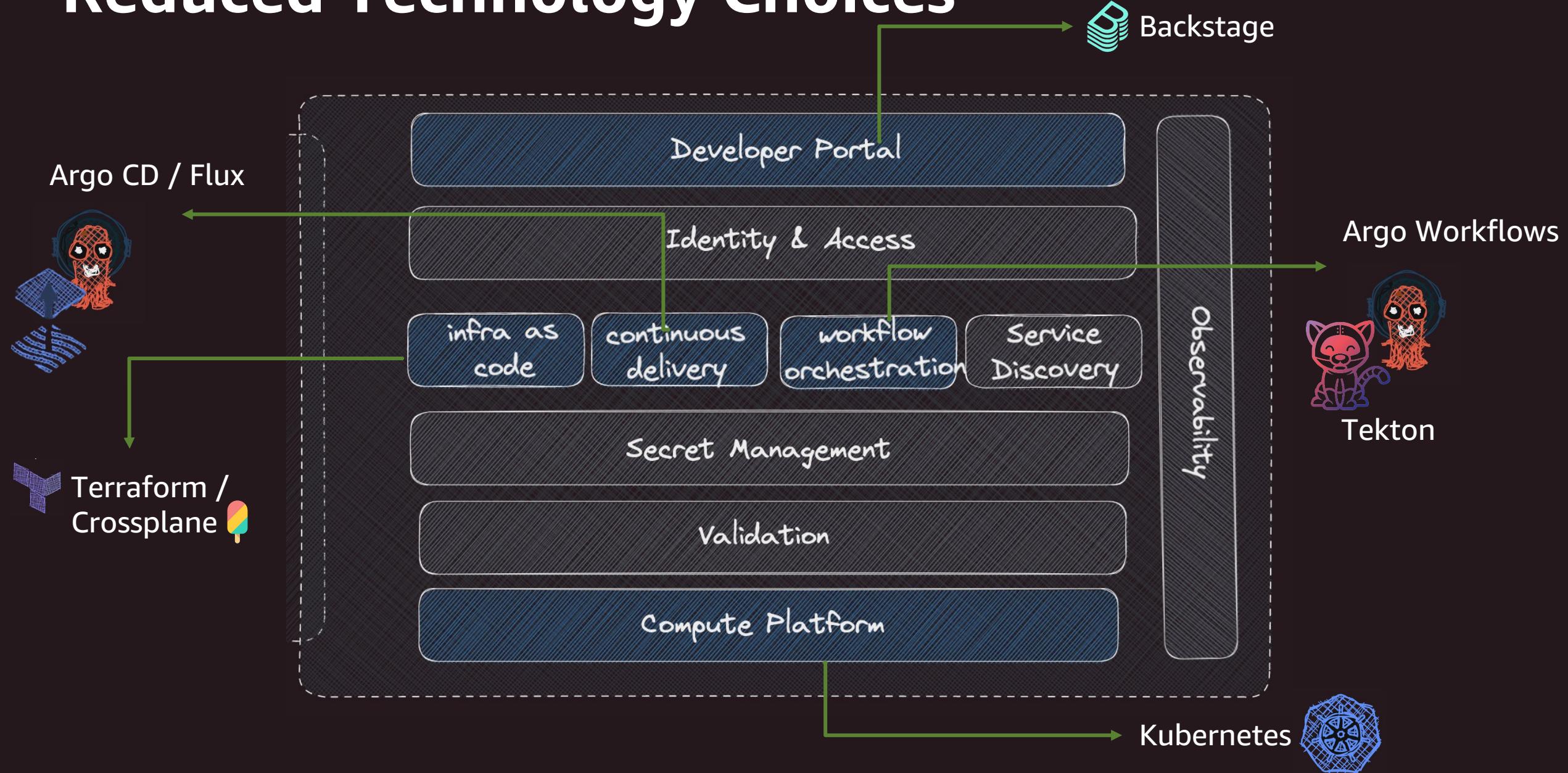


Constructing a Distribution

Reduced Technology Choices

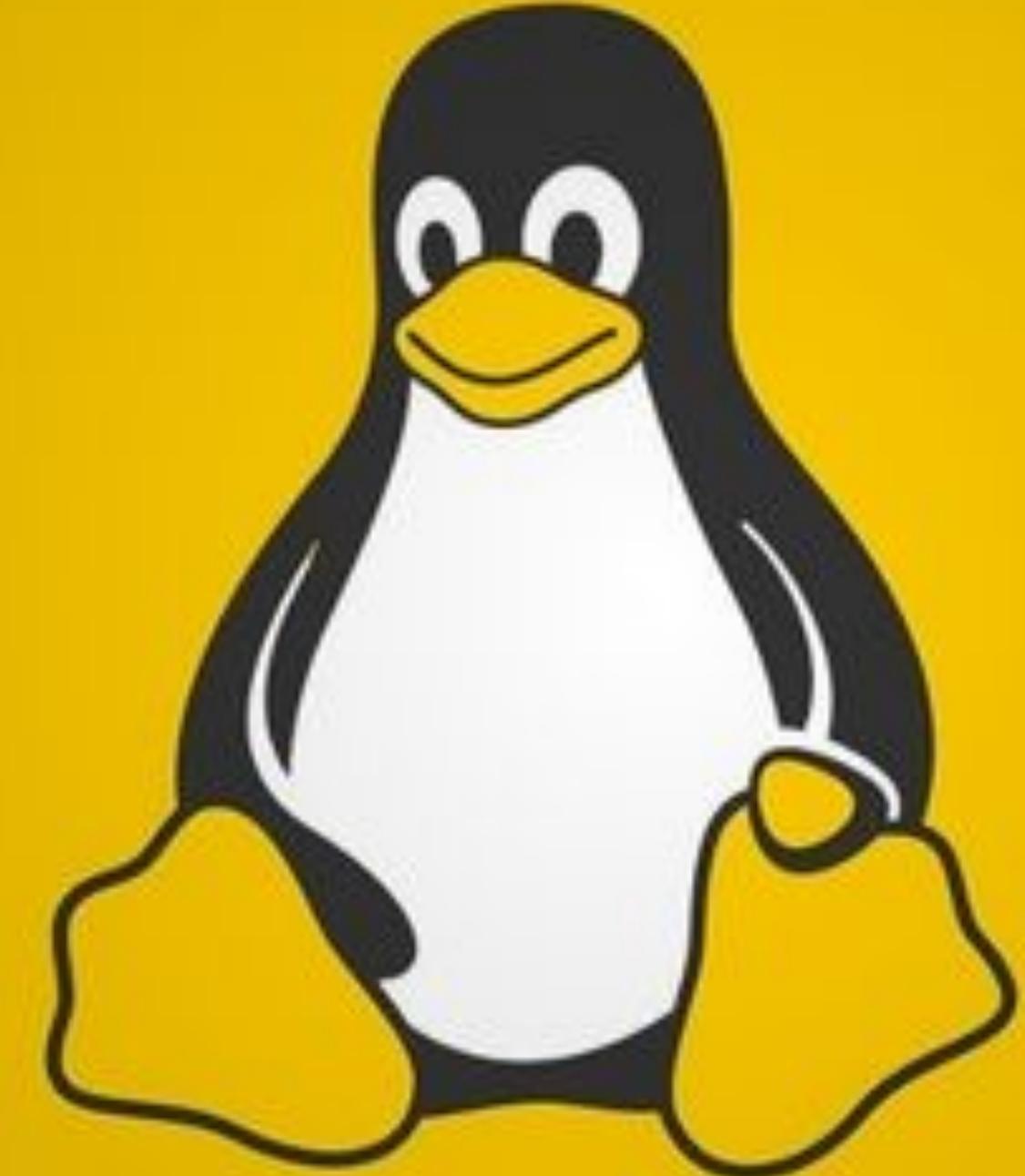


Reduced Technology Choices



A **Linux distro**

is an operating system
made from a software
collection that is based
upon **the Linux kernel**
and, often, a package
management system.



An IDP Distribution

is a developer platform made from a software collection that is based upon *Kubernetes*, as well as a package management system.



**CNOE is an
internal developer platform (IDP) *distribution*
built in the open
in collaboration with the user community
powered by CNCF technologies**



Why does building a Distribution matter?

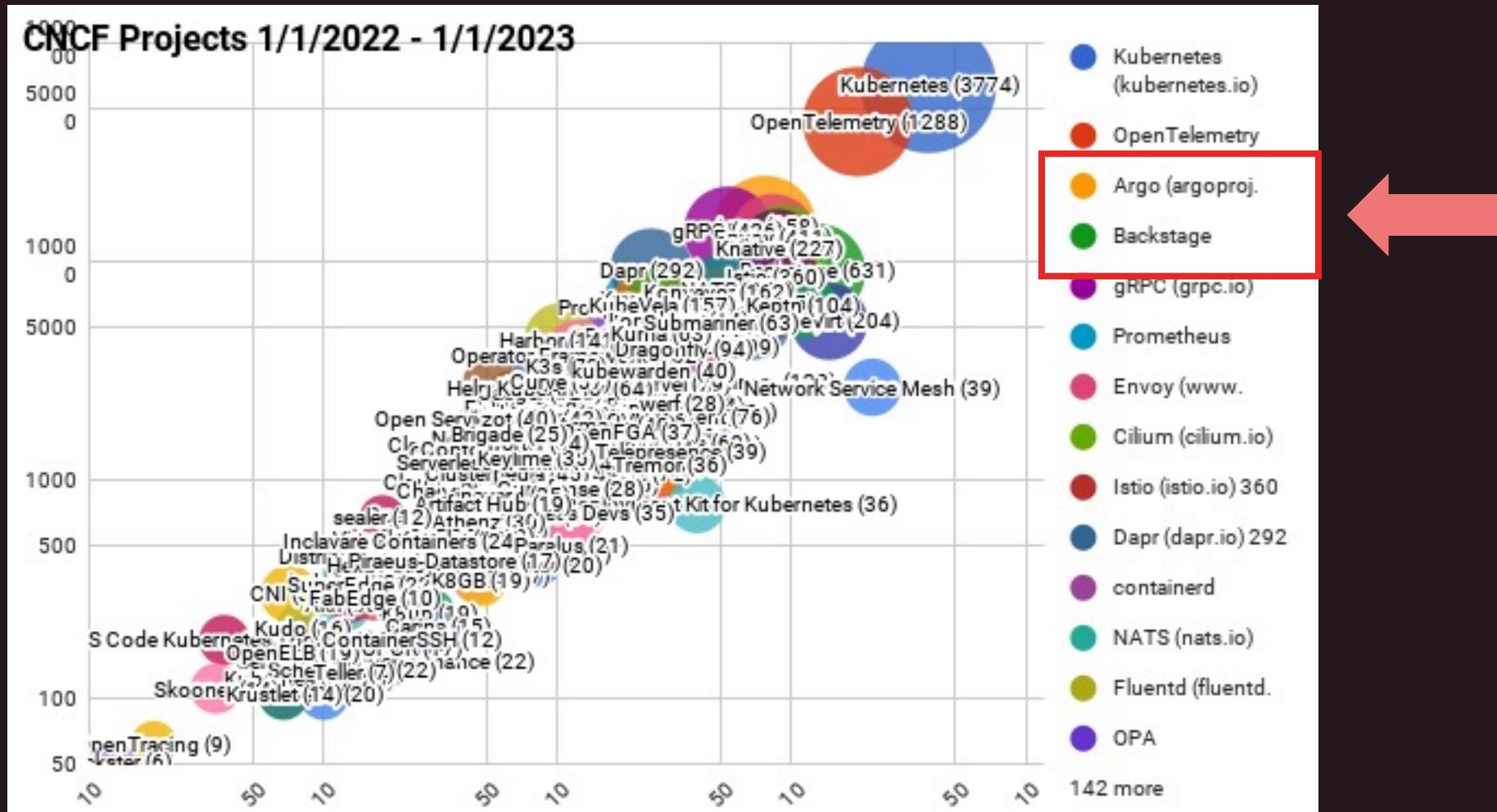
- It gets us past technology choices
- The focus shifts on improving technologies used
- We shift to defining best practices

Technology Choices

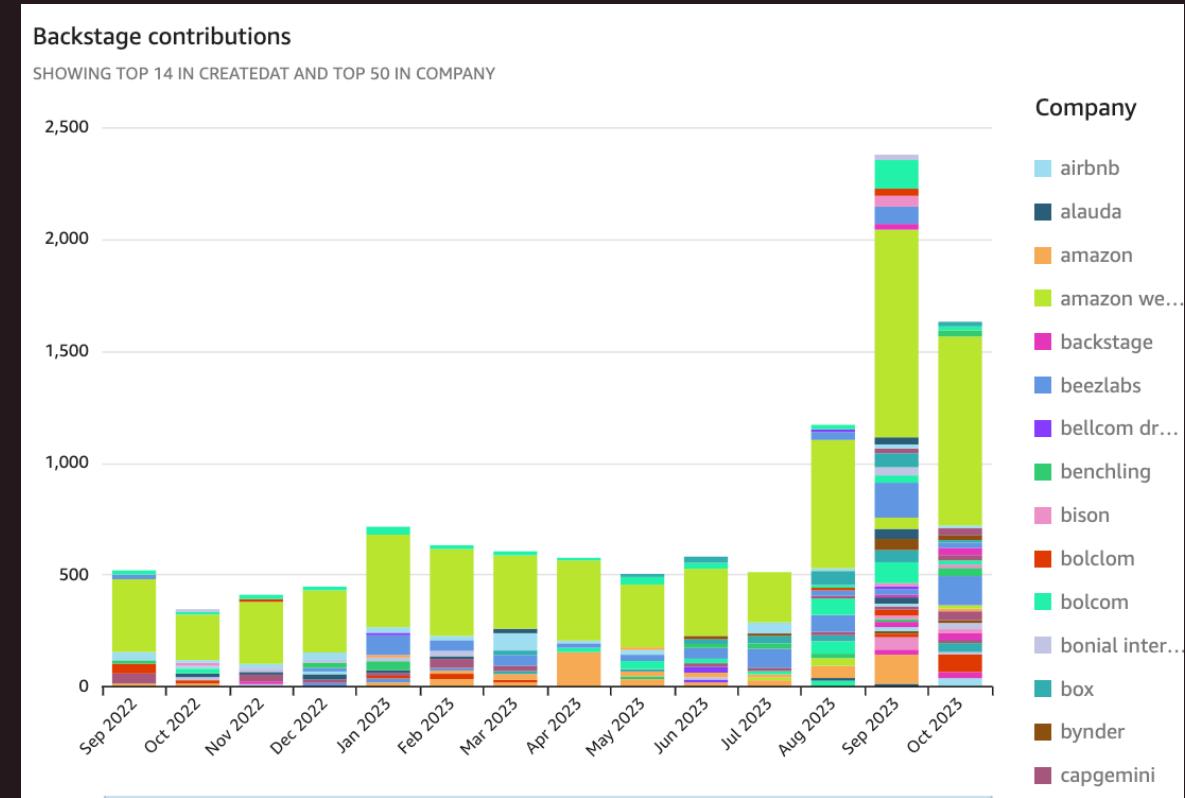
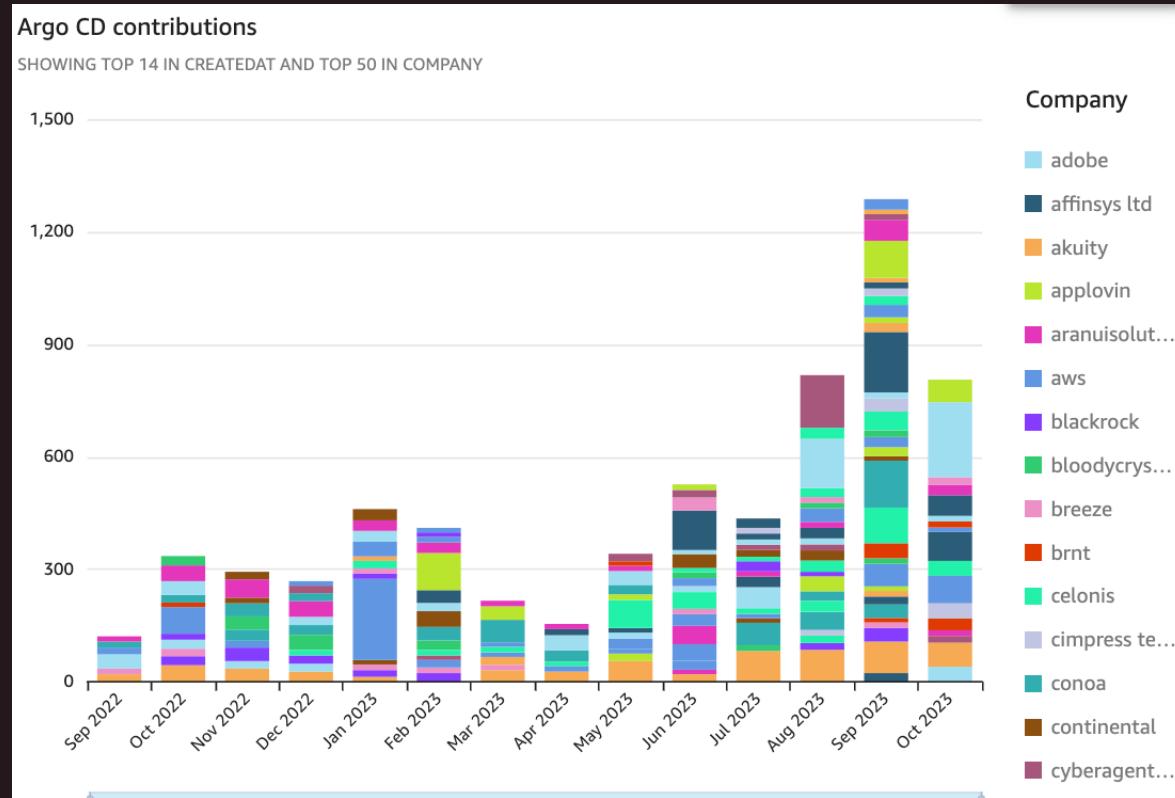
Technology Selection Criteria

- Kubernetes as the underlying platform
- open source projects (preferably CNCF)
 - right level of maturity
 - strong signals on the adoption

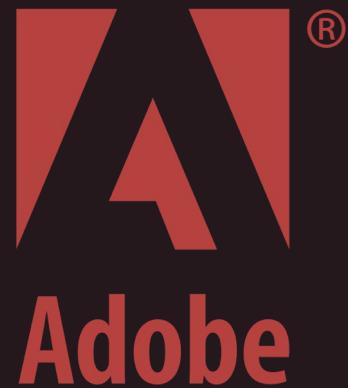
CNCF Velocity Graphs 2023



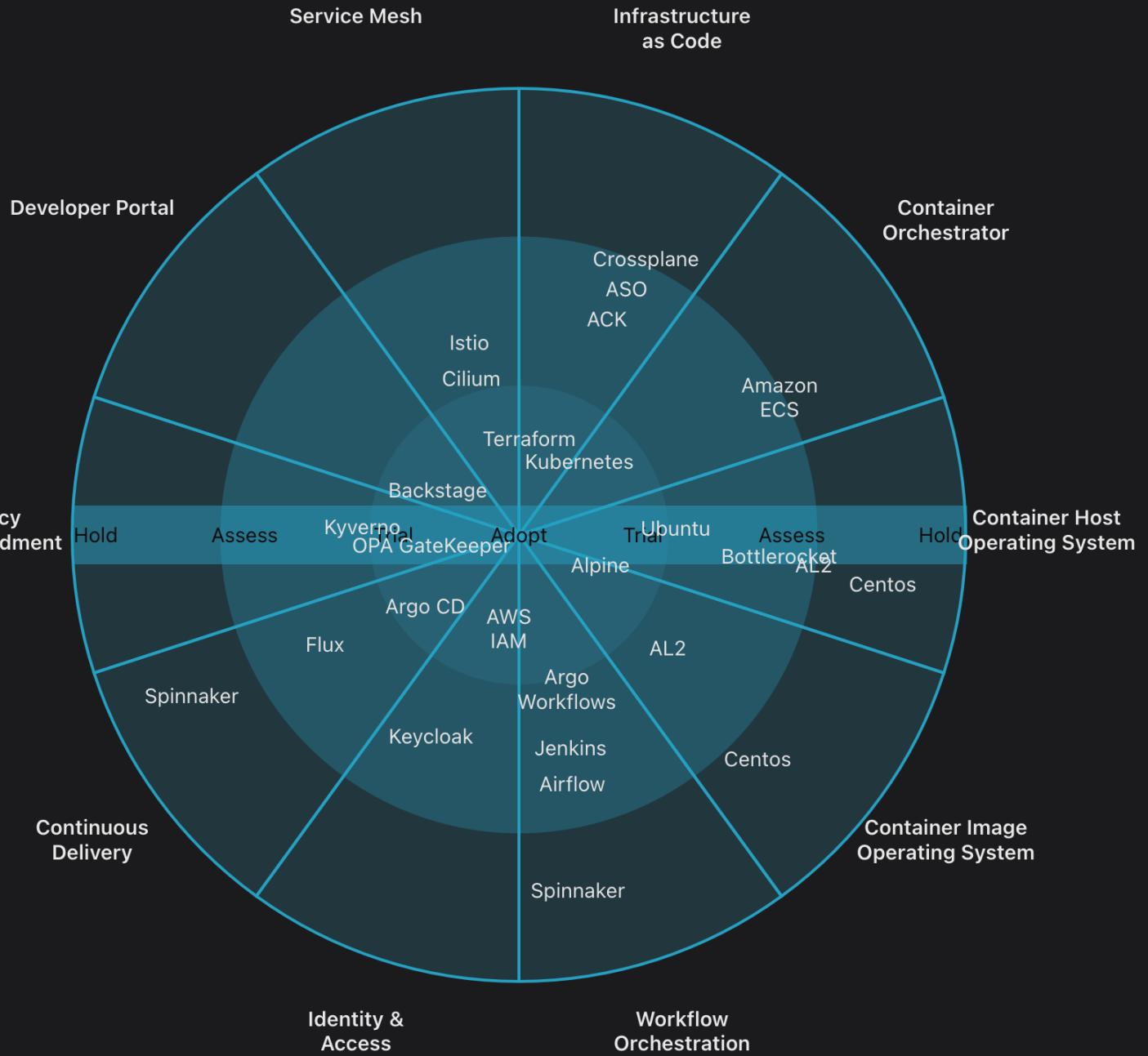
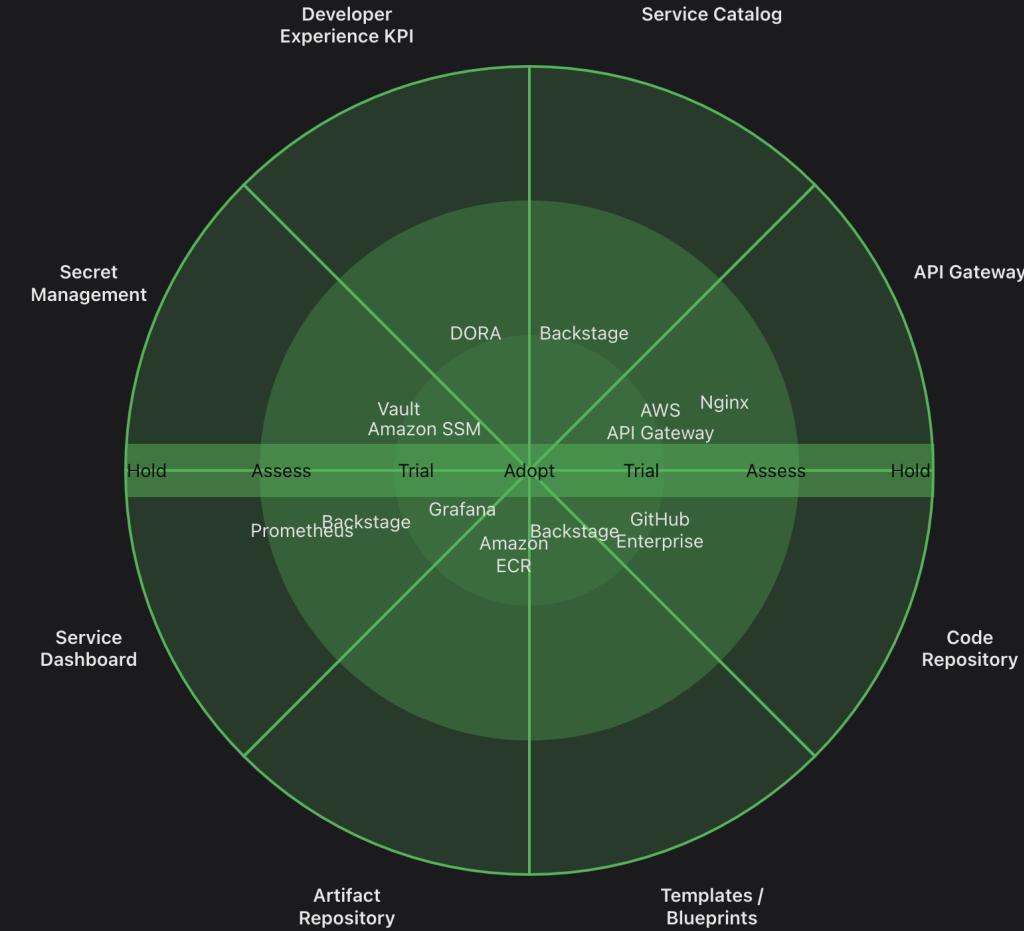
GitHub Contributions



Scale of Operation



Technology Radars



Technology Improvements

Scalability Work

- 10,000 Argo CD Applications
- 100 Clusters
 - Performance Improvements
 - Configuration Tuning

Part 1: <http://bit.ly/3QtFnM5>



[AWS Open Source Blog](#)

Argo CD Application Controller Scalability Testing on Amazon EKS

by Andrew Lee, Christina Andonov, Carlos Santana, and Nima Kaviani | on 13 SEP 2023 | in [Amazon Elastic Kubernetes Service](#), [Customer Solutions](#), [Open Source](#) | [Permalink](#) | [Comments](#) | [Share](#)

Scalability Work

- 50,000 Argo CD Applications
- 5,000 Clusters
 - Performance Improvements
 - New Sharding Algorithms
 - Configuration Tuning
- Argo Workflows Scalability
- Backstage Auth Mechanism



Best Practices

Crossplane Patterns

<https://github.com/awslabs/crossplane-on-eks>

The screenshot shows the GitHub repository page for 'crossplane-on-eks'. The repository is public and has 17 issues, 1 pull request, and 1 discussion. It has 80 forks and 250 stars. The repository was created by '7navyasa' and last updated 2 weeks ago with 116 commits. The commit history includes several changes related to AWS resources and testing frameworks. The repository uses AWS, Crossplane, and Terraform providers. It includes a Readme, Apache-2.0 license, Code of conduct, Security policy, and activity metrics. There is also a first release from Sep 21.

Issues 17 | **Pull requests** 1 | **Discussions** | **Actions** | **Projects** 1 | **Wiki** | **Security** | **Insights** | **Settings**

crossplane-on-eks Public

Code

7navyasa Load Balancer Controller Addition (#156) ae88a32 2 weeks ago 116 commits

.github add initial tests (#26) last year

bootstrap Load Balancer Controller Addition (#156) 2 weeks ago

compositions fix: s3-irsa-app (#150) 2 months ago

doc add initial draft of rds day2 operations (#100) 9 months ago

examples Additional gatekeeper policies (#155) 2 weeks ago

tests update testing framework with latest version (#76) last year

.gitignore update testing framework with latest version (#76) last year

.pre-commit-config.yaml * update testing framework with latest version (#13) last year
Signed-off-by: Carlos Santana <csantana23@gmail.com>

CODEOWNERS fi... 10 months ago

CODE_OF_CONDUCT.md Initial commit last year

CONTRIBUTING.md Initial commit last year

LICENSE change license (#43) last year

NOTICE change license (#43) last year

README.md add initial draft of rds day2 operations (#100) 9 months ago

About

Crossplane bespoke composition blueprints for AWS resources

Tags

aws crossplane crossplane-provider terrajet

Readme

Apache-2.0 license

Code of conduct

Security policy

Activity

250 stars

20 watching

80 forks

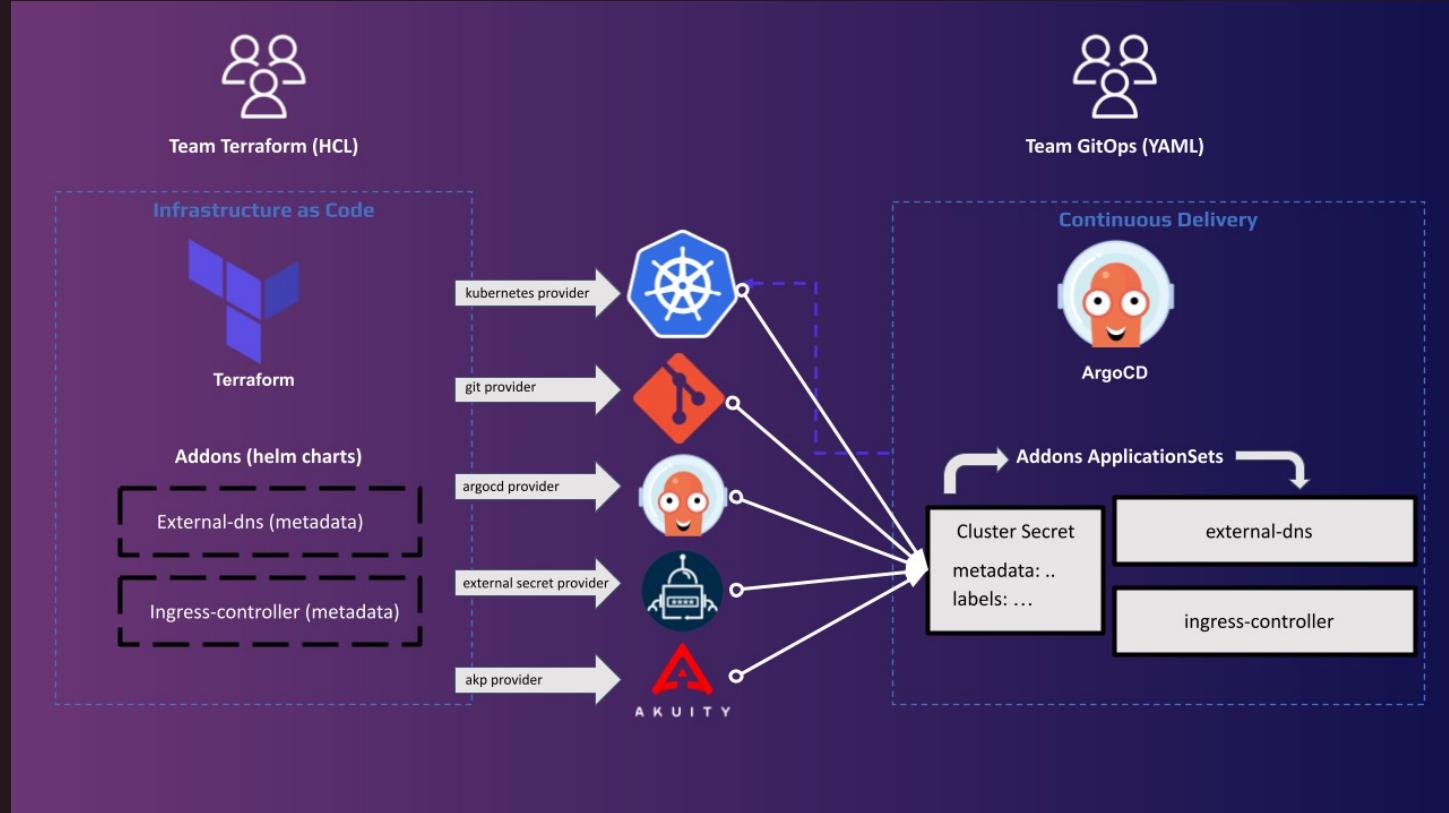
Report repository

Releases 1

First release Latest on Sep 21

Packages

GitOps Bridge



<https://github.com/gitops-bridge-dev>

Developer Portal Best Practices

- Backstage plugins
- Developer practices

Optimizing for Data Quality in your Developer Portal

November 6, 2023 · 9 min read



Greg Haynes

Architect, Autodesk



Blake Romano

Software Engineer, Imagine Learning



Jesse Sanford

Architect, Autodesk



Kyle Smith

Software Engineer, Segment - Twilio



Manabu McCloskey

Architect, AWS



Nima Kavani

Architect, AWS



Packaging Technologies

idpBuilder

<https://github.com/cnoe-io/idpbuilder>

The screenshot shows the GitHub repository page for 'idpBuilder'. The repository is public and has 15 watchers, 8 forks, and 25 stars. It contains 2 branches and 1 tag. The main branch has 30 commits. The repository has no description, website, or topics provided. It includes a Readme, Apache-2.0 license, and activity information. There is one release, v0.1.0 (Latest), from last week. No packages have been published, and there are 8 contributors.

Code

About

No description, website, or topics provided.

Readme

Apache-2.0 license

Activity

25 stars

15 watching

8 forks

Report repository

Releases 1

v0.1.0 Latest last week

Packages

No packages published

[Publish your first package](#)

Contributors 8

bm.mdaea

IDP Builder

AWS Reference Implementation

<https://github.com/cnoe-io/reference-implementation-aws>

The screenshot shows a GitHub repository page for 'reference-implementation-aws'. The repository is public and has 4 branches and 0 tags. The main branch is selected. There are 85 commits from the user 'nabuskey' listed below:

File / Commit Message	Time Ago
docs/images update image and move spark operator	2 months ago
examples update demo.md	2 months ago
packages fix app set and update backstage image	last month
setups run terraform	2 weeks ago
terraform update images	last month
.gitignore use terraform	2 months ago
LICENSE add license	last month
README.md add more info about manifest handling	2 months ago
TROUBLESHOOTING.md add information about monitoring progress	4 months ago
demo.md update demo.md	2 months ago
eksctl.yaml update readme and ensure argocd is installed	4 months ago

How is CNOE progressing?

- The Governance Model
- Project Roadmap

CNOE Governance

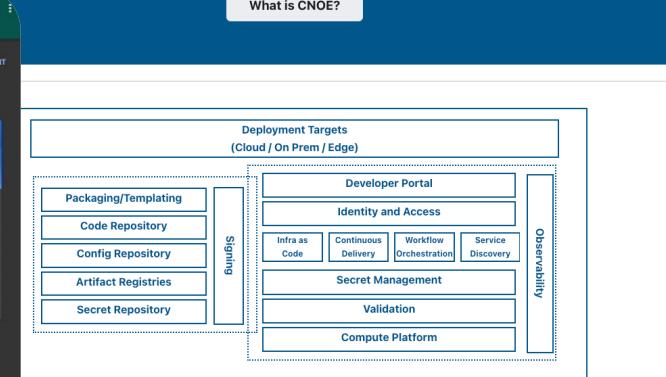
This document outlines the formal decision making processes which run the CNOE project.

Principles

- Open: See CONTRIBUTING.md
- Welcoming and respectful: See Code of Conduct below

The screenshot shows the 'CNOE Governance' section of the README.md file. It includes a 'Principles' section with two bullet points and a 'Backlog' section with four items categorized by status: Backlog (10), Now (3), Done (14), and Later (2). The 'Now' section contains items like 'Local test environment' and 'Service Templates v1'. The 'Done' section contains items like 'Internal Developer Portal Strategy Paper' and 'Conversion tool for Open API V3 to JSON Schema v4'. The 'Later' section contains items like 'Service Maturity Scoring with Backstage' and 'Campaigns and Initiatives with Backstage'.

The screenshot shows the 'Create a New Component' screen in Backstage. It displays 'Available Templates' for 'CNOE' under the 'PERSONAL' category. Three templates are listed: 'App with AWS Resources', 'App with AWS Resources and workflows', and 'Create a EKS cluster with EKS blueprints'. Each template has a 'DESCRIPTION', 'OWNER', 'TAGS', and 'LINKS' section. Buttons for 'CHOOSE' and 'REGISTER EXISTING COMPONENT' are present.



Demo

Thank you!

<http://cnoe.io>

