

Universum project review

March 2021

What is Universum?



What?

suite of commonly needed functions for CI deployment

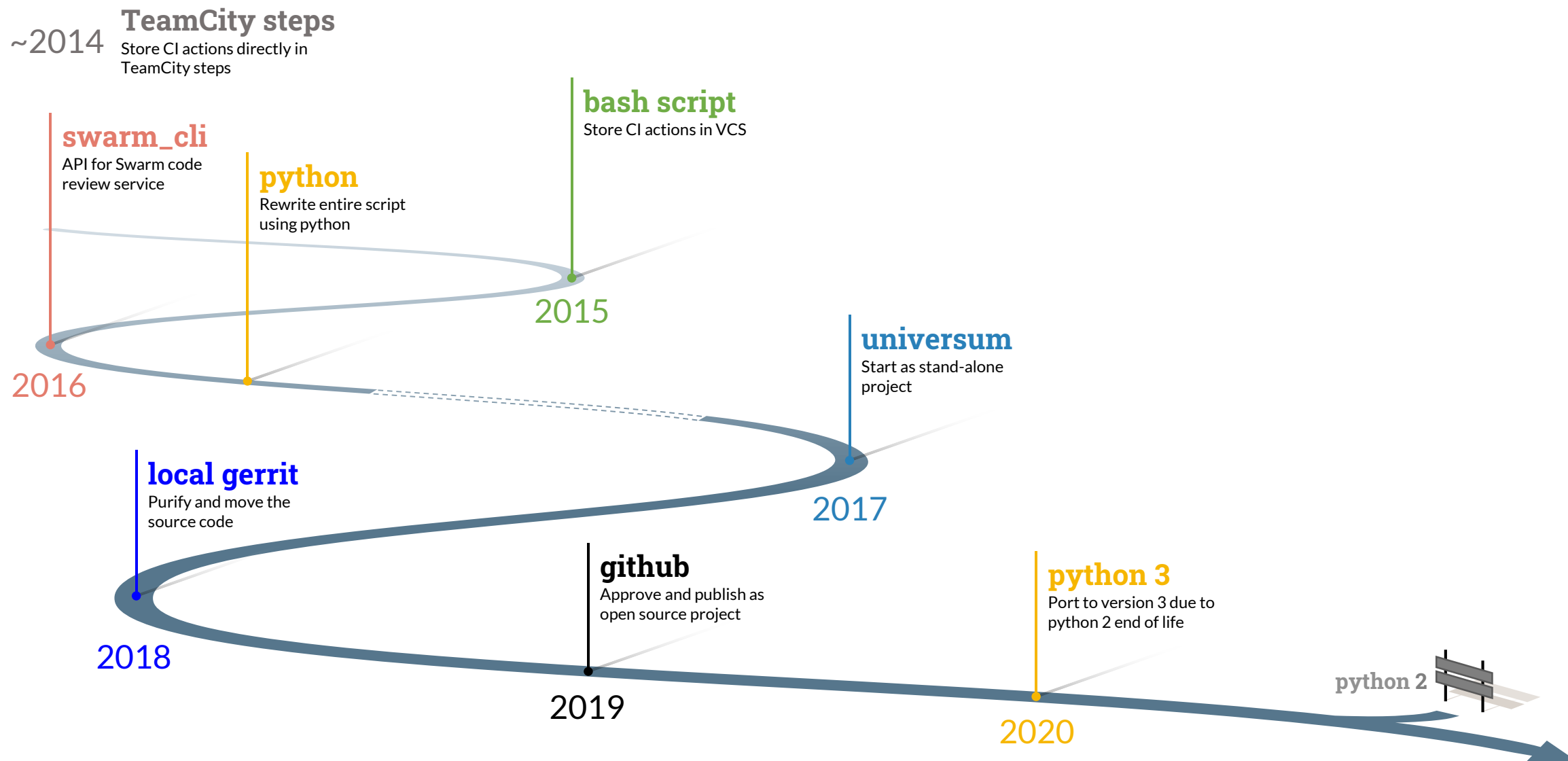
Why?

aggregate CI expertize

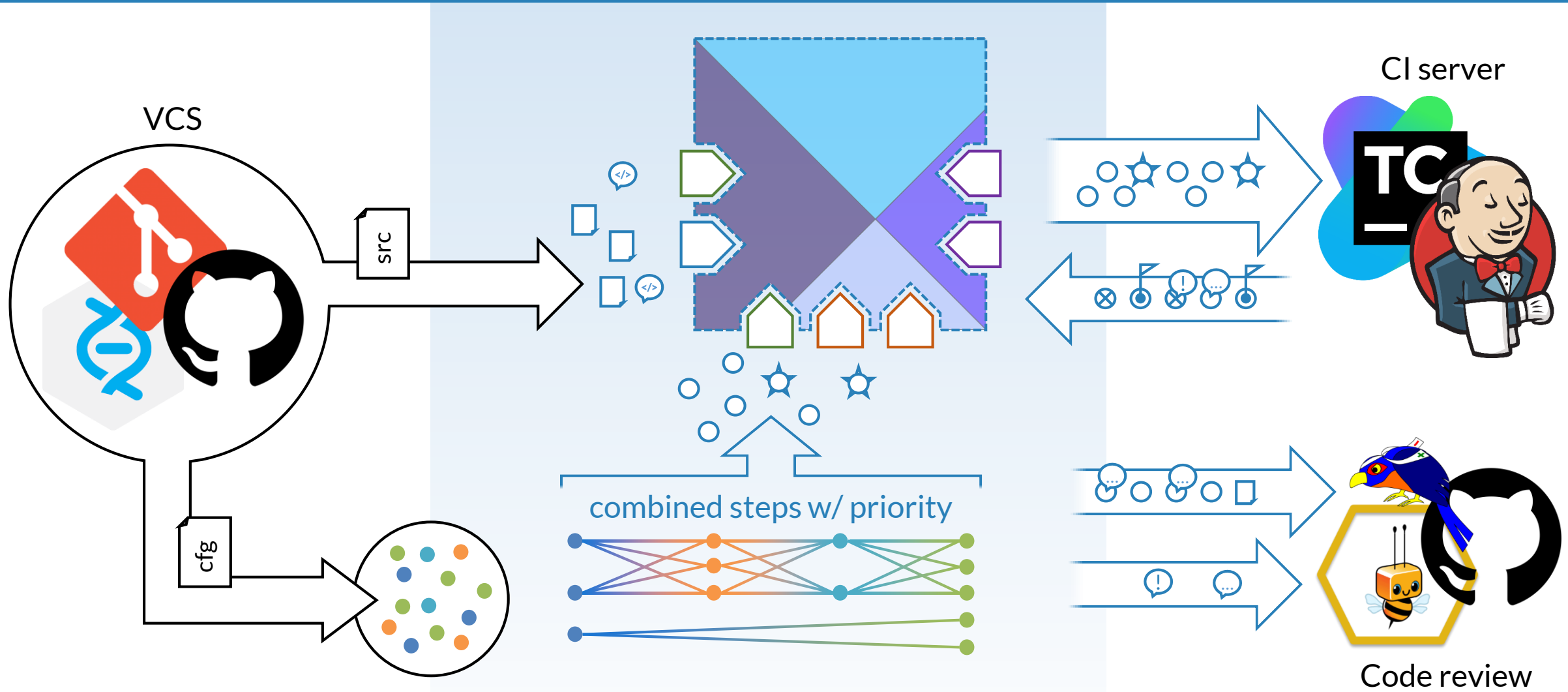
define a common standard baseline

faster and simpler bootstrap

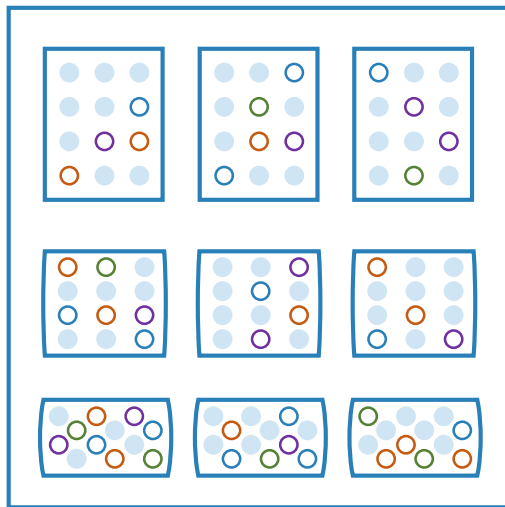
Project background



Current project state



Architecture

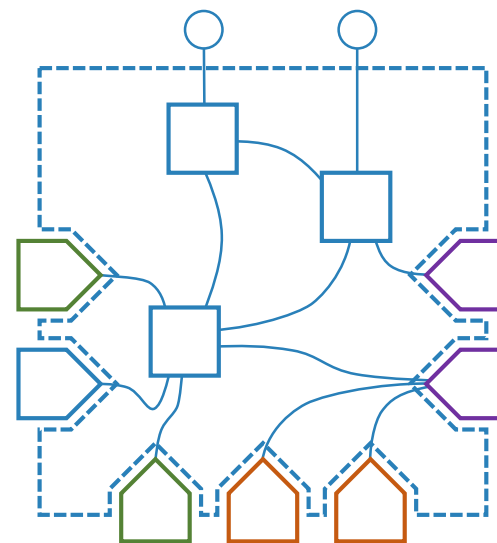


High feature density

- Small project, wide functional scope
- Uses libraries from PyPI
- Relies on the dynamic nature of the Python language
- Deep integration with third-party services

Modular structure

- Independent, isolated modules
- Common CLI – options, vars, help
- Plugin approach



Development process: debug

Bugs

High feature density → high bug density

Unexpected bug locations:

- Third-party code
- Outer systems integration
- Environment

Feature doppelgangers

Bug + bug = perfectly working code

Poorly reported

Testing

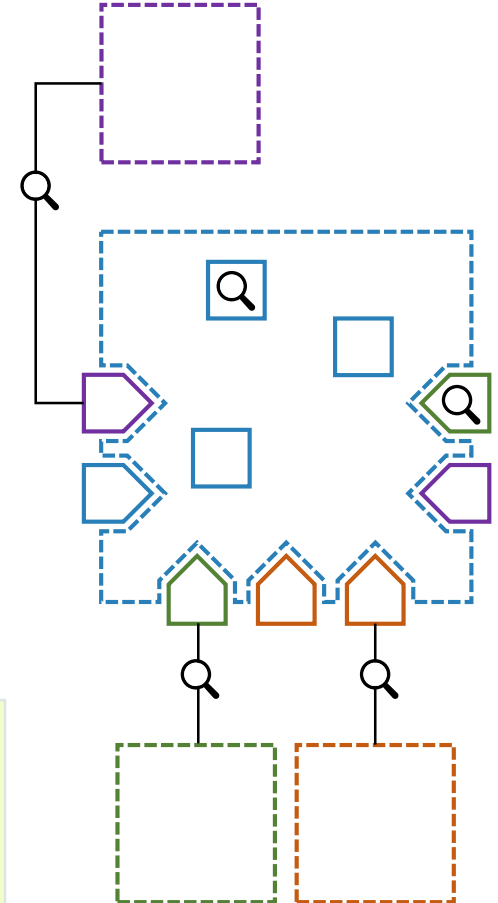
Integration and regression tests

- Freely available service installations
- Focus on scenarios coverage

Minimal unit tests where applicable

- In some units there is 100% coverage
- Doctests: unit tests are a part of documentation

```
>>> cfg = Step(name='foo', command=['1', '2', '3'])
>>> cfg
{'name': 'foo', 'command': ['1', '2', '3']}
>>> cfg['name']
'foo'
```



 **Time-sparse development → knowledge loss**

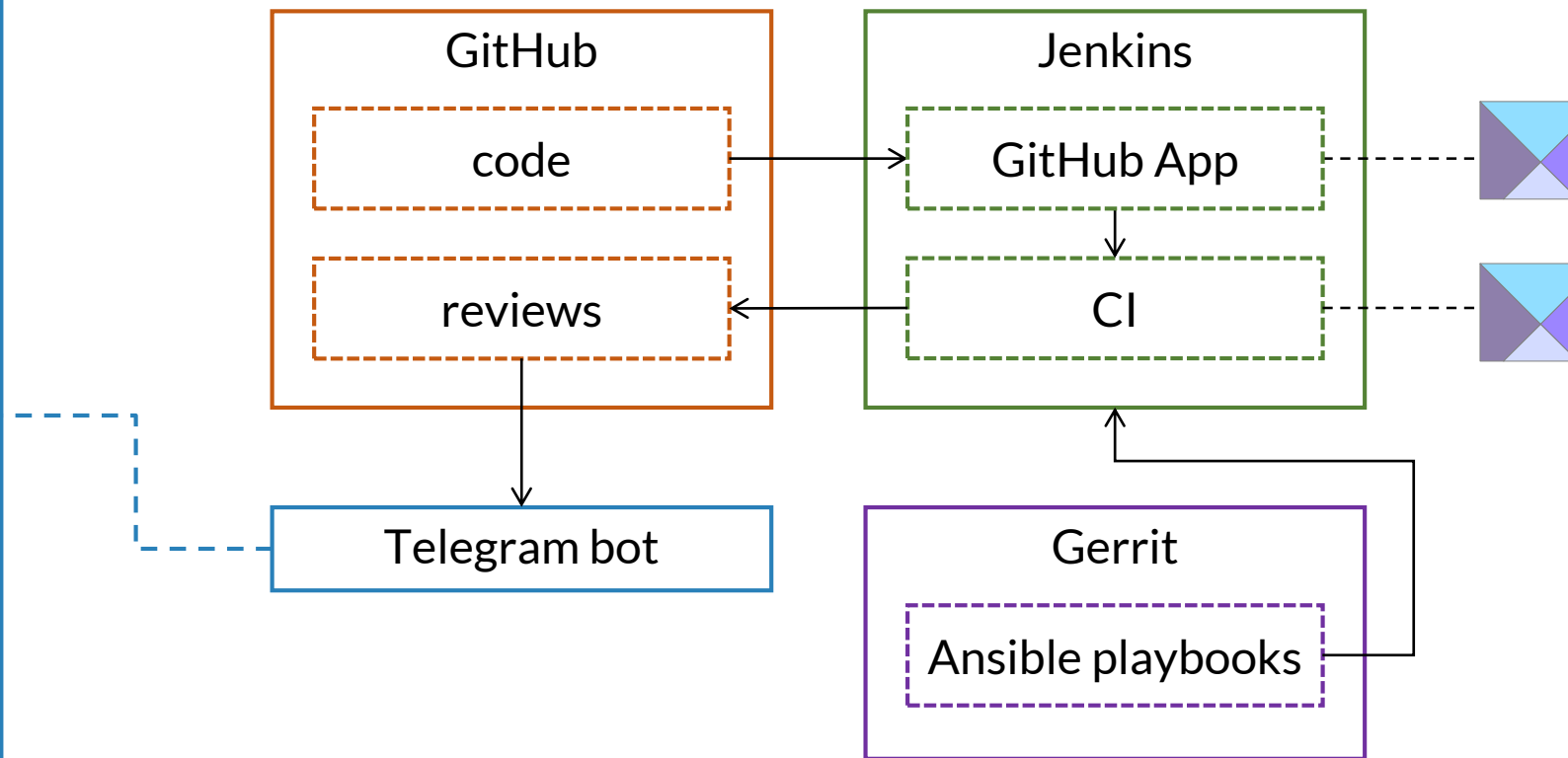
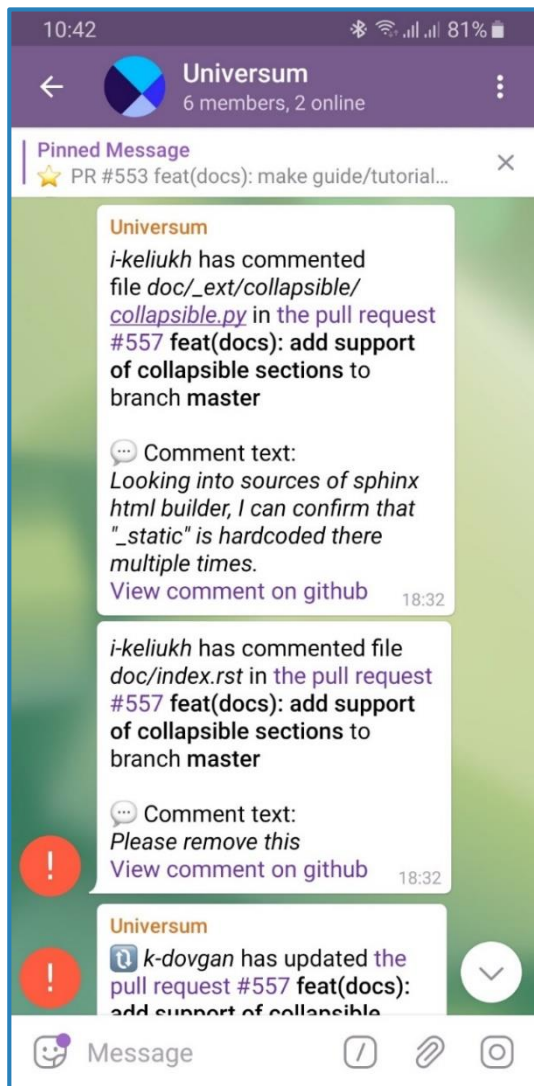
Development process: commit

- Atomic commits (one change → one commit)
- Mandatory review & code analysis → explanatory commit message
- If a bug is fixed, the following info is noted:
 - What was fixed
 - How was it fixed
 - Why did the bug occur
 - How to prevent it from repeating

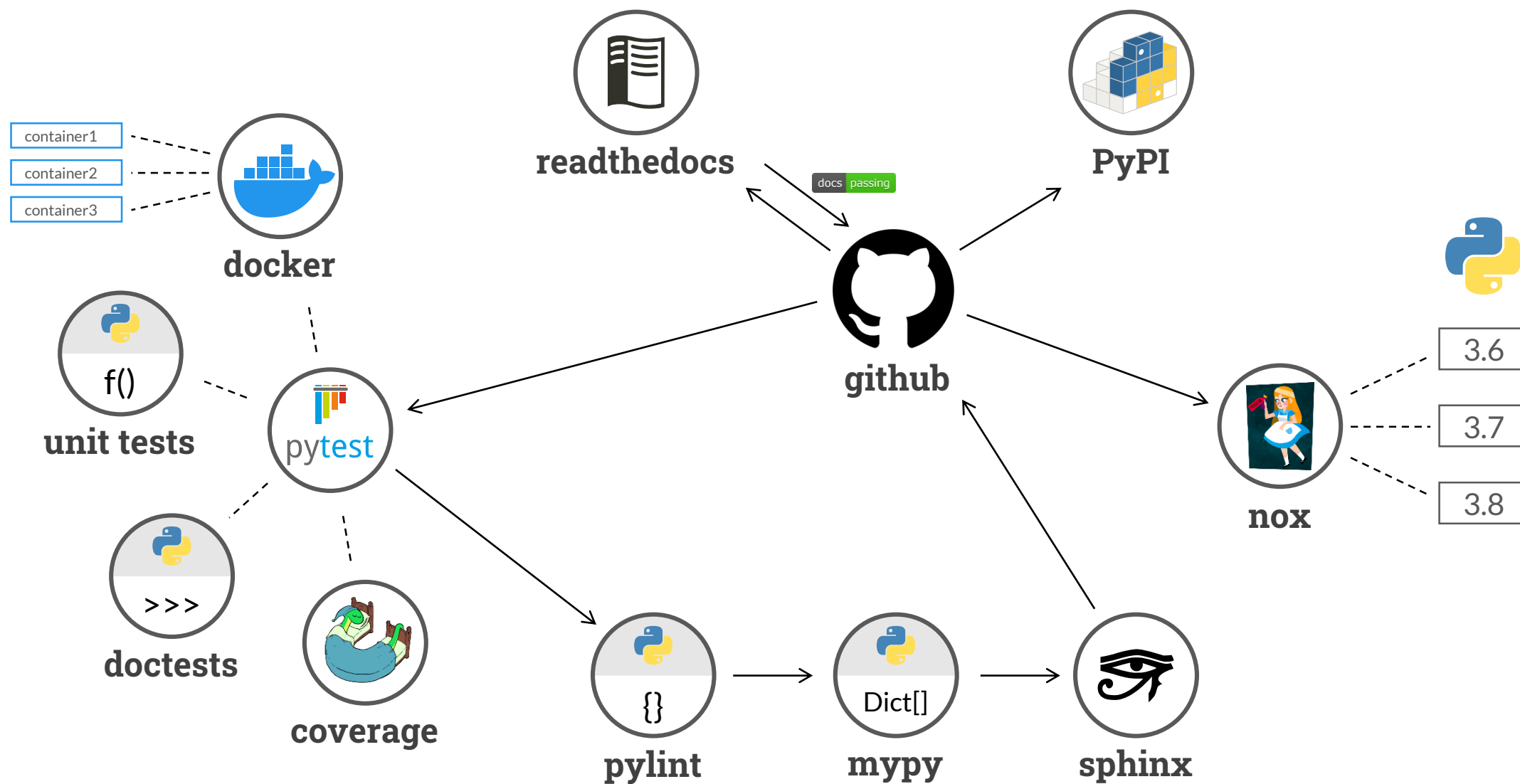


Also using CI makes sure the new commits are not breaking anything already working

Development infrastructure



Python Ecosystem



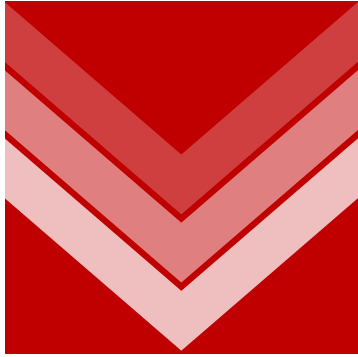
Last year achievements

- Migrated to Python3
- Static typing
- Published on PyPI
- 'Non-CI' mode for local usage
- Full support of GitHub CI process
 - Both GitHub and GitHub Enterprise supported
 - Already used for Universum CI
- Plugin support, refactoring, testing improvements, on-demand features implemented
- Several dozens of bugs fixed



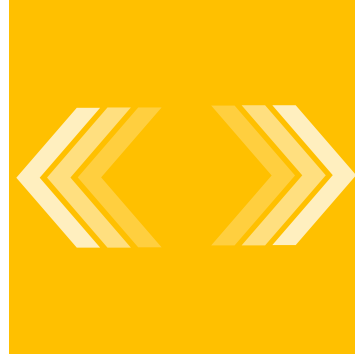
See https://universum.readthedocs.io/en/latest/changelog_ref.html

Issues



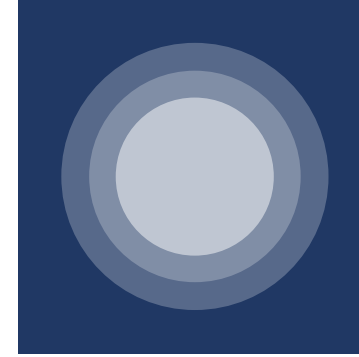
Lack of...

...promotion
...developers
...experience



Third parties

- deep integration
- no documentation



Requirements

- unclear
- unprioritized
- overly specific
- too broad

Status & Plans

 Samsung / Universum

<> Code

! Issues 107

🔗 Pull requests 2

Filters ▾

🔍 is:issue is:open

☐ ! 107 Open ✓ 196 Closed

Compare with 2019:

- 92 open (+15)
- 141 closed (-55)

Promotion

- Step-by-step tutorial
- Look for SO questions
- Publish an article
- Conference

New features

- Cluster support
- Script as step
- Step status in API
- Artifact system improvements
- Add mypy support to analyzers
- Add proper message on config issues

Thank you