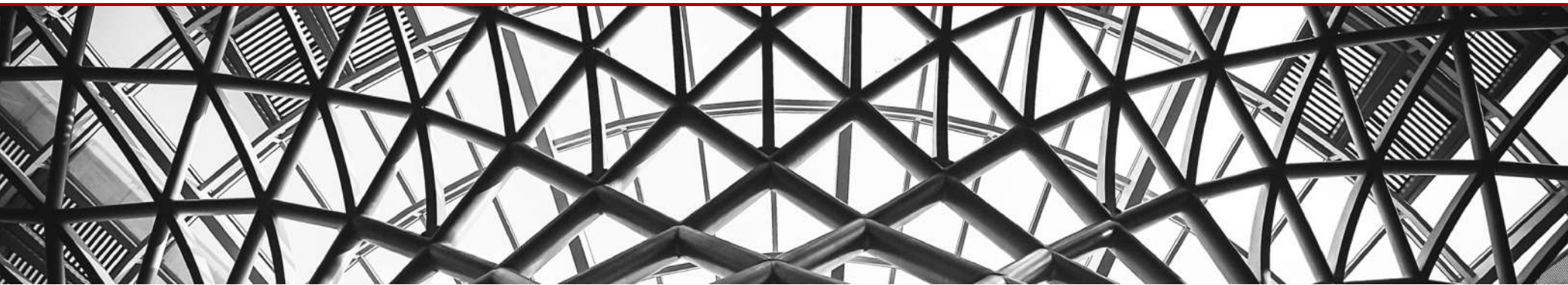# The Automation of Conda-Forge

Christopher J. "CJ" Wright

What is Conda-Forge

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A Packaging Community

- 2000+ community members maintaining packages, troubleshooting issues and providing help

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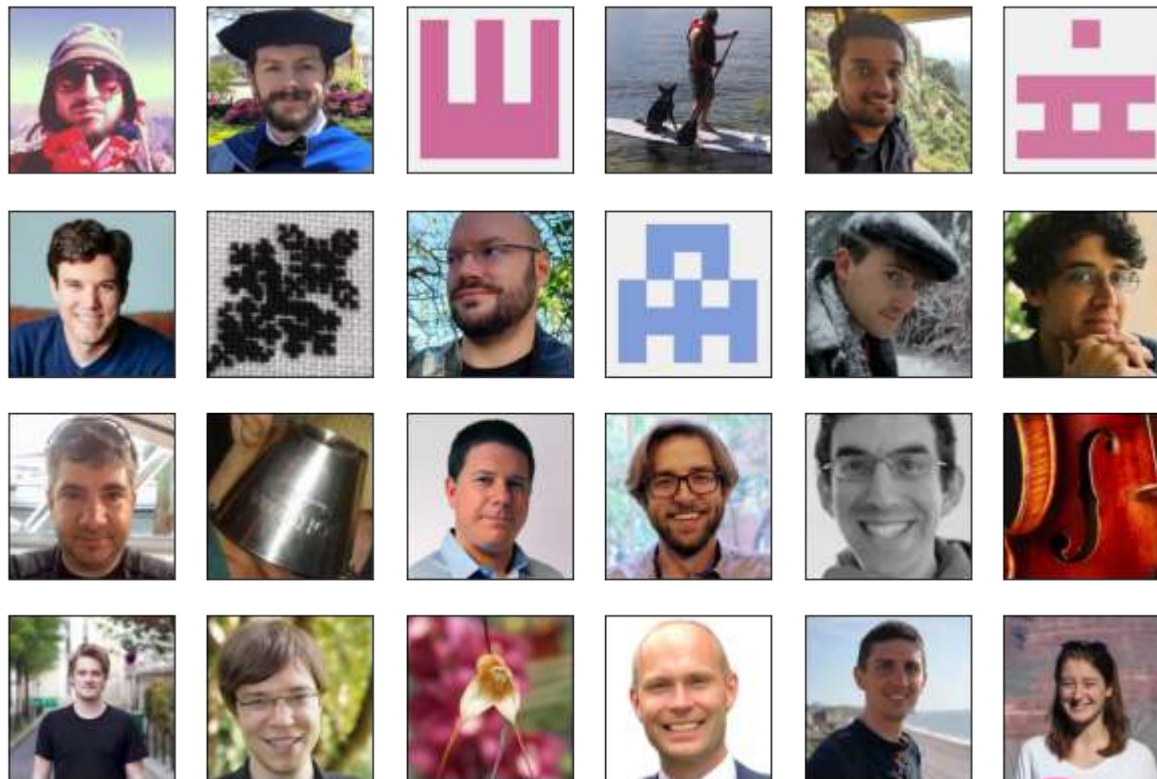
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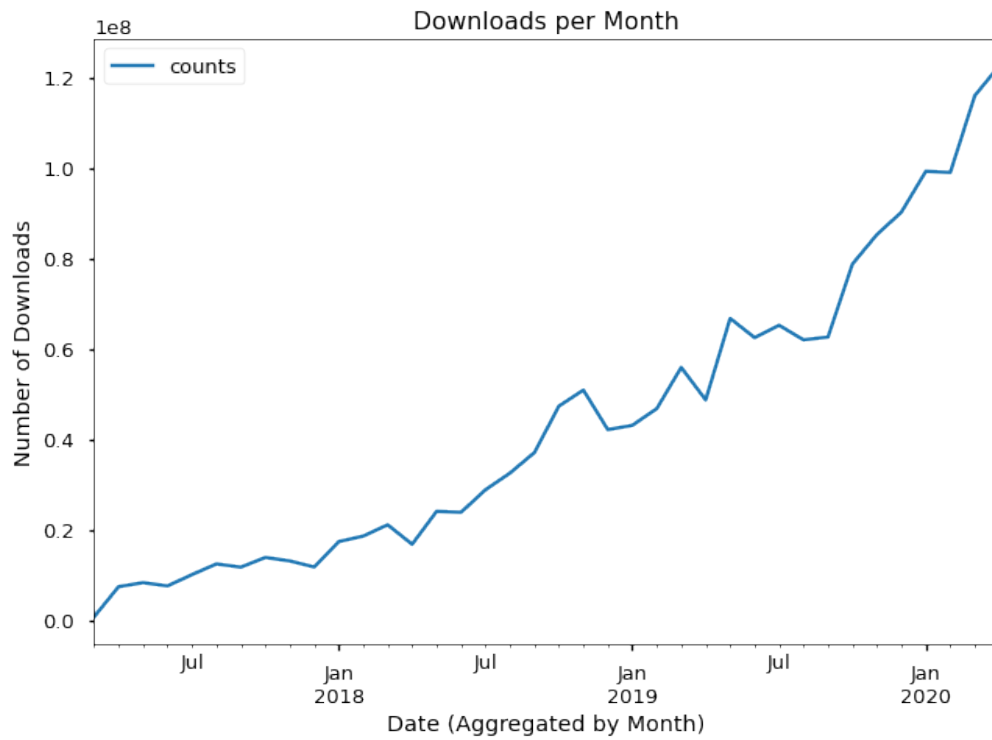- 24 Core developers

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Source of Conda Packages

- `conda install -c conda-forge numpy`
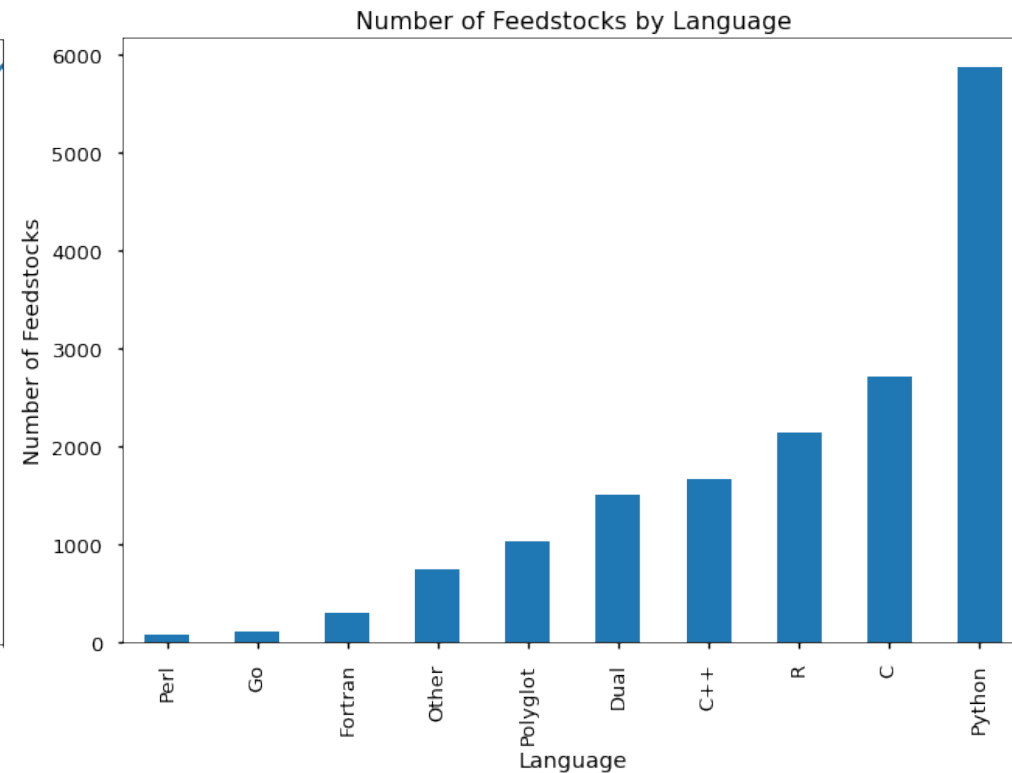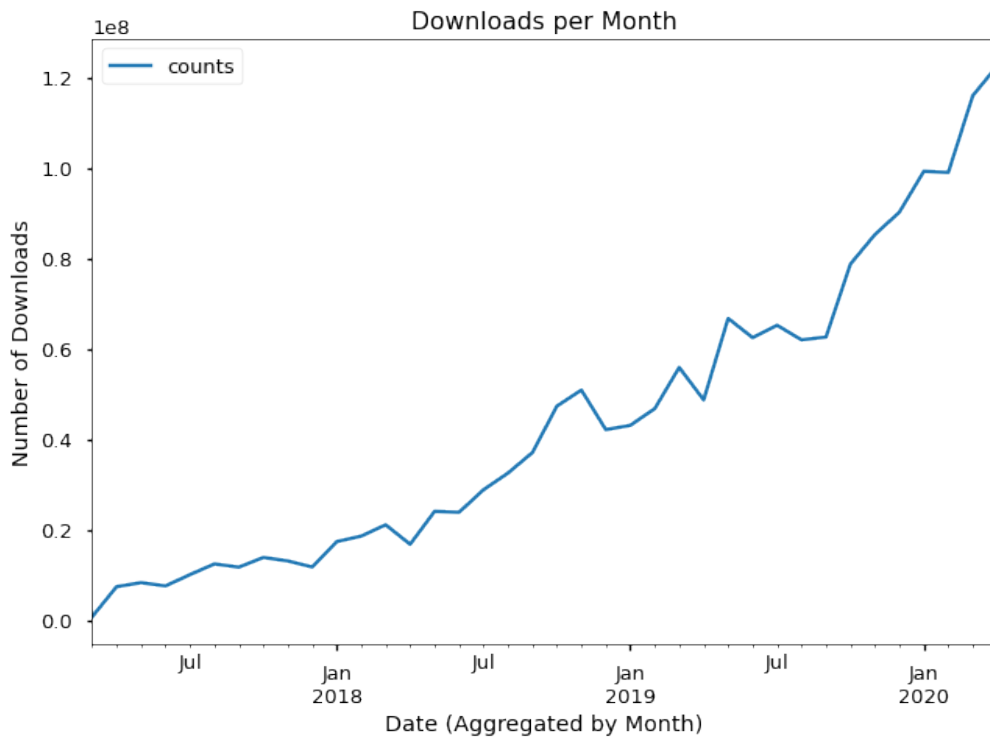- `conda config --add channels conda-forge`

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Downloads per Month

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Build Infrastructure System

- Builds provided across Windows, OS X and Linux on x86_64, PowerPC and ARM chipsets
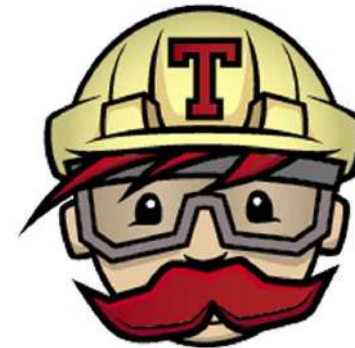- Builds are automated across 5 CI services

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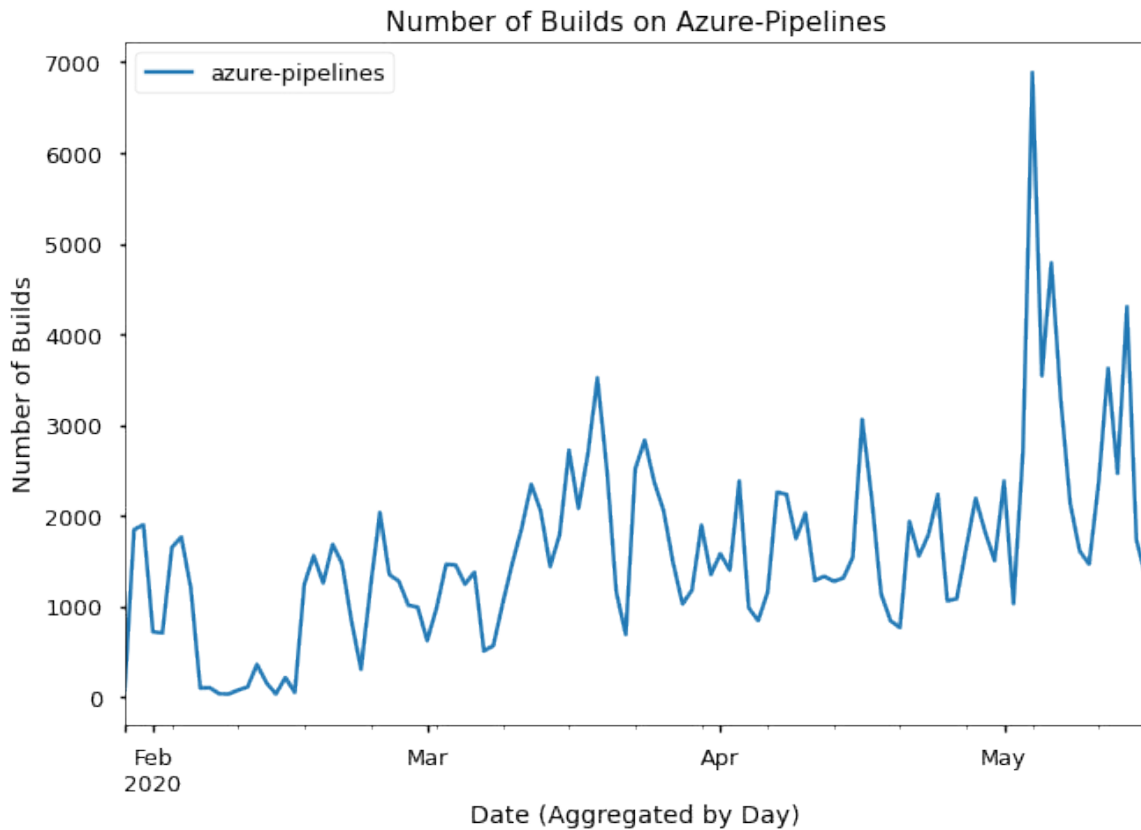# Build Infrastructure System

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- Builds are automated across 5 CI services

A Consistent Ecosystem

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A Consistent Ecosystem

- All packages are mutually compatible

- Packages are built in the open, with easy access to logs

- Most interactions are run through GitHub

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Automation

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Automation

- At our scale automation doesn't just make things *easier*, it makes things *possible*

- Our Automation focuses on 3 major areas:

1. Building packages

2. Keeping everything up-to-date and consistent

3. Administration and reducing maintenance burden

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Building Packages

- To create conda packages you need all systems to support all users
- CF uses CI infrastructure to perform all package building, enabling us to:
1. Provide logs of the package builds for transparency
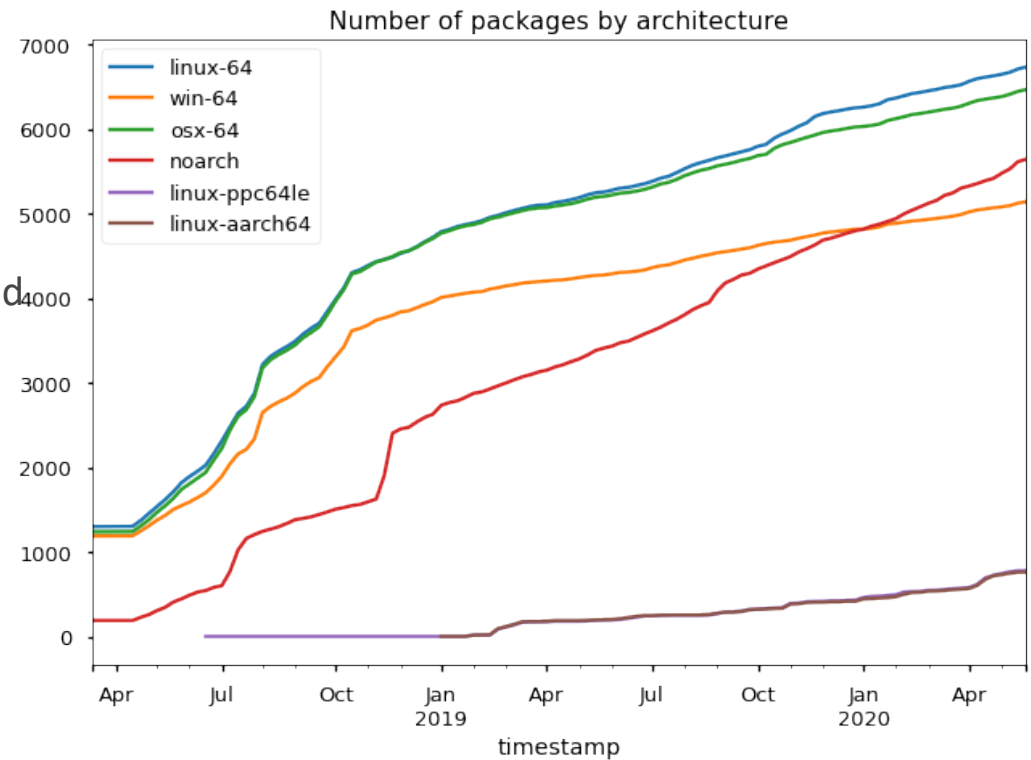2. Build the packages for many more platforms and architectures

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1. Provide logs of the package builds for transparency
2. Build the packages for many more platforms and architectures
3. Provide high throughput package building
4. Switch between compute providers

Number of packages by architecture

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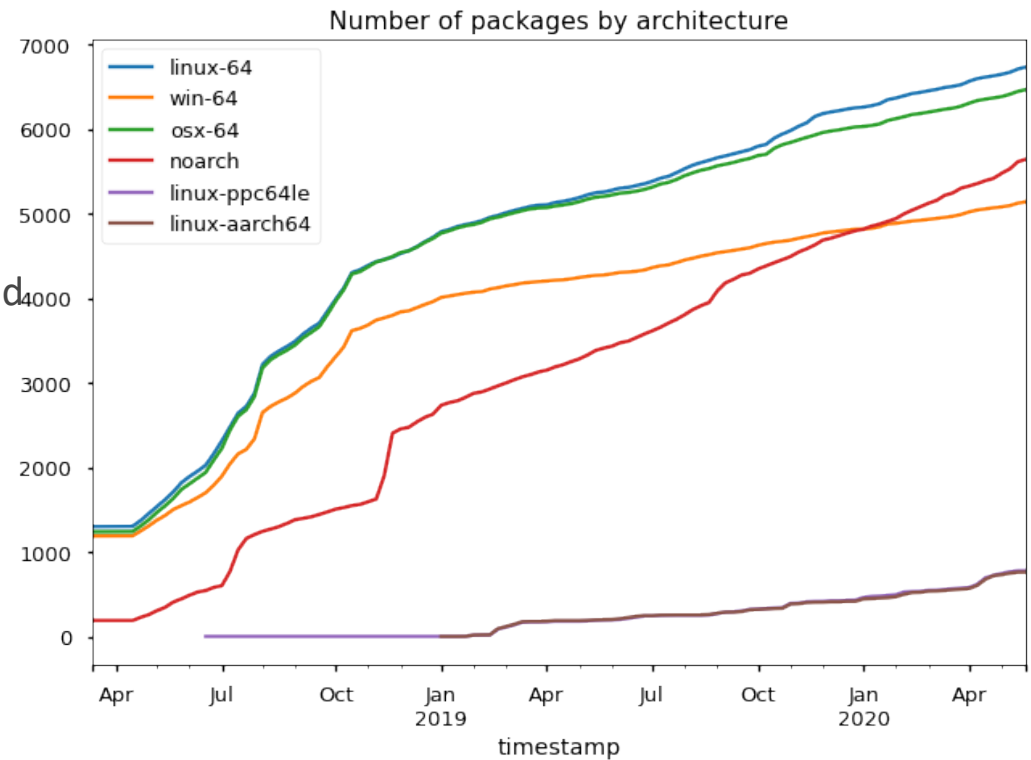
CI templating

- Conda-Forge uses CI services for almost everything, so we've gotten good at templating CI configs
- These templates can be used outside Conda-Forge, enabling best in class CI management
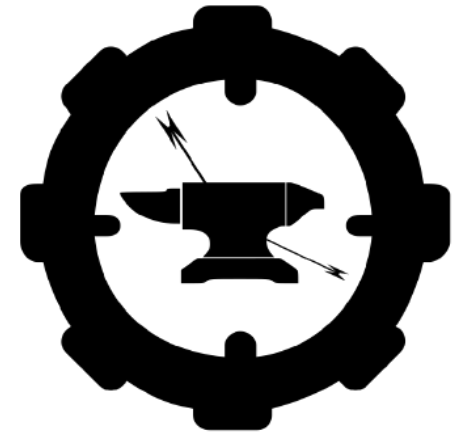

- DEMO!

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Bringing You Cutting Edge Packages

- Everyone needs fixes, security patches, and features, so upstream code is constantly changing
- These updates are provided by the regro-cf-autotick-bot (aka "the bot")
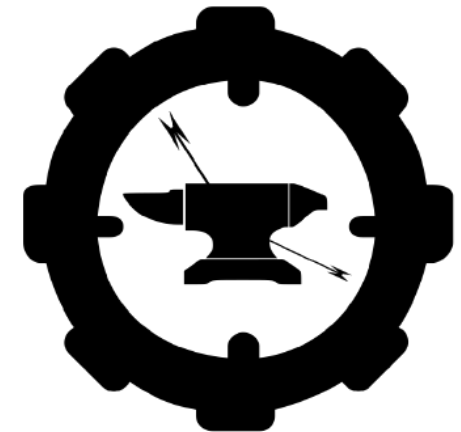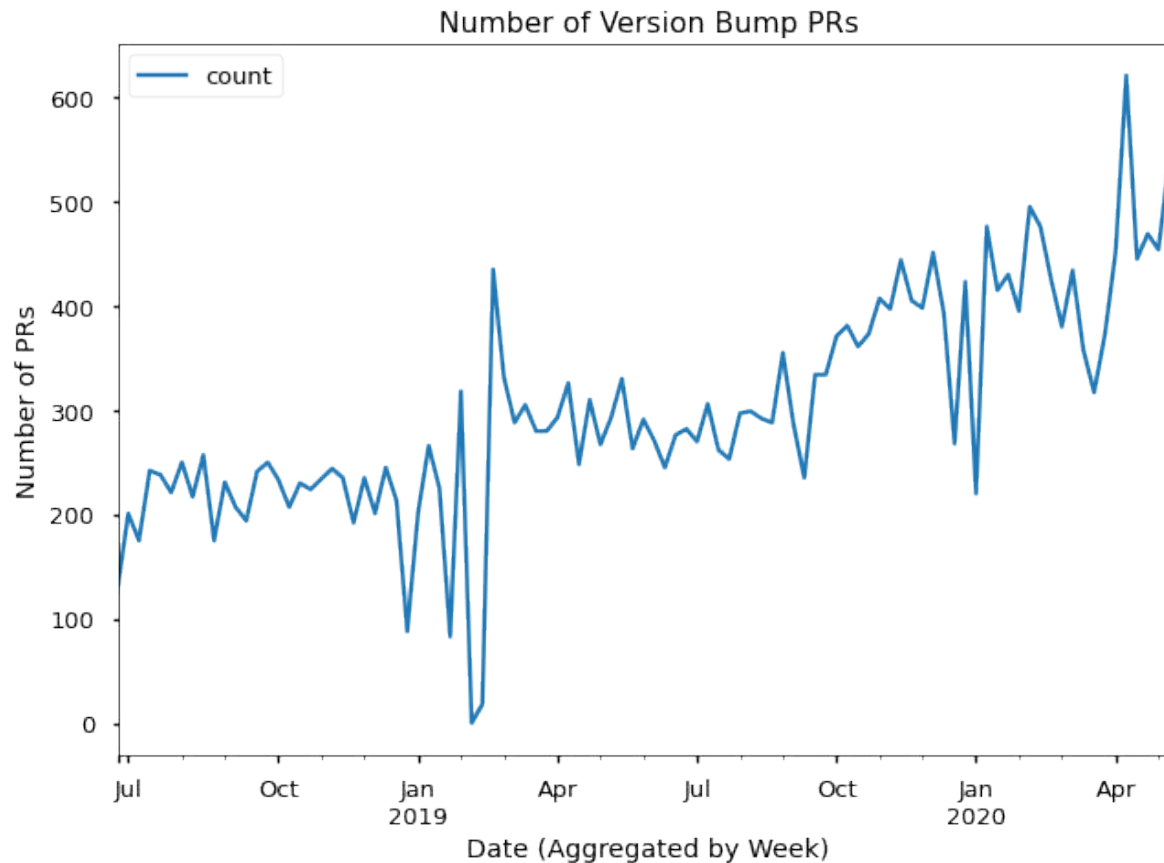
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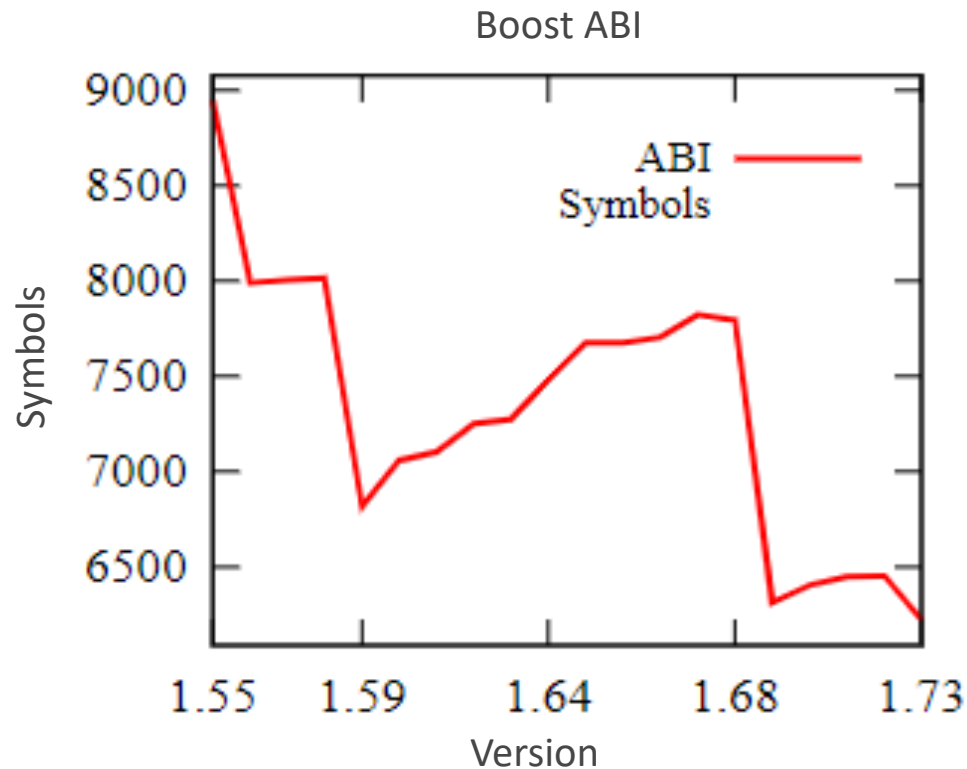

Number of Version Bump PRs

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Making Things Just Work

- Many times new features require changes to a piece of software's Application Binary Interface (ABI)
- When handled incorrectly this causes all sorts of inscrutable errors
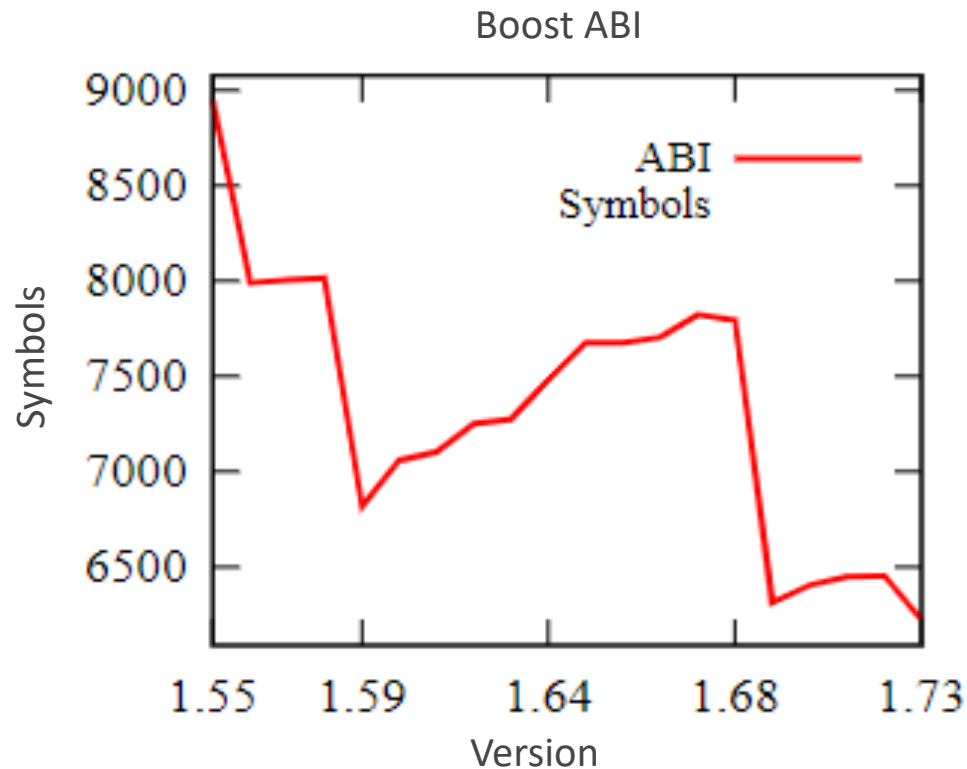
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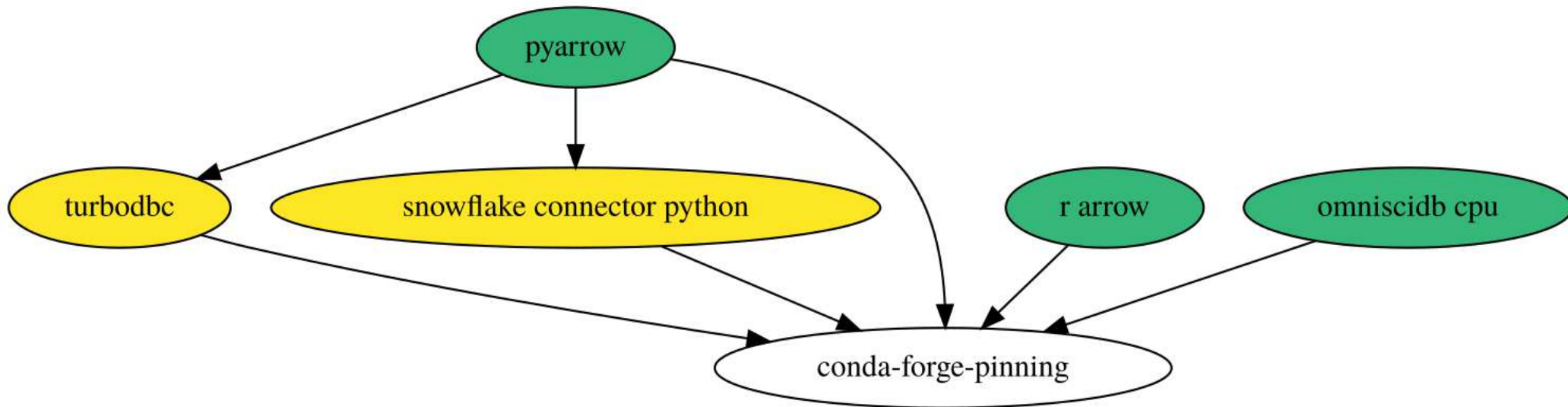- To maintain compatibility all downstream packages need to be recompiled

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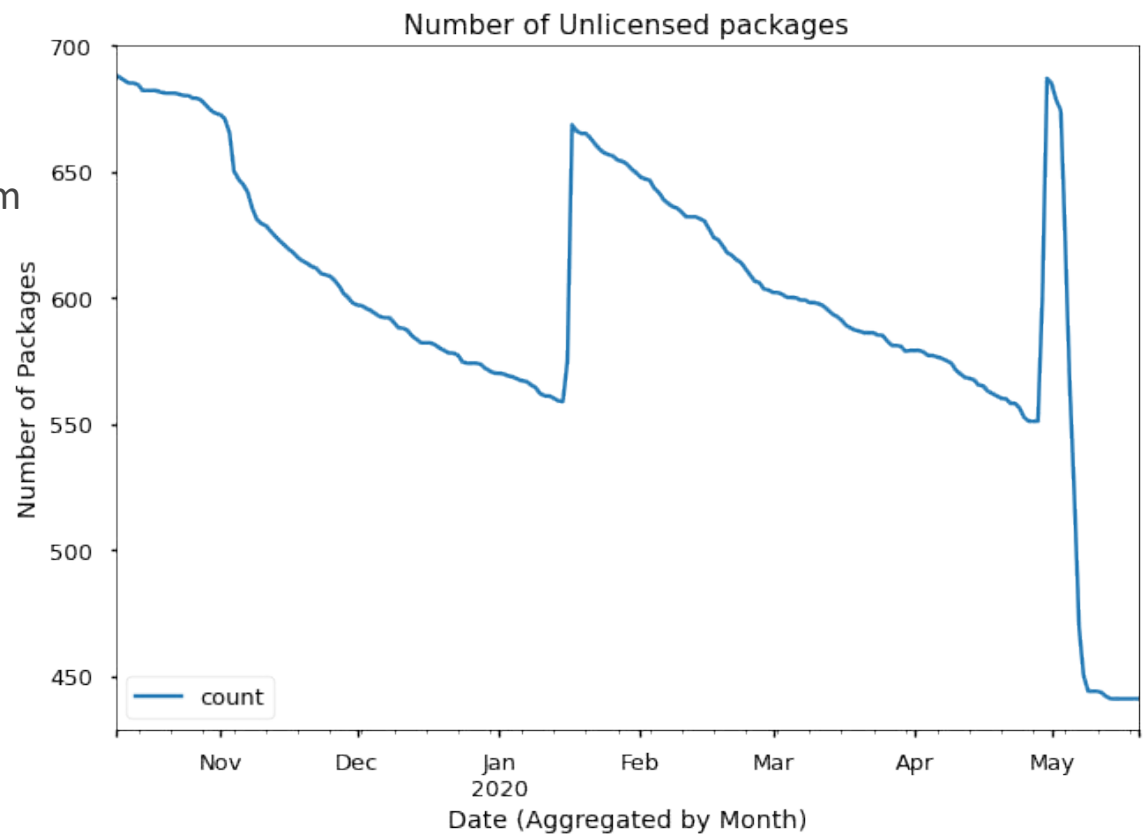
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IANAL but the Bot is (almost)

- The bot even provides clean up of the package metadata
- Providing:
  - The latest python install commands
  - Yaml and Jinja2 formatting fixes
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Number of Unlicensed packages

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Keeping everything running

- CF wouldn't be possible without admin bots
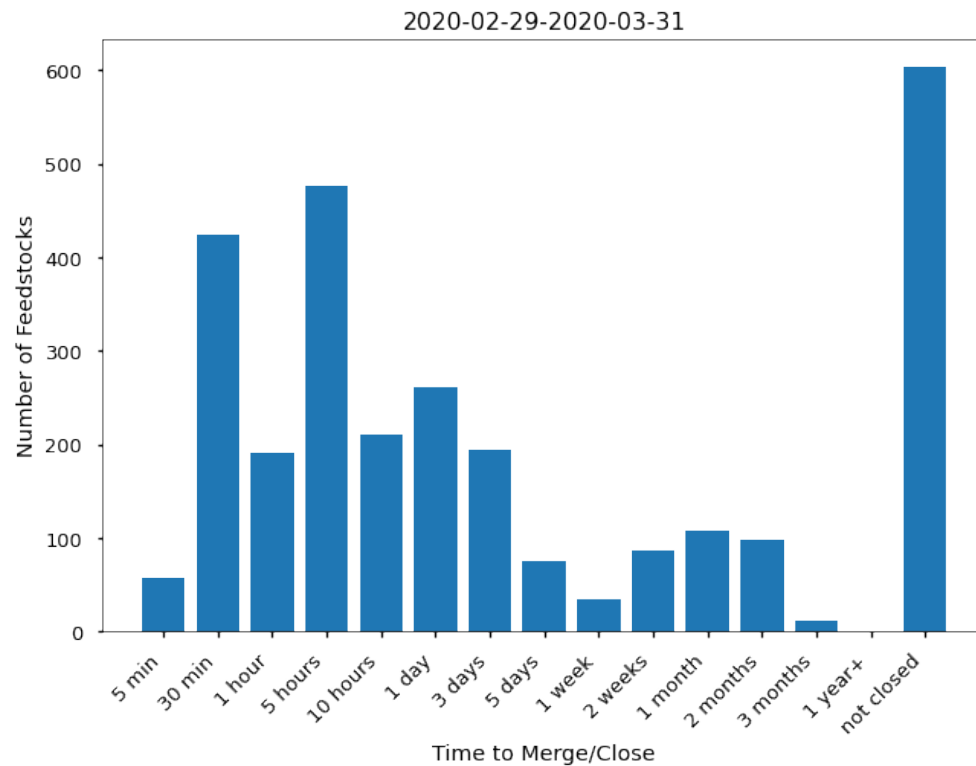- Adding maintainers
- Updating CI scripts
- Uploading packages

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Automerge bot

- The Automerge bot is a new addition to the admin bot team
- Merges PRs once all builds pass and there is no lint

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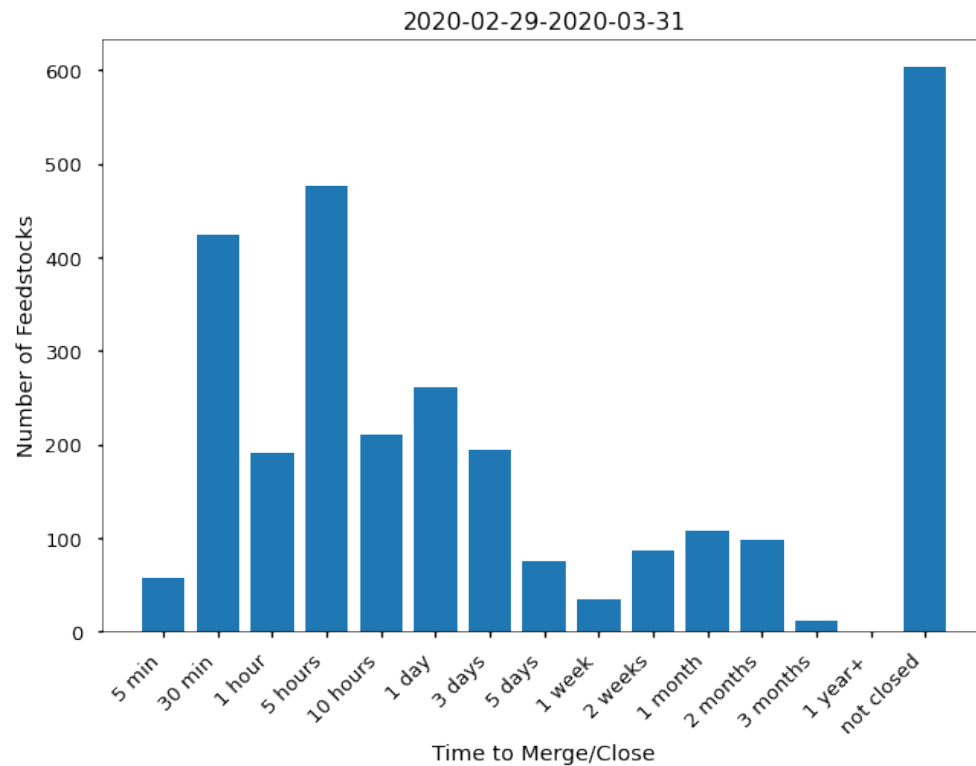
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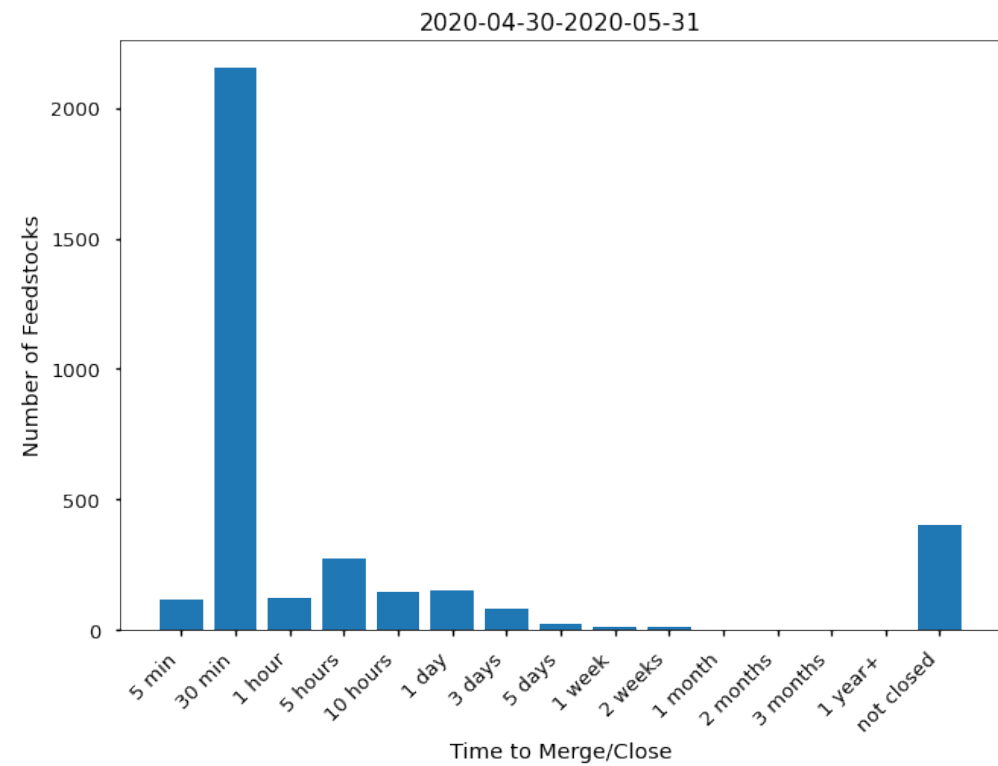
Future Work

- Expanding Automerge implementation

- Providing dependency update hints

- Creating wheels

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A Call for Contributors (and Discussion)

- If you are interested in becoming a maintainer or working on infrastructure

- If you feel your ecosystem is underserved and conda-forge can help

- If you are having problems with packages

- Please let us know!

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Thank you!

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