EDGEXFOUNDRY™

EdgeX Semver Explore

Thursday April 8, 2021

edgexfoundry.org | @edgexfoundry

EdgeX Semver Explore: Background

History

https://github.com/edgexfoundry/git-semver

- Established March 2019
- Written in Golang
- CLI tool that manages semver versions across multiple edgex repositories

Main motivation driving explore

- Tech debt
- Aligning to other more widely used “industry” tools
- Potential feature gap with LTS releases

Objective

- Need decision to move forward with with switching tools that maintain software versioning and release management. Maybe need to present to a wider audience to make decision.

EdgeX Semver Explore: Status Quo

Branching strategy

- All code is merged into master
- Master is treated as the pre-release branch.
- Only branch when necessary (typically for dot releases)
- Keeps branching to a minimum…simplifies process

Workflow

- When features are merged to master, semver pre-release version is bumped
- Tag on every commit to master (potentially useful for go mods)
- Named release process is managed separately in cd-management/release branch
- Release Czar can create release in central repo
- cd-management/release would get difficult managing multi-branch releases (i.e. LTS releases)

EdgeX Semver Explore: Changes

Branching strategy

- New tooling will bump semver major/minor/patch when code is merged into master and master may not be able to be consider master as a “pre-release” branch
- Move from current strategy where master is treated as a development pre-release branch
- Follows more closely to ”Git Flow” strategy
- Feature changes to master branch would constitute as a major, minor “Named Release” (Hanoi, Ireland, Jakarta, Etc).
- Critical bugfixes would be branched off master and merged into master causing a patch release. A named release branch could also be created if more testing is required

EdgeX Semver Explore: Changes

Workflow

- Conventional commits dictate semver versioning rules (can be customized)
- ”dev” (or similar) branch becomes main development branch during release development
- “dev” branch treated as pre-release branch.
- Only create tags when conventional commit rules dictate (can be customized per repo)
- Git tags become system of record for version tracking

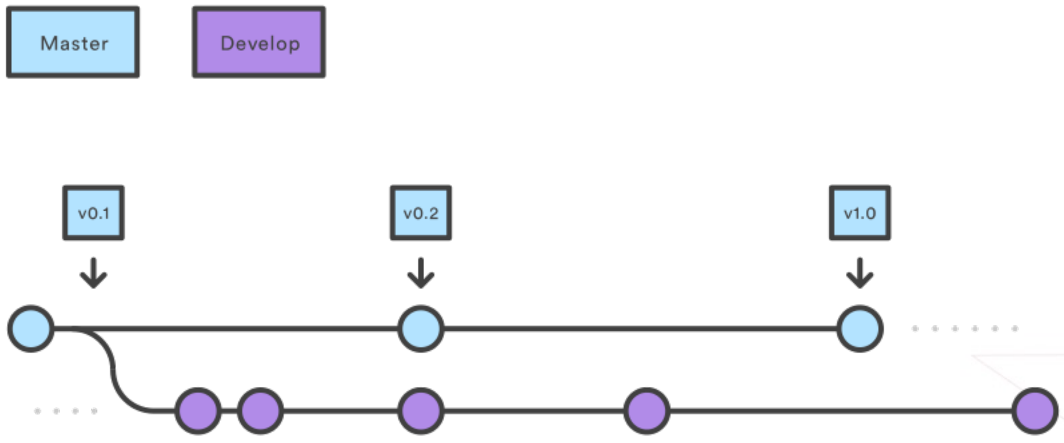
EdgeX Semver Explore: Changes

Pipeline Changes

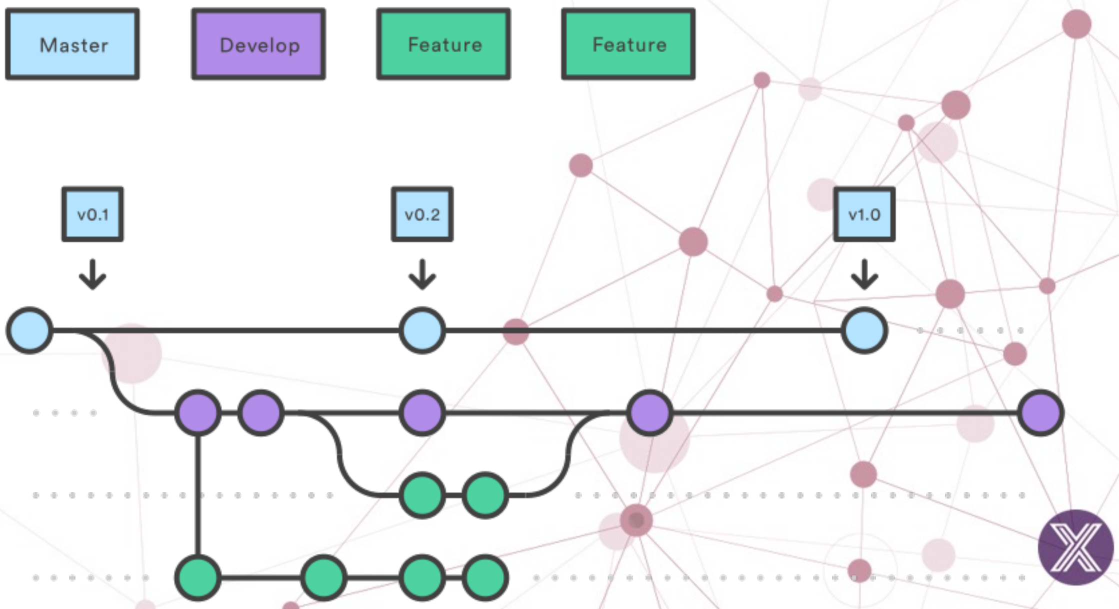
- Changes would be required to the Jenkins pipelines to incorporate new tooling to trigger the releases
- Release Czar no longer needs to maintain release yaml files in cd-management
- Release Czar could coordinate with WG chairs to manage release PR’s

EdgeX Semver Explore: Branching

Develop and Master branches

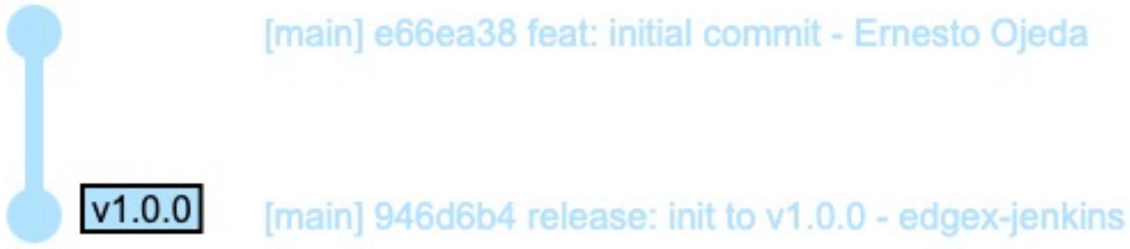


Develop and Feature branches



EdgeX Semver Explore: Sample Workflow

Simplified use case

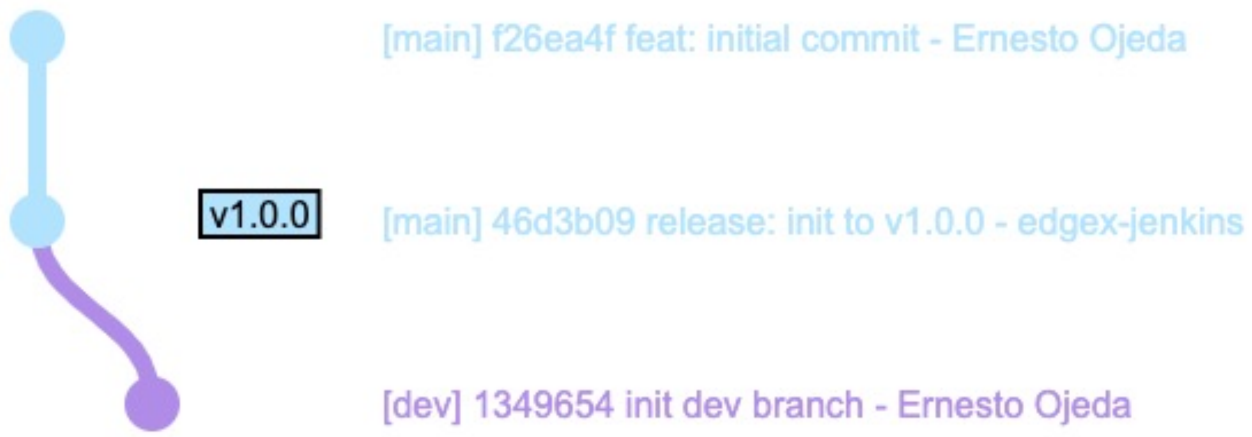


[main] e66ea38 feat: initial commit - Ernesto Ojeda

v1.0.0 [main] 946d6b4 release: init to v1.0.0 - edgex-jenkins

EdgeX Semver Explore: Sample Workflow

Development Branch



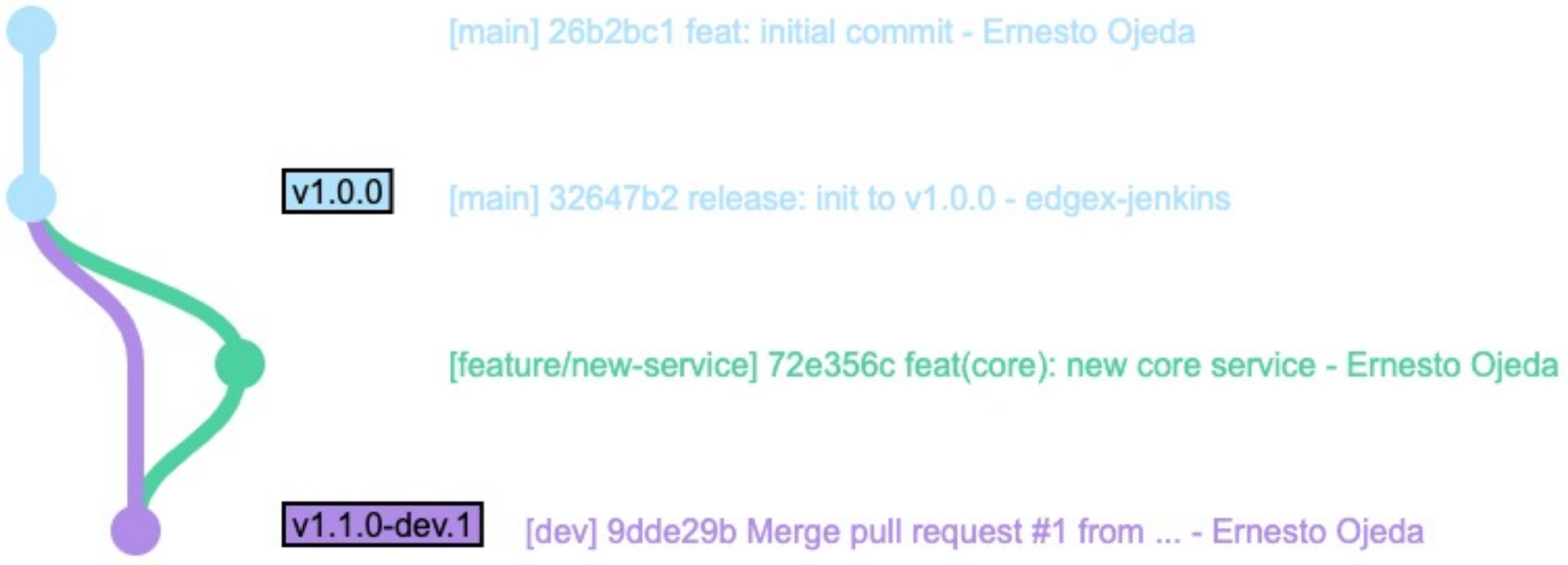
[main] f26ea4f feat: initial commit - Ernesto Ojeda

[main] 46d3b09 release: init to v1.0.0 - edgex-jenkins

[dev] 1349654 init dev branch - Ernesto Ojeda

EdgeX Semver Explore: Sample Workflow

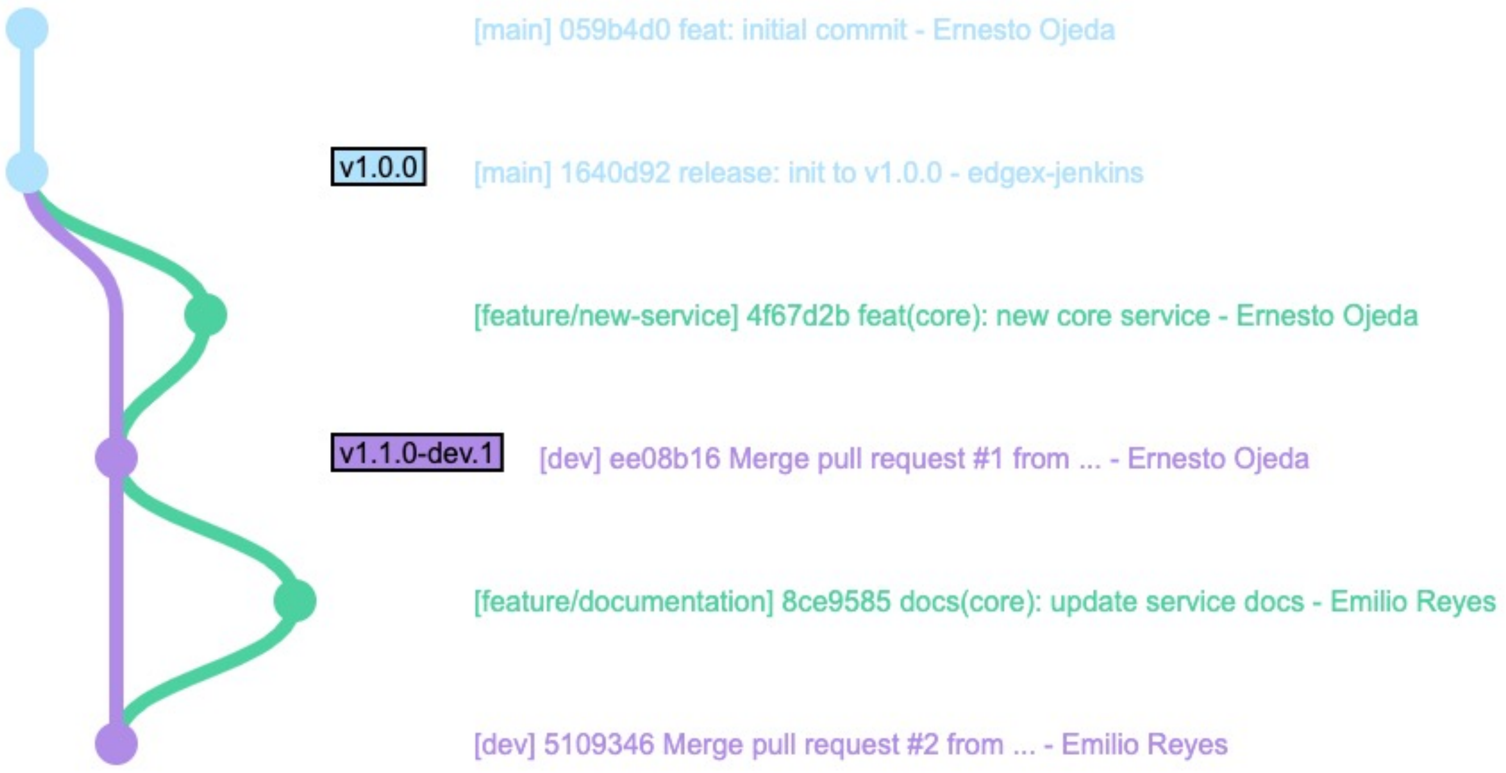
New Feature Added, semver bumped



```
[main] 26b2bc1 feat: initial commit - Ernesto Ojeda
v1.0.0 [main] 32647b2 release: init to v1.0.0 - edgex-jenkins
[feature/new-service] 72e356c feat(core): new core service - Ernesto Ojeda
v1.1.0-dev.1 [dev] 9dde29b Merge pull request #1 from ... - Ernesto Ojeda
```

EdgeX Semver Explore: Sample Workflow

Another Feature Added, docs… no semver bump



[main] 059b4d0 feat: initial commit - Ernesto Ojeda

[main] 1640d92 release: init to v1.0.0 - edgex-jenkins

[feature/new-service] 4f67d2b feat(core): new core service - Ernesto Ojeda

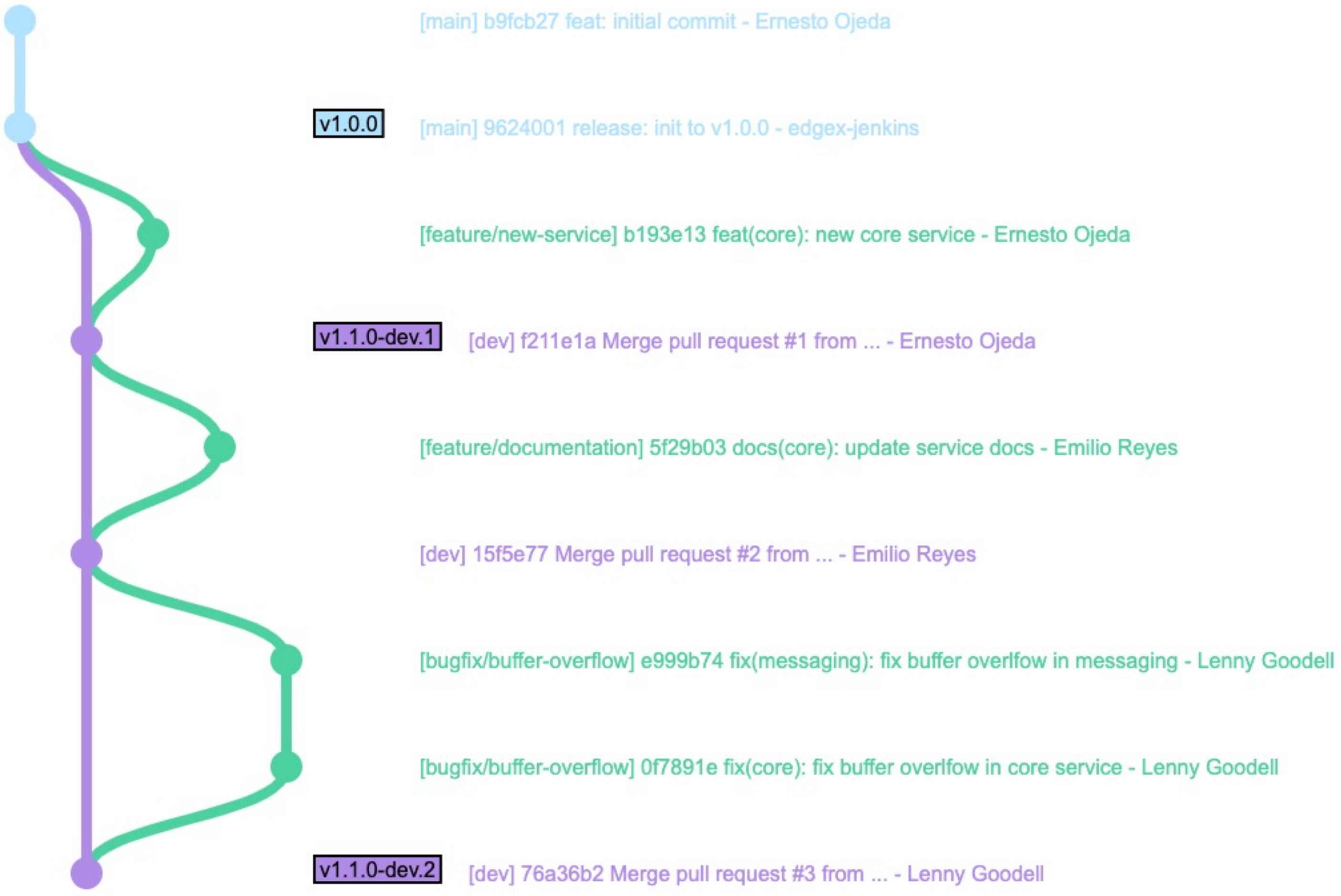
[dev] ee08b16 Merge pull request #1 from ... - Ernesto Ojeda

[feature/documentation] 8ce9585 docs(core): update service docs - Emilio Reyes

[dev] 5109346 Merge pull request #2 from ... - Emilio Reyes

EdgeX Semver Explore: Sample Workflow

Another Feature Added, fix… semver bump



[main] b9fcb27 feat: initial commit - Ernesto Ojeda

v1.0.0 [main] 9624001 release: init to v1.0.0 - edgex-jenkins

[feature/new-service] b193e13 feat(core): new core service - Ernesto Ojeda

v1.1.0-dev.1 [dev] f211e1a Merge pull request #1 from ... - Ernesto Ojeda

[feature/documentation] 5f29b03 docs(core): update service docs - Emilio Reyes

[dev] 15f5e77 Merge pull request #2 from ... - Emilio Reyes

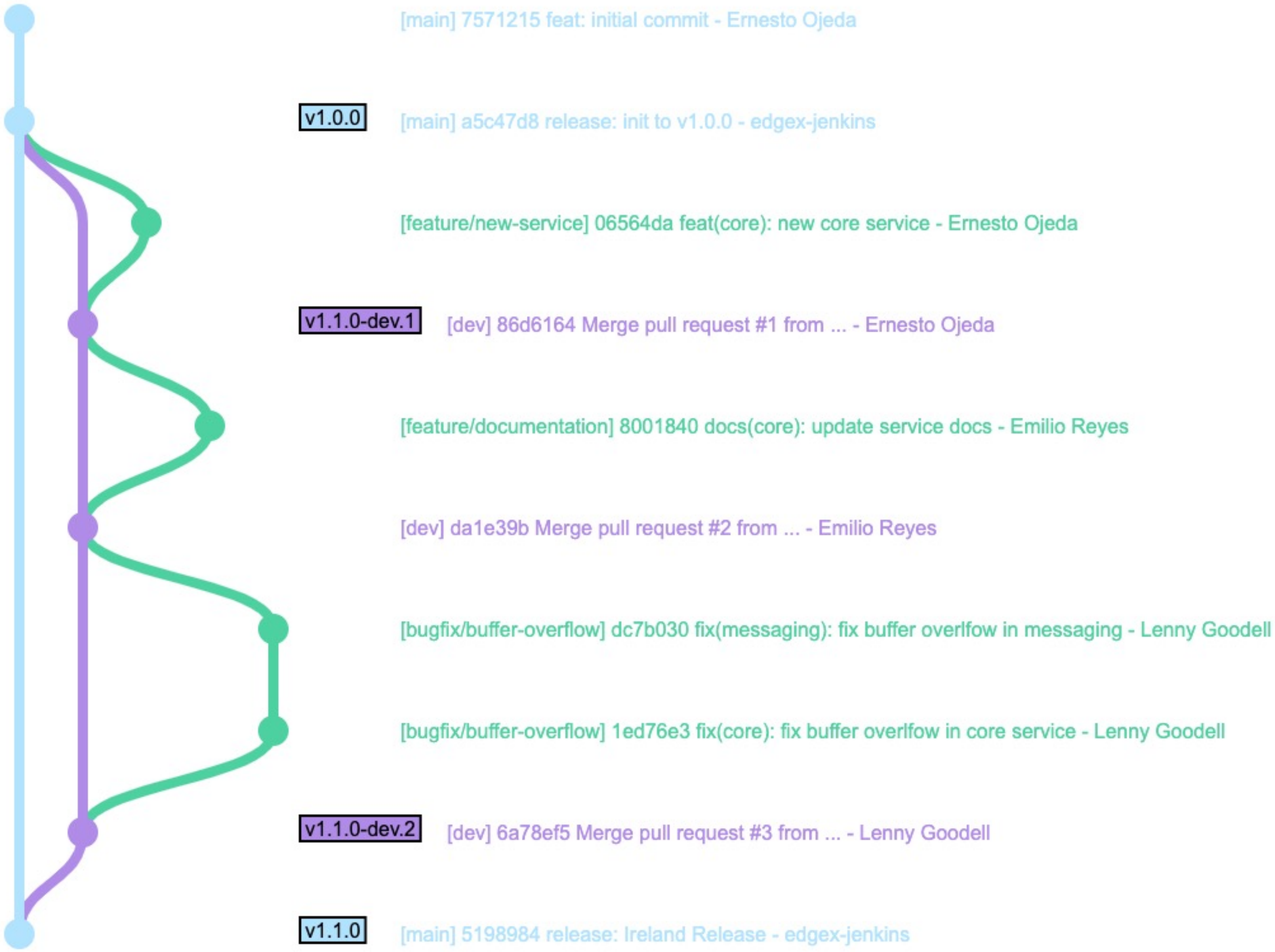
[bugfix/buffer-overflow] e999b74 fix(messaging): fix buffer overlfow in messaging - Lenny Goodell

[bugfix/buffer-overflow] 0f7891e fix(core): fix buffer overlfow in core service - Lenny Goodell

v1.1.0-dev.2 [dev] 76a36b2 Merge pull request #3 from ... - Lenny Goodell

EdgeX Semver Explore: Sample Workflow

Finally, ready for full release



[main] 7571215 feat: initial commit - Ernesto Ojeda

v1.0.0 [main] a5c47d8 release: init to v1.0.0 - edgex-jenkins

[feature/new-service] 06564da feat(core): new core service - Ernesto Ojeda

v1.1.0-dev.1 [dev] 86d6164 Merge pull request #1 from ... - Ernesto Ojeda

[feature/documentation] 8001840 docs(core): update service docs - Emilio Reyes

[dev] da1e39b Merge pull request #2 from ... - Emilio Reyes

[bugfix/buffer-overflow] dc7b030 fix(messaging): fix buffer overlfow in messaging - Lenny Goodell

[bugfix/buffer-overflow] 1ed76e3 fix(core): fix buffer overlfow in core service - Lenny Goodell

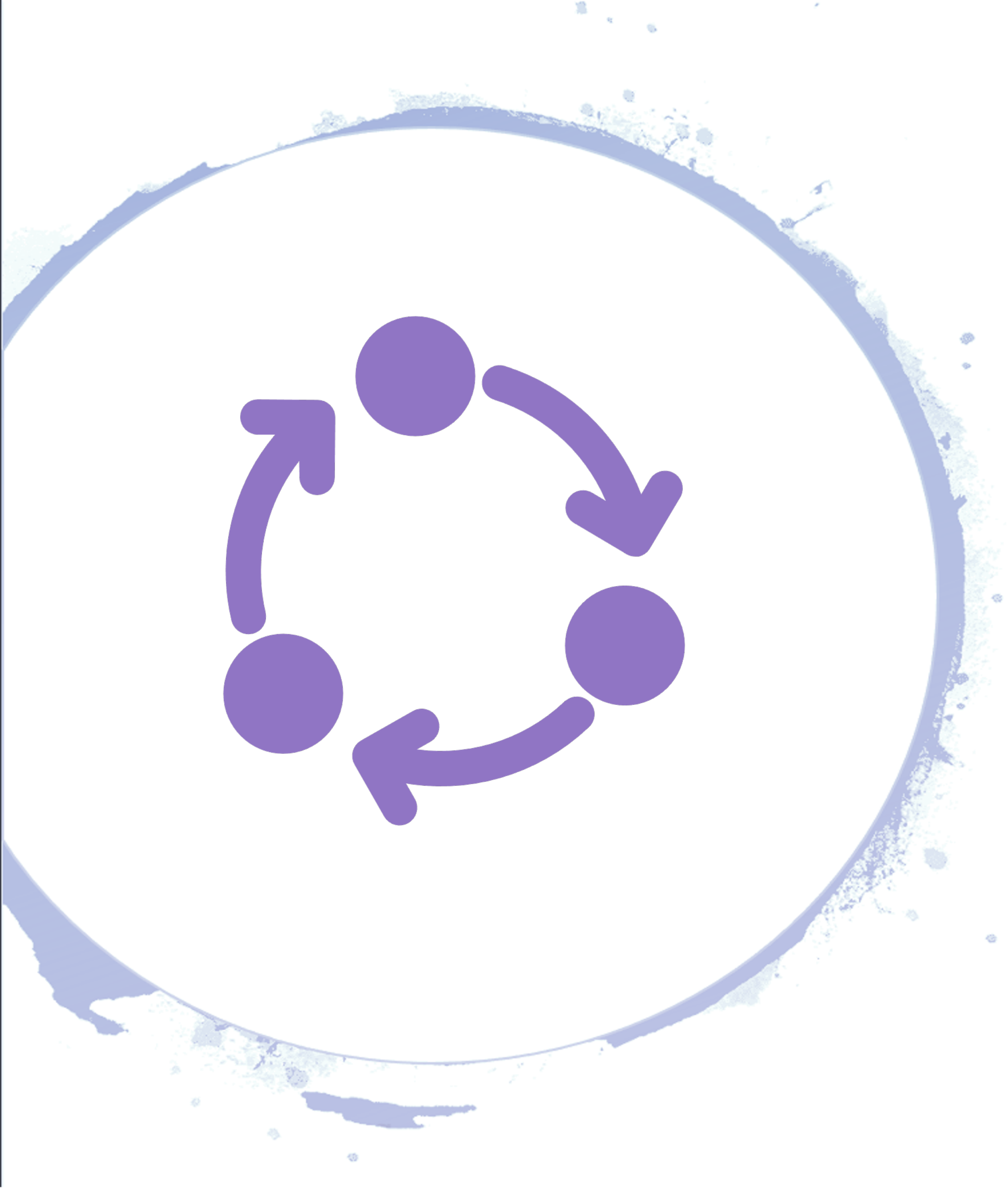
v1.1.0-dev.2 [dev] 6a78ef5 Merge pull request #3 from ... - Lenny Goodell

v1.1.0 [main] 5198984 release: Ireland Release - edgex-jenkins

EdgeX Semver Explore: Path Foward

Where do we go from here?

- Are there a more commonly used tools?
- Are we following the right paradigm with semver? i.e. separate branch holding semver version, pre-release bumping on every merge to master vs only bump when conventional commit matches specific noun
- What do other open-source projects do for releases?
- Can we decentralize releases down to the repo level?
- Ultimately can we remove people from the equation?



EdgeX Semver Explore: Path Foward

Semver/Release Automation Ecosystem

- Automatic semver versioning/bumping based on conventional commits
- Auto-generated CHANGELOG via conventional commits
- Auto-generated Release Notes with conventional commits
- Plugin based architecture allowing for more extensibility
- Decentralized, each repo is released on its own
- Pre-release version would still be supported

Is this the right approach?

- Would require a fairly heavy lift to switch
- Probably will require process changes with branching
- Aligning to well maintained industry tools will bring down our tech debt