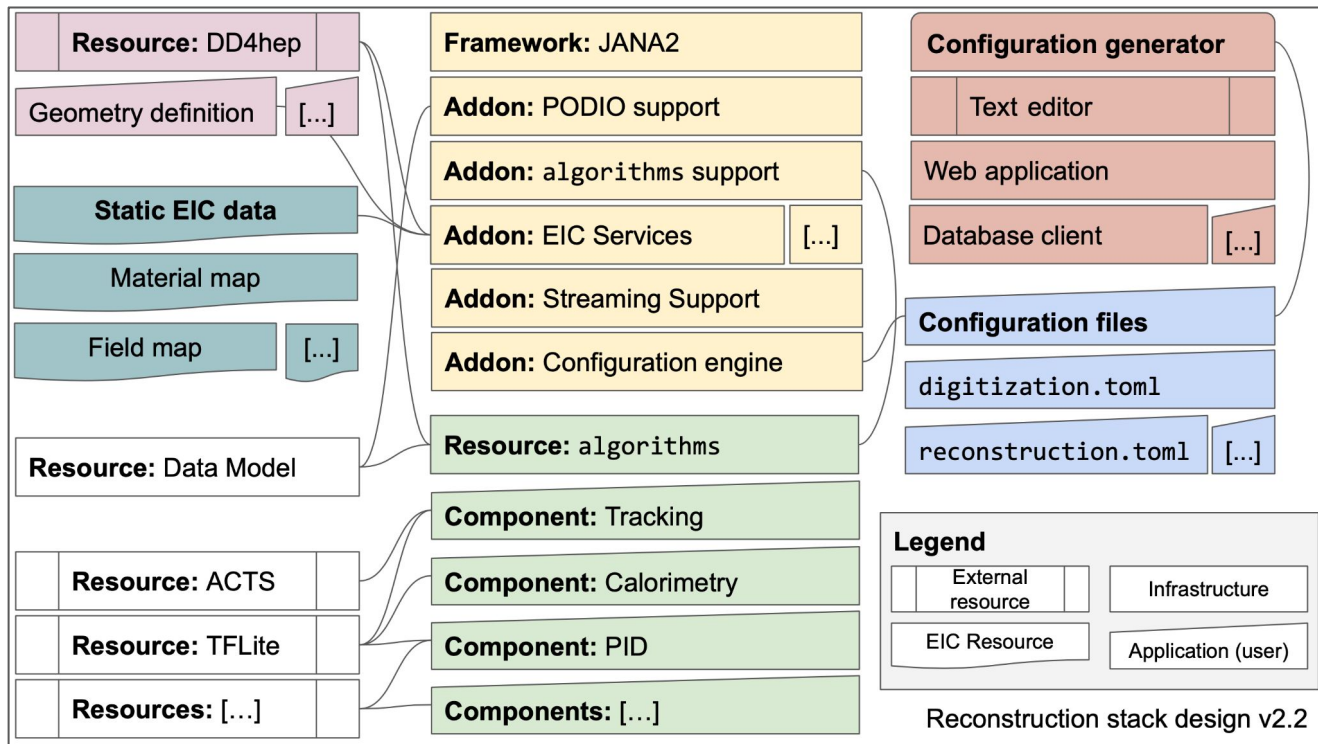# Evolving the EPIC reconstruction stack design

- Strictly modular approach reduces scope of each component

- Easier to onboard new users in any singular piece of the stack

- Every user can find their place based on experience and needs

- Better maintainability and more resilient against changing software needs

- Baked-in reproducibility by enforcing configuration files in every workflow

Reconstruction stack design v2.2

How can we best rotate in new components?

- Possible at all? Or should we have two parallel stacks with a hard switch? Or can we do both?

  - **Scenario 1:** Integrate algorithms as soon as possible in EICRecon, then start redoing the EICRecon front end to be based on configuration files while rotating out old algorithms for new ones.

    - Con: technical debt - short-term based approach / Pro: easier to get new users on board quickly

  - **Scenario 2:** Integrate algorithms in a new JANA2 project with minimal boilerplate. Add new runtime steering based on configuration files. Migrate algorithms. When up to speed, switch from EICRecon to new stack.

    - Con: slower/more abrupt / Pro: cleaner - long-term based approach

  - **Scenario 3 (hybrid)**: Integrate algorithms both in EICRecon for algorithm porting, and in a new project. Then proceed as in Scenario 2.

    - Con: most work / Pro: all benefits from Scenario1 + Scenario 2 (?)

Next steps and (realistic?) timeline

1. Choose between scenarios

2. Regardless of scenarios: finish algorithms API and integrate with JANA2 test factory

3. User-centered design of steering side of reconstruction (how do we want configuration to work?).

4. Backend (algorithms) integration depending on scenario

5. Frontend (configuration) integration depending on scenario (could happen in parallel with backend)

6. Algorithm porting (could happen in parallel with frontend)

7. Validation/production use

- ~now - before 3/20

- Discussion of proposal on 3/20 TF meeting

- Ready by March 31st

- Early-mid April

- mid-April

- Mid-late April

- End of April