KubeCon
CloudNativeCon
Europe 2023

How to Turn Release Management from Duty to Fun: Lessons Learned Building the Cluster API Release Team

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Speaker Intro

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VMWare

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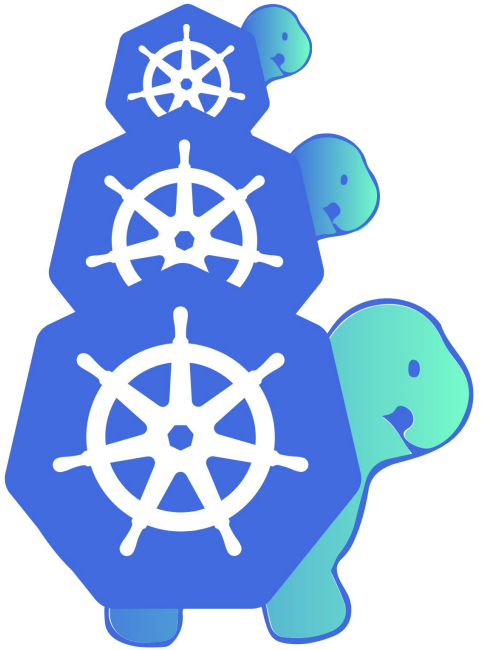
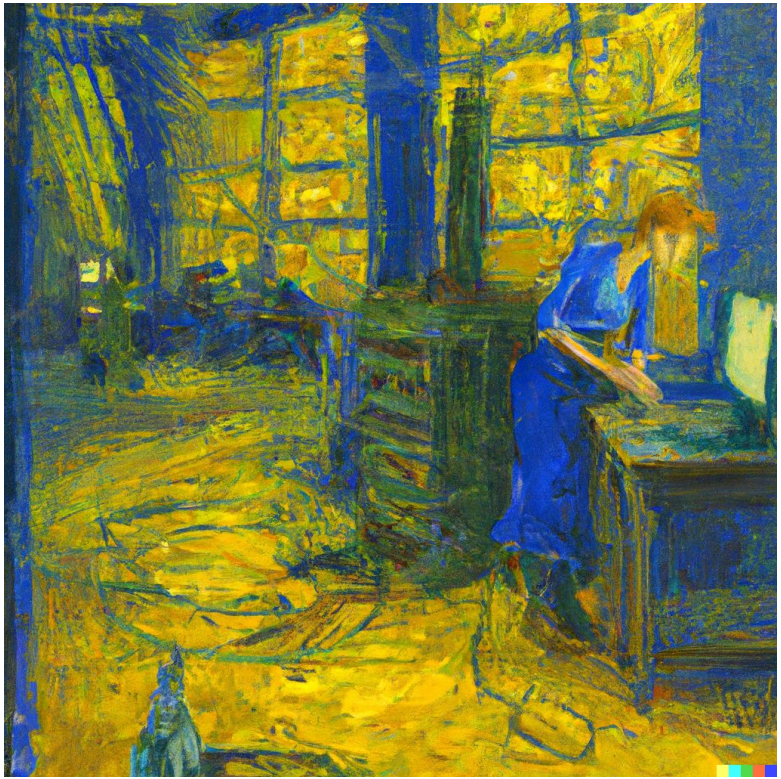
Overview

- The problem
- Goals
- Cycle
- The Release Team
- Overview of learnings



The Problem

- Maintainers doing the work
  - Mostly ad-hoc releases
  - Chore work
  - Not enough knowledge sharing



Goals

- To improve communication to end users and contributors about CAPI release cadence and target release dates
- To spread the load of release tasks and involve a bigger, more diverse set of CAPI contributors in cutting releases
- To look at the Kubernetes SIG release team processes for guidance on releasing best practices
- To improve tooling, documentation, and automation of the CAPI release process

The Cycle

- A 17 week release cycle
  - 4 months
  - 4 Patch releases per minor (8 total)
  - 2 Beta releases
  - 2 RC releases
  - 1 Minor Release

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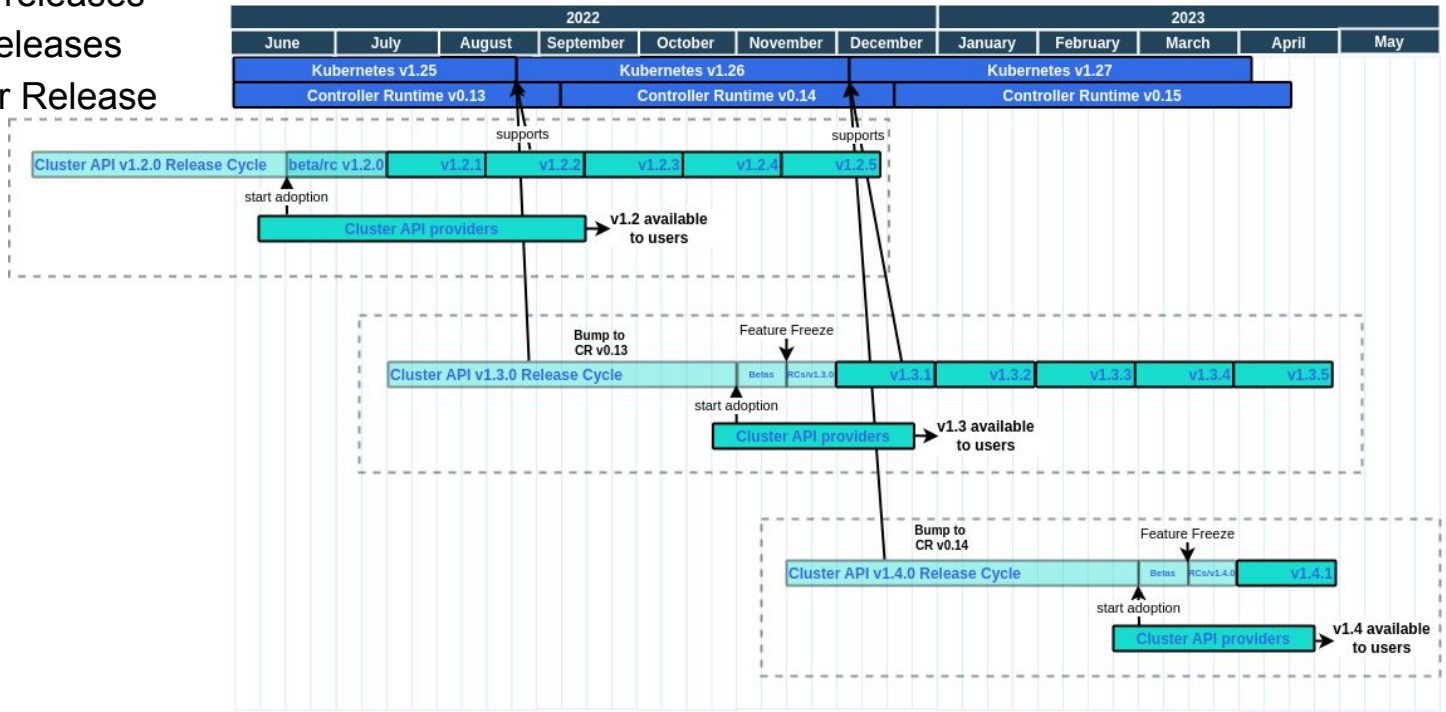
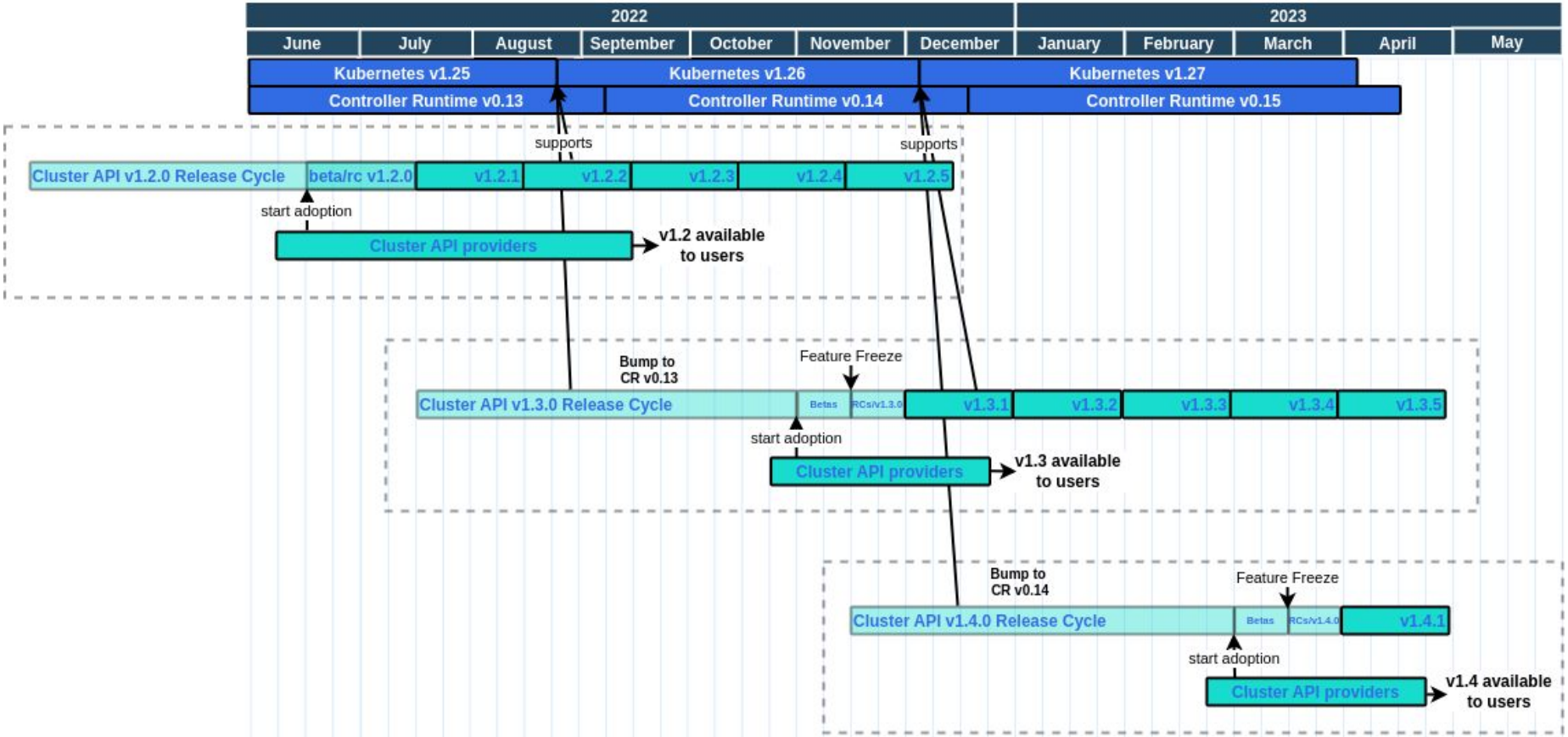


The Cycle


2022
2023
June
July
August
September
October
November
December
January
February
March
April
May
Kubernetes v1.25
Kubernetes v1.26
Kubernetes v1.27
Controller Runtime v0.13
Controller Runtime v0.14
Controller Runtime v0.15
supports
supports
Cluster API v1.2.0 Release Cycle
beta/rc v1.2.0
v1.2.1
v1.2.2
v1.2.3
v1.2.4
v1.2.5
start adoption
Cluster API providers
v1.2 available to users
Bump to CR v0.13
Feature Freeze
Cluster API v1.3.0 Release Cycle
Betas
RCs/v1.3.0
v1.3.1
v1.3.2
v1.3.3
v1.3.4
v1.3.5
start adoption
Cluster API providers
v1.3 available to users
Bump to CR v0.14
Feature Freeze
Cluster API v1.4.0 Release Cycle
Betas
RCs/v1.4.0
v1.4.1
start adoption
Cluster API providers
v1.4 available to users

The Cycle - Timeline

What	Who	When	Week
Start of Release Cycle	Release Lead	Monday 5th December 2022	week 1
Schedule finalized	Release Lead	Friday 9th December 2022	week 1
Team finalized	Release Lead	Friday 9th December 2022	week 1
v1.2.x & v1.3.x released	Release Lead	Tuesday 10th January 2023	week 6
v1.2.x & v1.3.x released	Release Lead	Tuesday 31st January 2023	week 9
v1.4.0-beta.0 released	Release Lead	Tuesday 28th February 2023	week 13
v1.2.x & v1.3.x released	Release Lead	Tuesday 28th February 2023	week 13
v1.4.0-beta.x released	Release Lead	Tuesday 7th March 2023	week 14
release-1.4 branch created (**Begin [Code Freeze]**)	Release Lead	Tuesday 14th March 2023	week 15
v1.4.0-rc.0 released	Release Lead	Tuesday 14th March 2023	week 15
release-1.4 jobs created	CI Manager	Tuesday 14th March 2023	week 15
v1.4.0-rc.x released	Release Lead	Tuesday 21st March 2023	week 16
v1.4.0 released	Release Lead	Tuesday 28th March 2023	week 17
v1.2.x & v1.3.x released	Release Lead	Tuesday 28th March 2023	week 17
Organize release retrospective	Release Lead	TBC	week 17

The Solution

Release Team

- predictability of releases
- spreading knowledge
- Spreading workload so it wasn't always the same 2-3 people doing the releases

Release team

Team Roles

- Release Lead
- Communications/Docs/Release Notes Manager
- CI Signal/Bug Triage/Automation Manager
- Shadow

Release team - Release Lead

Release Lead

- Assembling the release team
- Responsible for coordinating release activities
- Taking ultimate accountability for all release tasks to be completed on time

  The lead is also responsible for ensuring a successor is selected and trained for future release cycles.

Release team - Comms

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Communications/Docs/Release Notes Manager

- Responsible for all communication related to the releases during the cycle including:
  - Communicating key dates to the community using all channel: Slack, Office hours, etc
  - Release announcements
  - Communicating all relevant information about a release to the community.
- Improving release process documentation
- Responsible for ensuring proper documentation.
  - Vital in for users and providers for any Cluster API release

Release team - Comms

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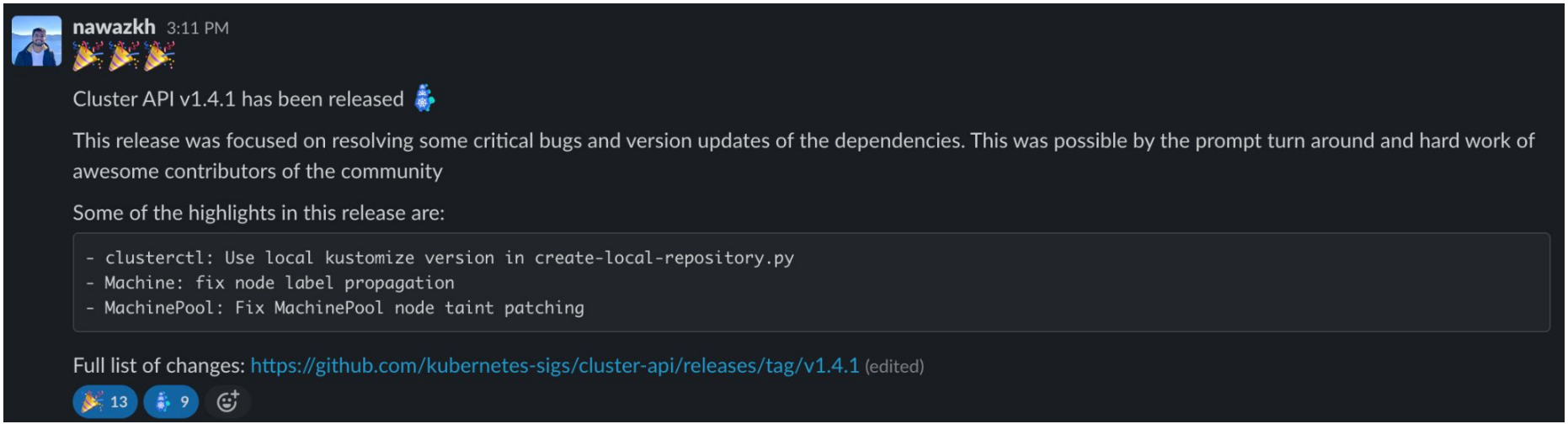

nawazkh 3:11 PM

Cluster API v1.4.1 has been released

This release was focused on resolving some critical bugs and version updates of the dependencies. This was possible by the prompt turn around and hard work of awesome contributors of the community

Some of the highlights in this release are:

```
- clusterctl: Use local kustomize version in create-local-repository.py
- Machine: fix node label propagation
- MachinePool: Fix MachinePool node taint patching
```

Full list of changes: https://github.com/kubernetes-sigs/cluster-api/releases/tag/v1.4.1 (edited)

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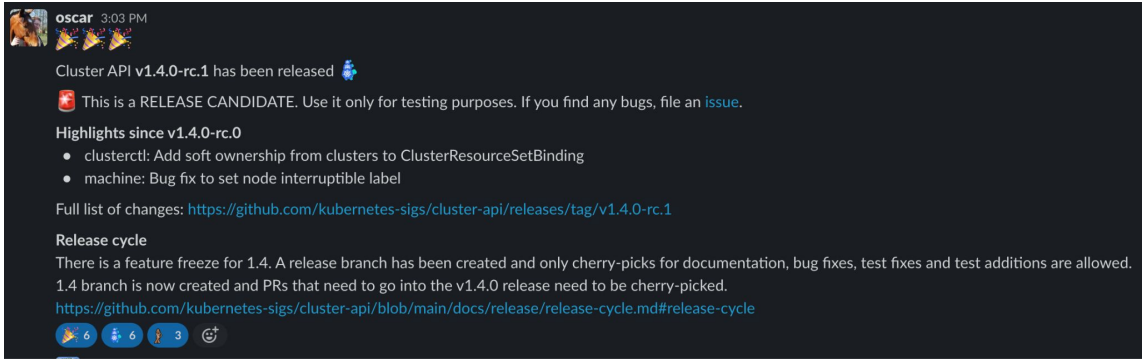


oscar 3:03 PM

Cluster API **v1.4.0-rc.1** has been released

This is a RELEASE CANDIDATE. Use it only for testing purposes. If you find any bugs, file an issue.

Highlights since v1.4.0-rc.0

- clusterctl: Add soft ownership from clusters to ClusterResourceSetBinding
- machine: Bug fix to set node interruptible label

Full list of changes: https://github.com/kubernetes-sigs/cluster-api/releases/tag/v1.4.0-rc.1

Release cycle

There is a feature freeze for 1.4. A release branch has been created and only cherry-picks for documentation, bug fixes, test fixes and test additions are allowed. 1.4 branch is now created and PRs that need to go into the v1.4.0 release need to be cherry-picked.
https://github.com/kubernetes-sigs/cluster-api/blob/main/docs/release/release-cycle.md#release-cycle

6 6 3

Release team - Comms

oscar 3:18 PM

Weekly update 🚨

During 2023-02-20 to 2023-02-26 a total of 33 PRs where merged into main.

- 1 Proposals 📝
  - update autoscaling from zero proposal (#8036)
- 3 Breaking Changes⚠️
  - Add filter to associate variables with specific patches (#8128)
  - in-place propagation from MD to MS (#8110)
  - in-place propagation from MS to Machines (#8111)
- 2 New Features ✨
  - docs: fix command-line-tools links in book (#8162)
  - Add support for KCP remediation during cluster provisioning (#7963)
- 4 Bug Fixes 🦠
  - Fix flaky TestServerSideApplyWithDefaulting test (#8166)
  - Requeue health check during the creation of a new cluster accessor (#8122)
  - ClusterClass: run dry-run on original and modified object (#8139)
  - KCP: fix rollout after upgrade (#8125)
- 15 Other changes 🌱
- 8 Documentation and book contributions 📖

All merged PRs can be viewed in GitHub:
https://github.com/kubernetes-sigs/cluster-api/pulls?q=is%3Apr+closed%3A2023-02-20..2023-02-27+is%3Amerged+milestone%3Av1.4+

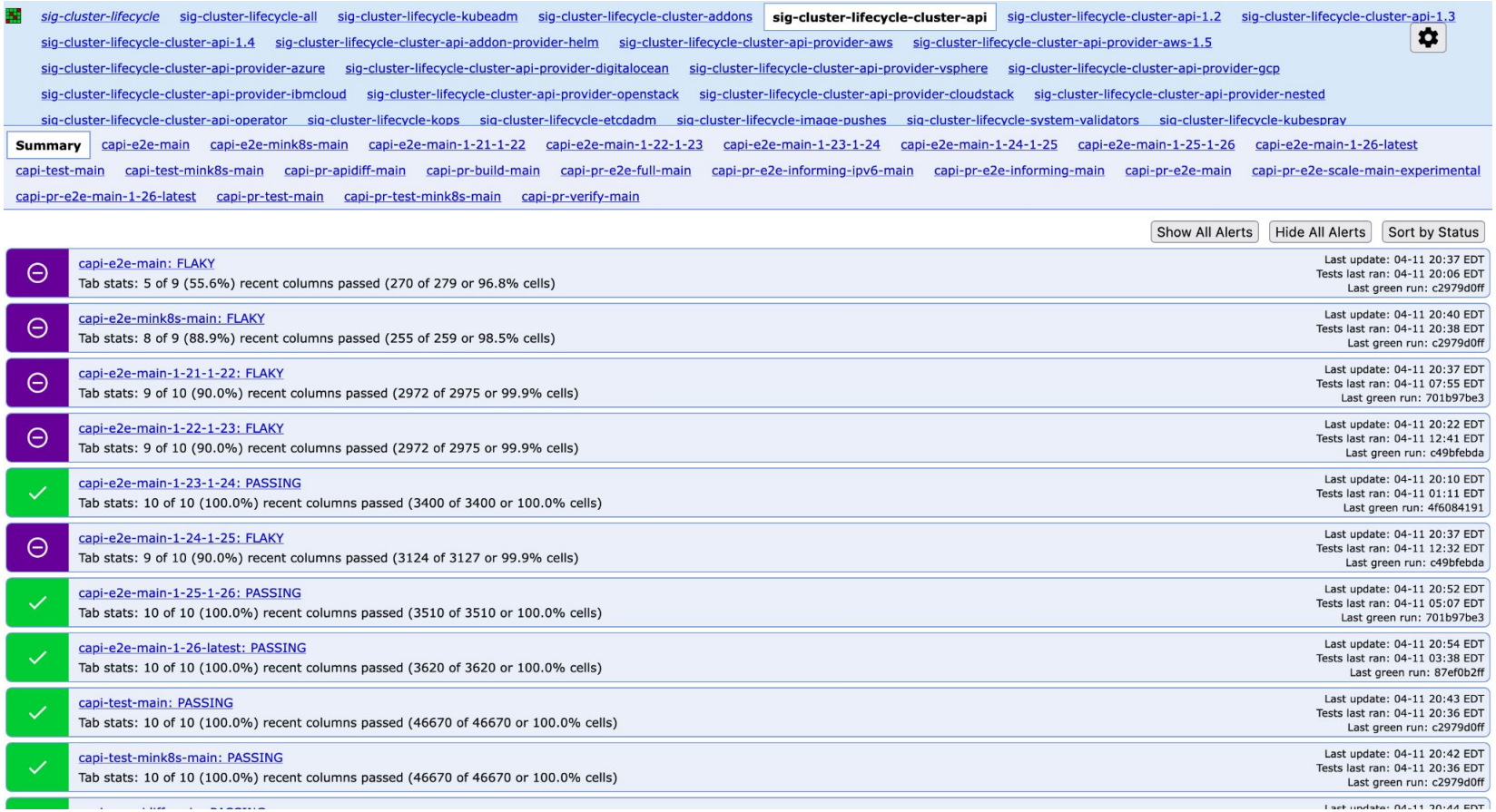
Thanks to all our contributors! 😊
/Your friendly comms release team

Release team - CI

CI Signal/Bug Triage/Automation Manager

- Assumes the responsibility of the quality gate for the release
  - Communicating and raising issues when CI health is degrading
  - Working with the community to ensure the quality of a release is maintained
- Makes sure blocking issues and bugs are triaged and dealt with in a timely fashion
- Helps improve release automation and tools.

Release team - CI



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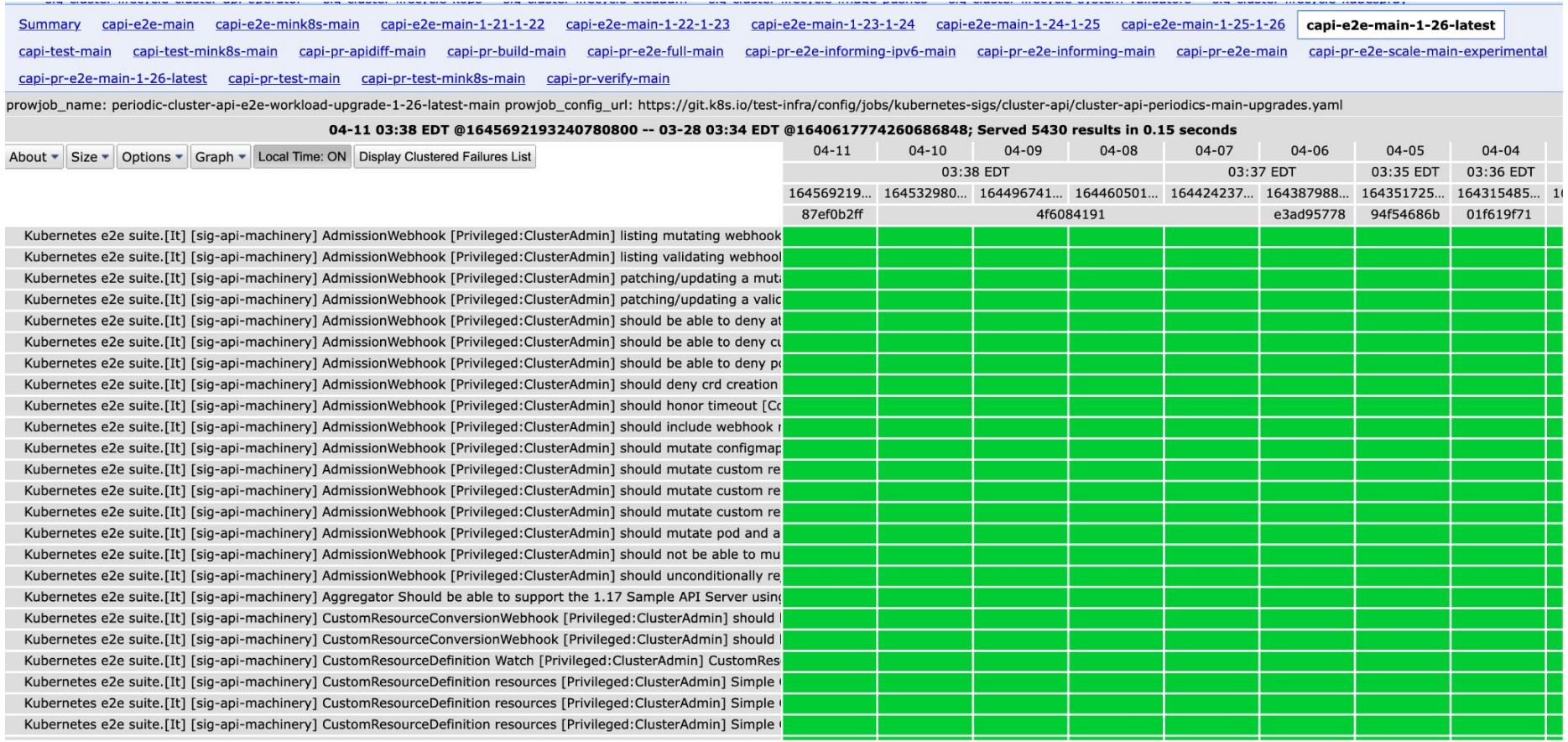

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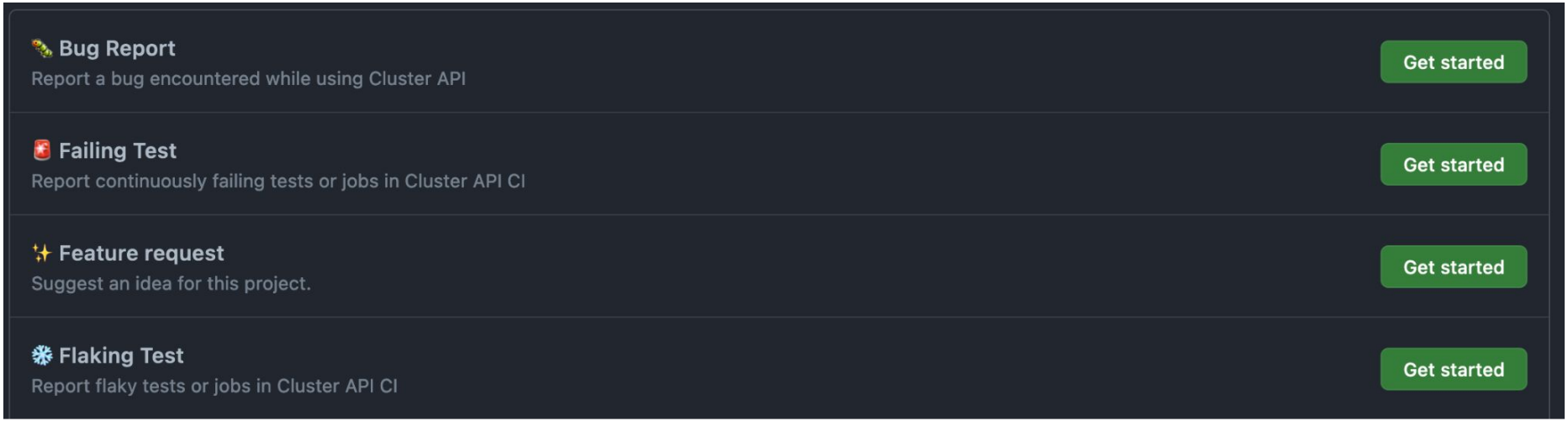

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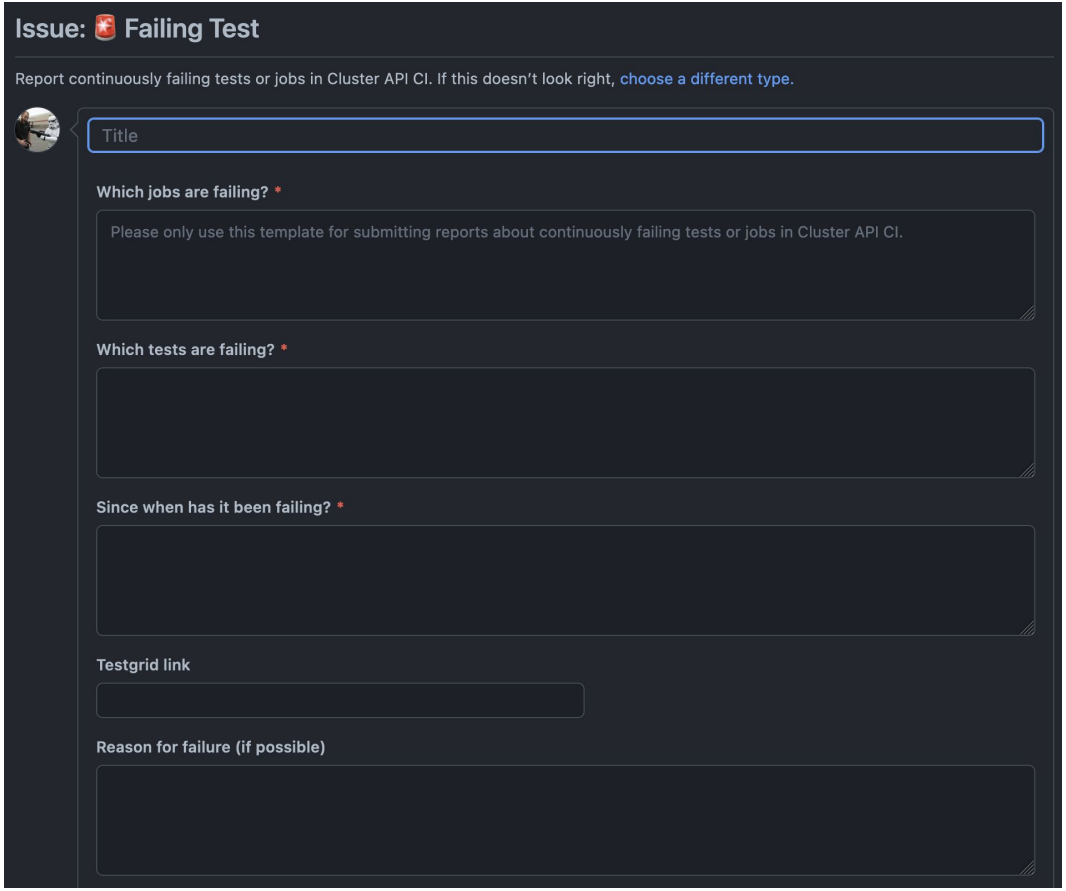

Release team - Shadow

Any Release Team member may select one or more mentees to shadow the release process in order to help fulfill future Release Team staffing requirements and continue to grow the CAPI community in general.

Release team - Secondary goals

- This helps grow the community
- Knowledge transfer
  - Spreads the knowledge of the release
  - More hands in the code base
- Shadows become ideal candidates to serve as leads in upcoming releases.
- HA team and spread the load

Learnings overview

How can you apply this to your own project

- Iterative approach
- Clear goals and timelines
- Ask for help, people want to help

How to improve

- Retrospective with clear actions
- Warm hand off between release teams
- Promote intra-team communication but still work in the open

Moving to streamlined

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Chore

Streamlined v1.6?

Improvements

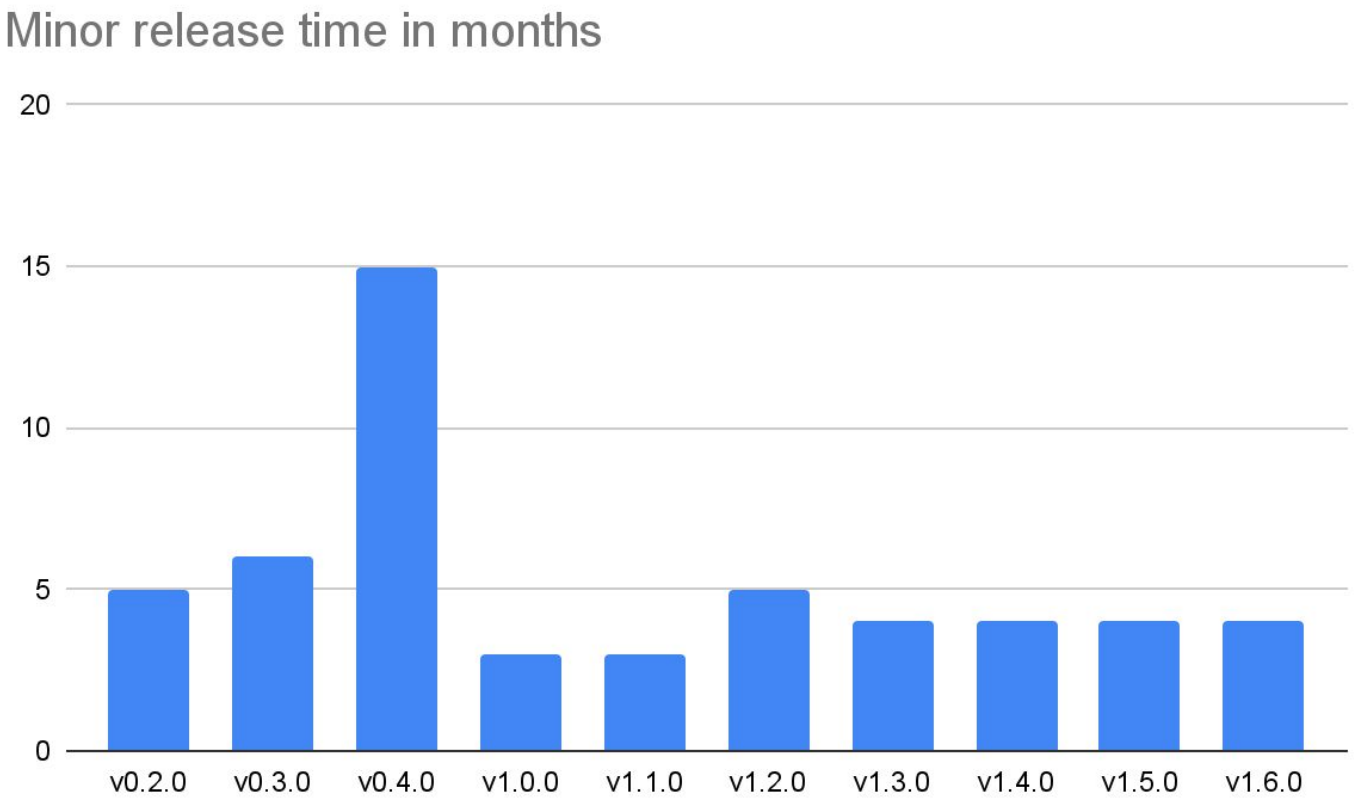
- What improvements have been made since 1.3
  - Comms templates
  - Tooling updates
  - Release documentation improvement (better run books)
    - standardised issue templates for release tracking and kubernetes version bumps
  - Issue flow for raising CI failure

Formalizing a lot of the release work was a big improvement.

Improvements

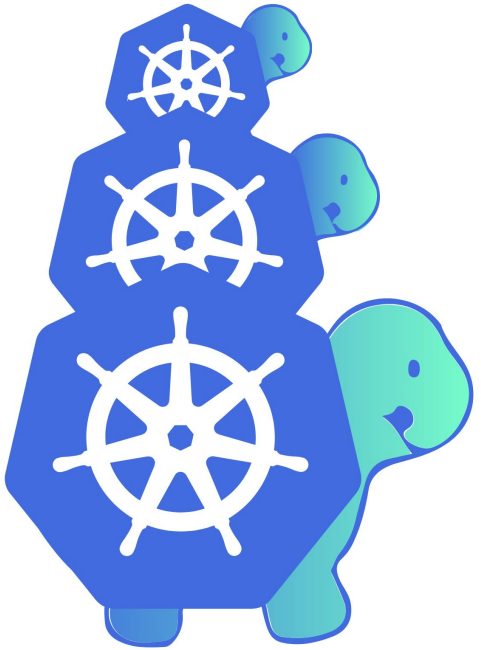
- Predictability of releases
- Knowledge is spread across the community
- Stabilising function for the ecosystem of providers
- Other stuff ….

Improvements



Recap

- The problem
- Goals
- Cycle
- The Release Team
- Overview of learnings



Join us!

📝 *Writing skills*
🧬 *Product skills*
👩‍💻 *Coding skills*
🙌 *Other skills*

V1.6 release team starting August 2023

- Join weekly community meetings, slack, mailing list.