



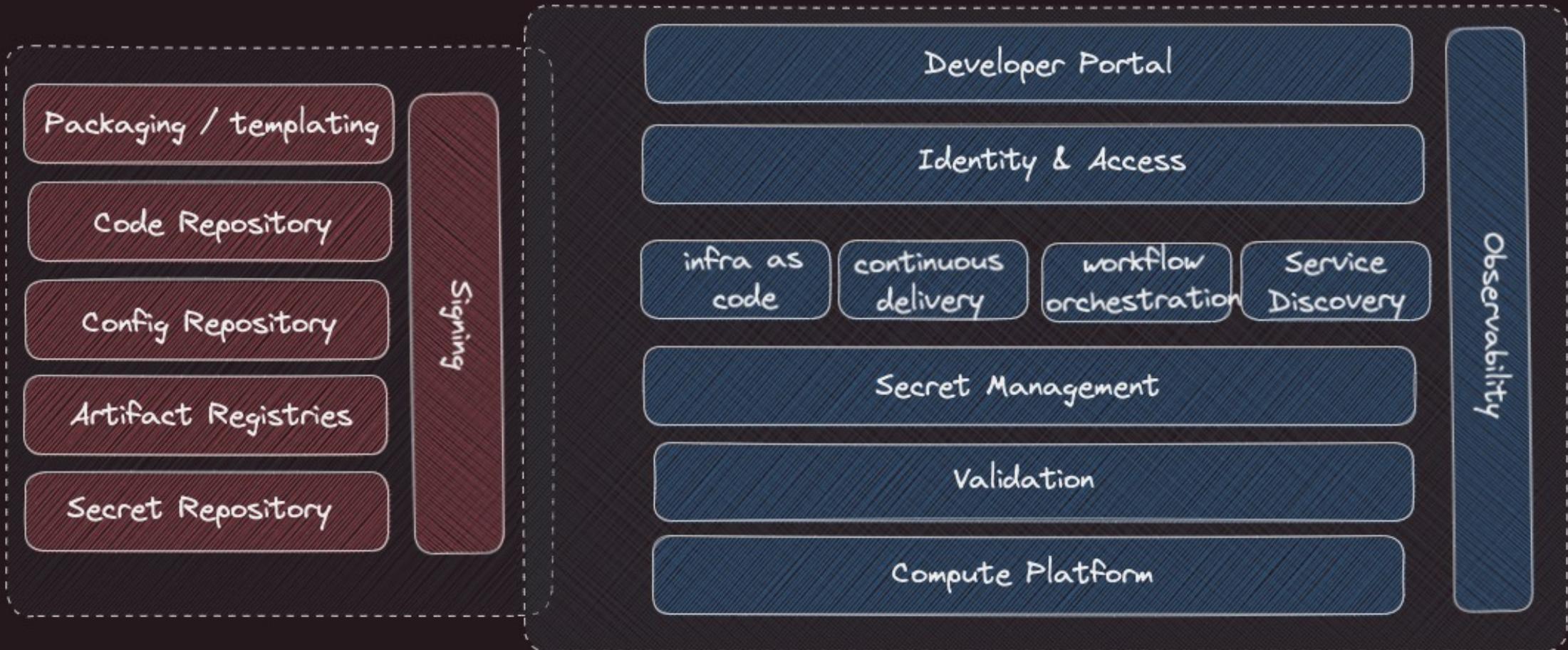
The CNOE Project – Creating an Industry Standard Internal Developer Platform Distribution using CNCF Technologies

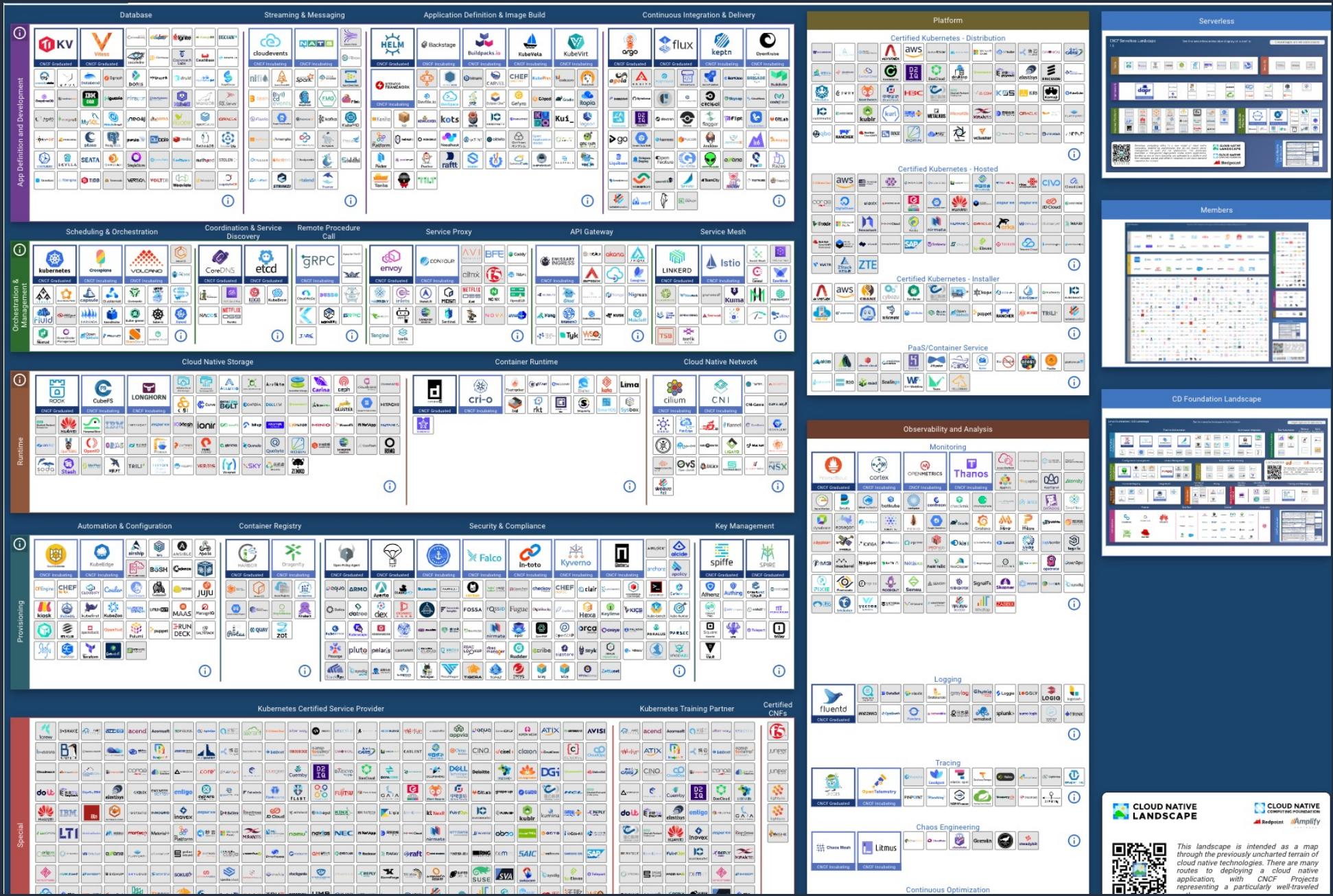


Brandon Leach, Senior Director of Engineering at Autodesk
Nima Kavani, Principal Solutions Architect at AWS



Internal Developer Platform - Capabilities





Have you seen a Solution?



The Platforming Journey



Choose the Stack



Build the Stack



Test the Stack



Sell the Stack



Scale the Stack

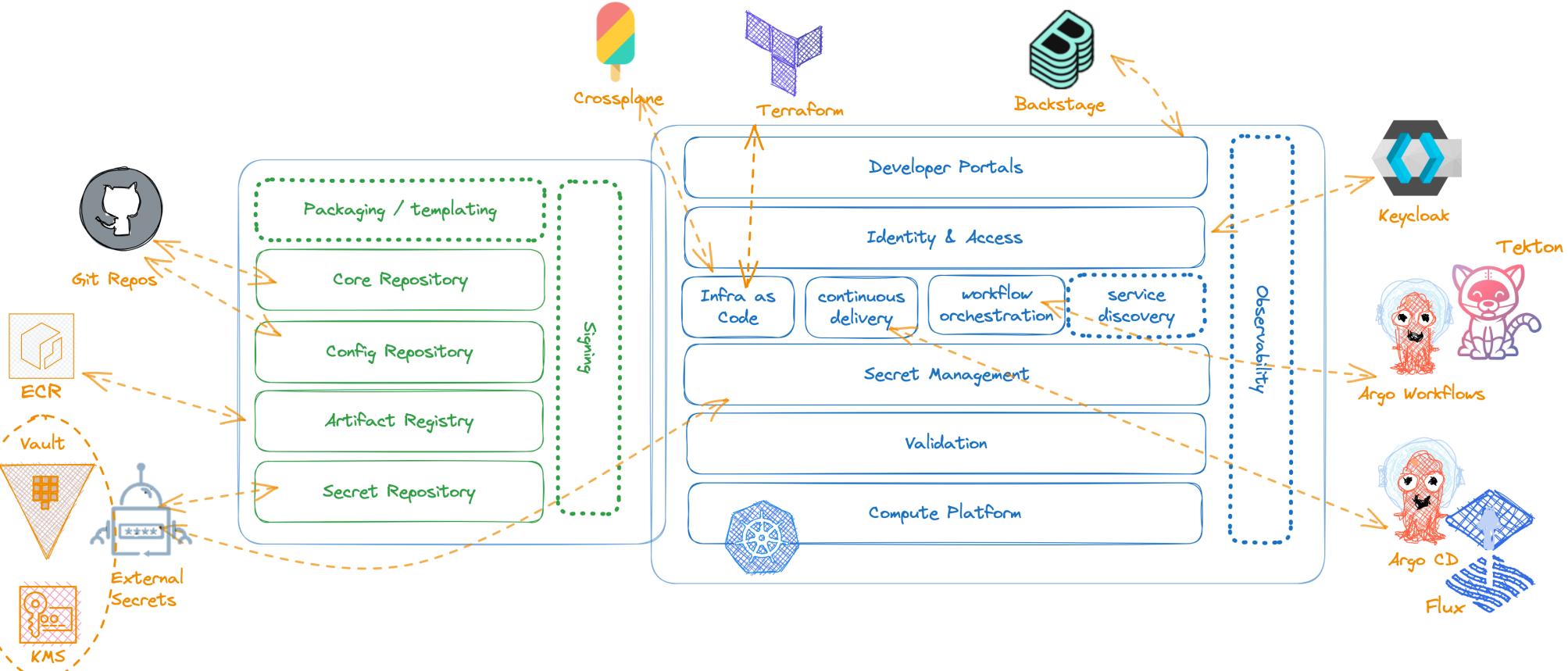
Choosing the Stack



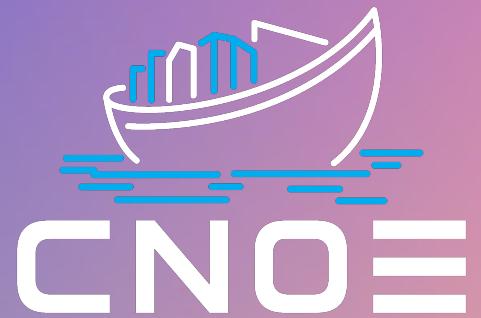
Scale of Operation



Reduced Technology Choices

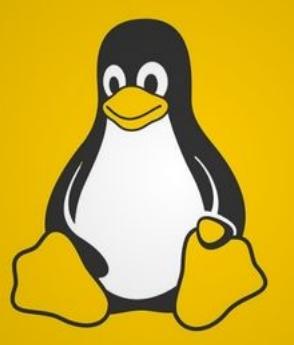


**CNOE is an
internal developer platform (IDP) *distribution*
built in the open
with the goal to help with delivering a platform**



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.



Building the Stack



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idpBuilder

github.com/cnoe-io/idpbuilder

idpbuilder Public

92be6f9 last week 30 commits

github add issue template (#61) 2 weeks ago

api/v1alpha1 Remove adsk internal domains last month

docs pluggable pakages (#31) last week

globals Initial commit 2 months ago

hack Initial commit 2 months ago

pkg run go vet (#70) last week

.gitignore Fix #23: add resources directory and yaml files. (#24) 3 weeks ago

.goreleaser.yaml add go releaser (#57) 2 weeks ago

LICENSE Initial commit 2 months ago

Makefile run go vet (#70) last week

README.md Remove non needed 2nd kubernetes node (#56) 2 weeks ago

go.mod Remove non needed 2nd kubernetes node (#56) 2 weeks ago

go.sum Initial commit 2 months ago

main.go Remove adsk internal domains last month

Report repository

Releases 1

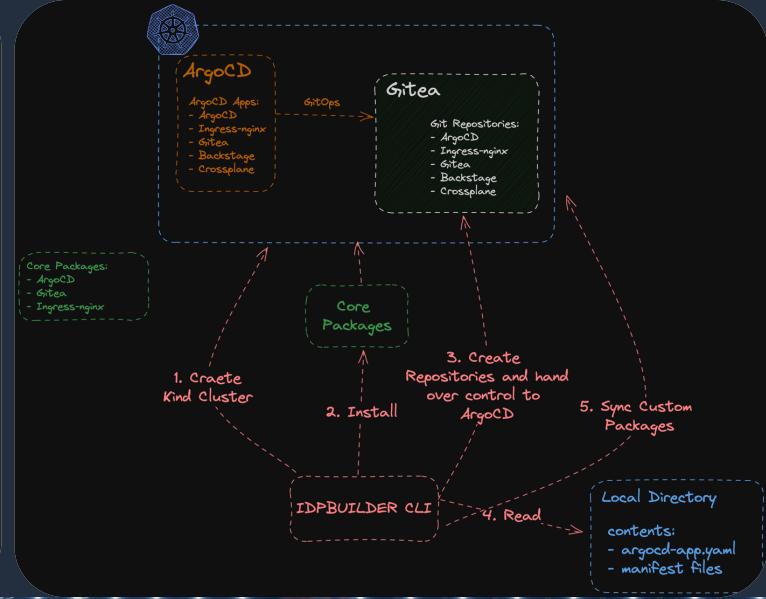
v0.1.0 Latest last week

Packages

No packages published Publish your first package

Contributors 8

IDP Builder



```
aatchison@Sisalive: ~          18:56:41          - 2000ms +
```

cpu menu preset *

mem

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Free:	75%

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proc

Pid	Program	Threads	User	MemB	Cpus
0	/sbin/init	1	root	390M	1.0
1	keyclock	1	root	14M	0.0
2	keyclock	1	root	14M	0.0
4	keyclock	1	root	14M	0.0
7	keyclock	1	root	14M	0.0
8	keyclock	1	root	14M	0.0
10	keyclock	1	root	14M	0.0
11	keyclock	1	root	14M	0.0
12	keyclock	1	root	14M	0.0
13	keyclock	1	root	14M	0.0
14	keyclock	1	root	14M	0.0

cput

Cortex A76	2.4 GHz
C0	55%
C1	55%
C2	48%
C3	55%
Load Avg:	7.31 7.33 4.58

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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 starred users. The repository was created by '7navyasa' and last updated 2 weeks ago with 116 commits. The main branch is 'main'. The repository is described as 'Crossplane bespoke composition blueprints for AWS resources' and uses 'aws', 'crossplane', 'crossplane-provider', and 'terrajet' tags. The repository has 250 stars, 20 watchers, 80 forks, and 2022 releases. A tooltip highlights a commit from '7navyasa' to 'tests' that adds a testing framework with the latest version.

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

crossplane-on-eks Public

Edit Pins | Unwatch 20 | Fork 80 | Starred 250

main 1 branch 1 tag Go to file Add file 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 Initial commit 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

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

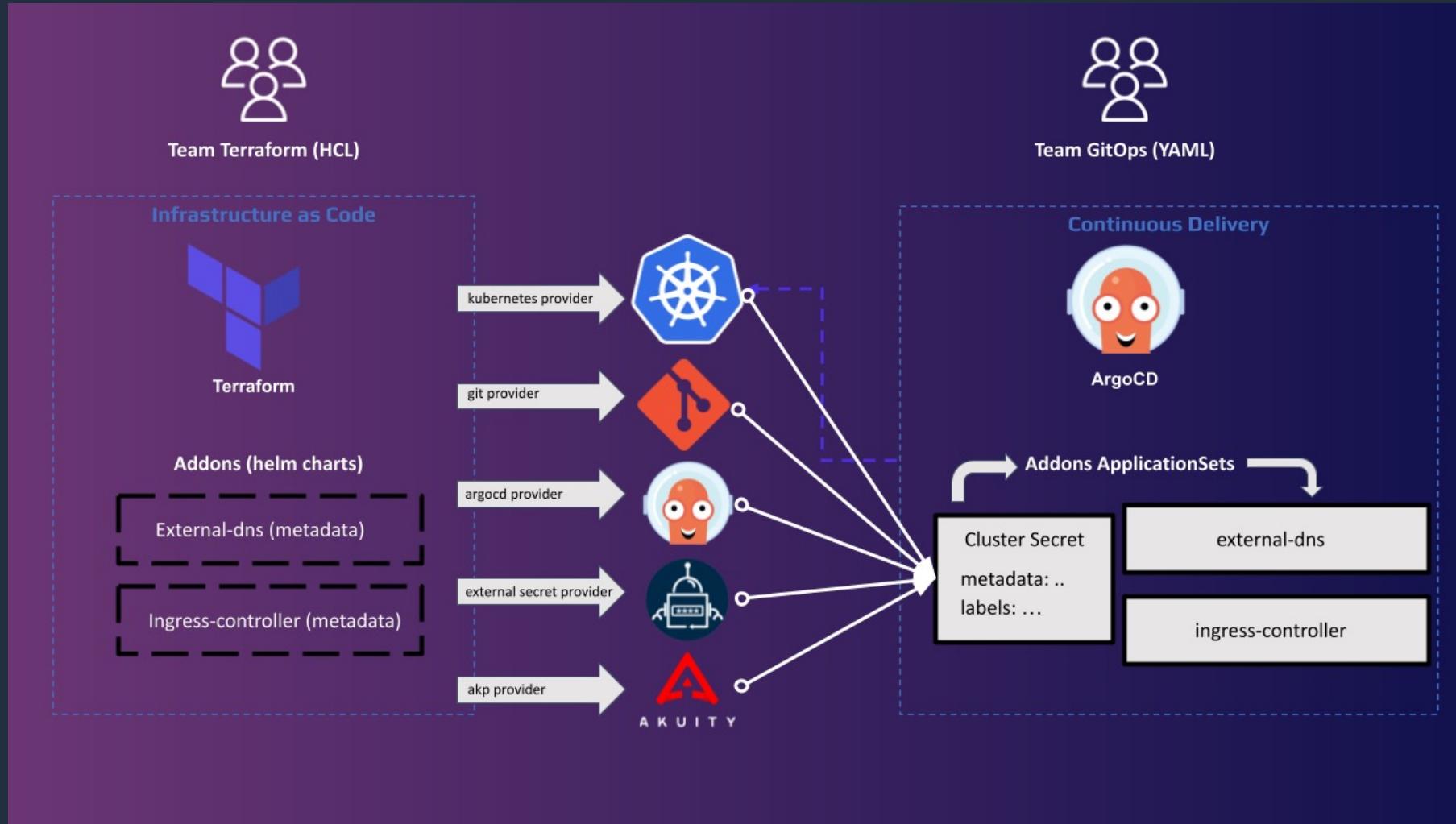
First release Latest on Sep 21

Packages

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GitOps Bridge

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



Testing the Stack



idpBuilder Execution Platforms

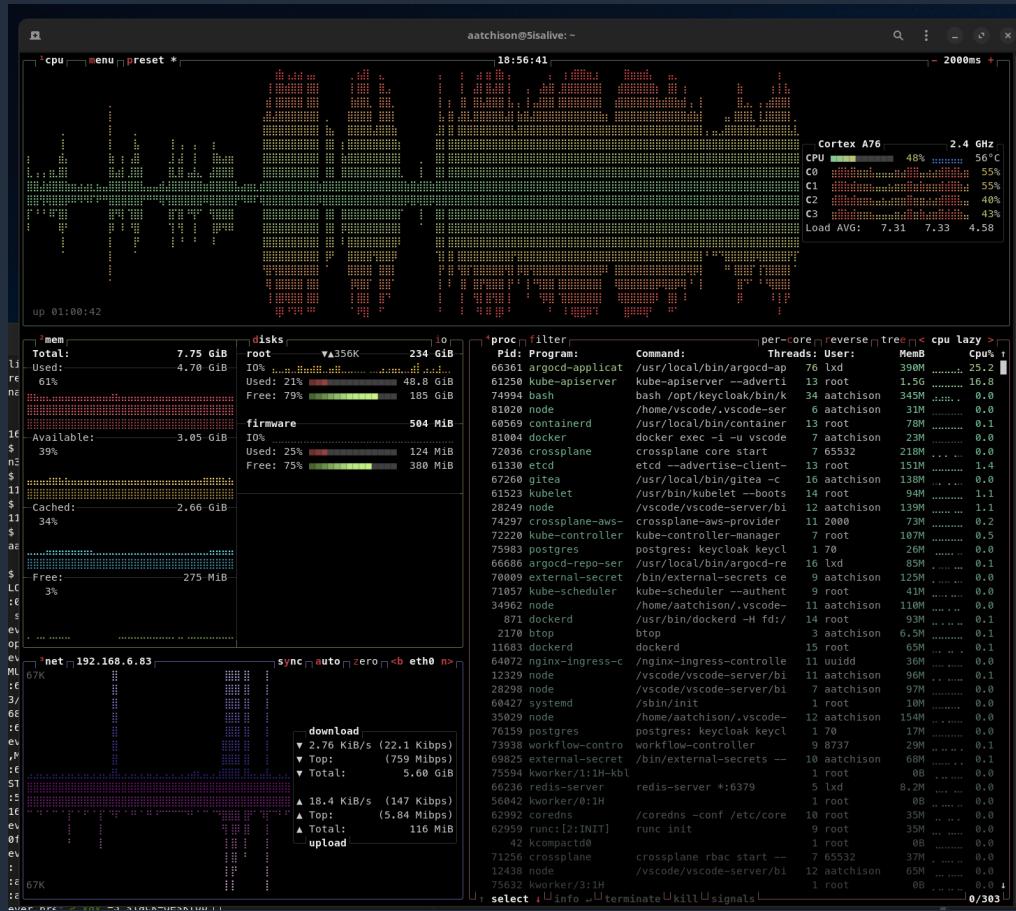
-  GitHub Codespaces
-  Loft Lab DevPods
-  Amazon Cloud9
-  CI/CD containers

GitHub Codespaces

Loft Lab DevPods

Amazon Cloud9

CI/CD containers



Selling the Stack



Who is using it / How is using it?





CNOE CLI

github.com/cnoe-io/cnoe-cli



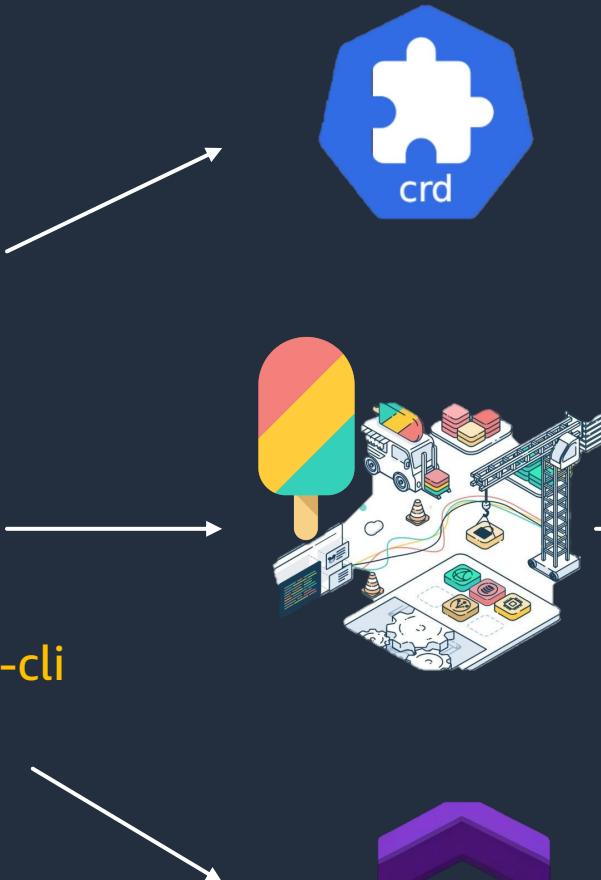
TERRAFORM
MODULES





CNOE CLI

github.com/cnoe-io/cnoe-cli



TERRAFORM MODULES

A screenshot of the CNOE web interface. On the left, there's a sidebar with 'CNOE' repeated multiple times. In the center, there are several 'Create a New Component' buttons, each with a small icon and text like 'Create new software components using standard templates'. Below this is a 'Available Templates' section with a search bar and a grid of cards. Each card has a title, description, owner, tags, and a 'CHOOSE' button. Some titles include 'Submit an Apache Spark Application', 'Delete a service account for Spark Applications', 'Delete Data on EKS - Spark Operator', and 'EKS Observability - OSS Monitoring'.

Scaling the Stack



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**



Part 2: <https://cnoe.io/blog/argo-cd-application-scalability>

Argo CD Benchmarking - Pushing the Limits and Sharding Deep Dive

November 21, 2023 · 21 min read



Andrew Lee

Architect, AWS



Gaurav Dhamija

Architect, AWS



Michael Crenshaw

Software Engineer, Intuit

Developer Portal Best Practices

- Backstage plugins
- Developer practices

<https://cnoe.io/blog/optimizing-data-quality-in-dev-portals>

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



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Developer Portal

Best Practices



How is CNOE progressing?

- The Governance Model
- Project Roadmap
- <https://cnoe.io>
- #cnoe-interest on CNCF slack

The collage illustrates the progression of the CNOE project across various dimensions:

- CNOE Governance:** A screenshot of the "CNOE Governance" document, which outlines formal decision-making processes.
- CNOE Roadmap:** A screenshot of the "CNOE Roadmap" showing the status of items across four categories: Backlog, Now, Done, and Later.
- CNOE Website:** A screenshot of the CNOE website homepage, featuring the CNOE logo and the tagline "Modernizing your Developer Platform".
- Backstage:** A screenshot of the Backstage interface for "Create a New Component", showing available templates like "App with AWS Resources" and "Create a EKS cluster with EKS blueprints".





Thank you!

Nima Kaviani

nkaviani@amazon.com

Frank Carta

fcarta@amazon.com