o Significant progress made in calo. reconstruction software in 2023!

- **Feb:** clustering task force
  - › **Adjacency matrix [02.09]**
- **Apr:** Burning Calo workshop
  - › LFHCAL in EICrecon [04.13]
  - › **PODIO-EICrecon integration [04.14]**
- **May:** joint physics-reconstruction tasks identified
- **Jun:** PR666, multifactories + cluster matching
- **Jul – Oct:** consolidation, modernization, and increasing realism
  - › EnergyPositionClusterMerger introduced [08.14
- **Nov:** Omnifactories appear [11.30]
- **Jan:** TDR priorities identified

☞ **All-in-all:** calorimetry entered 2024 in very good shape!
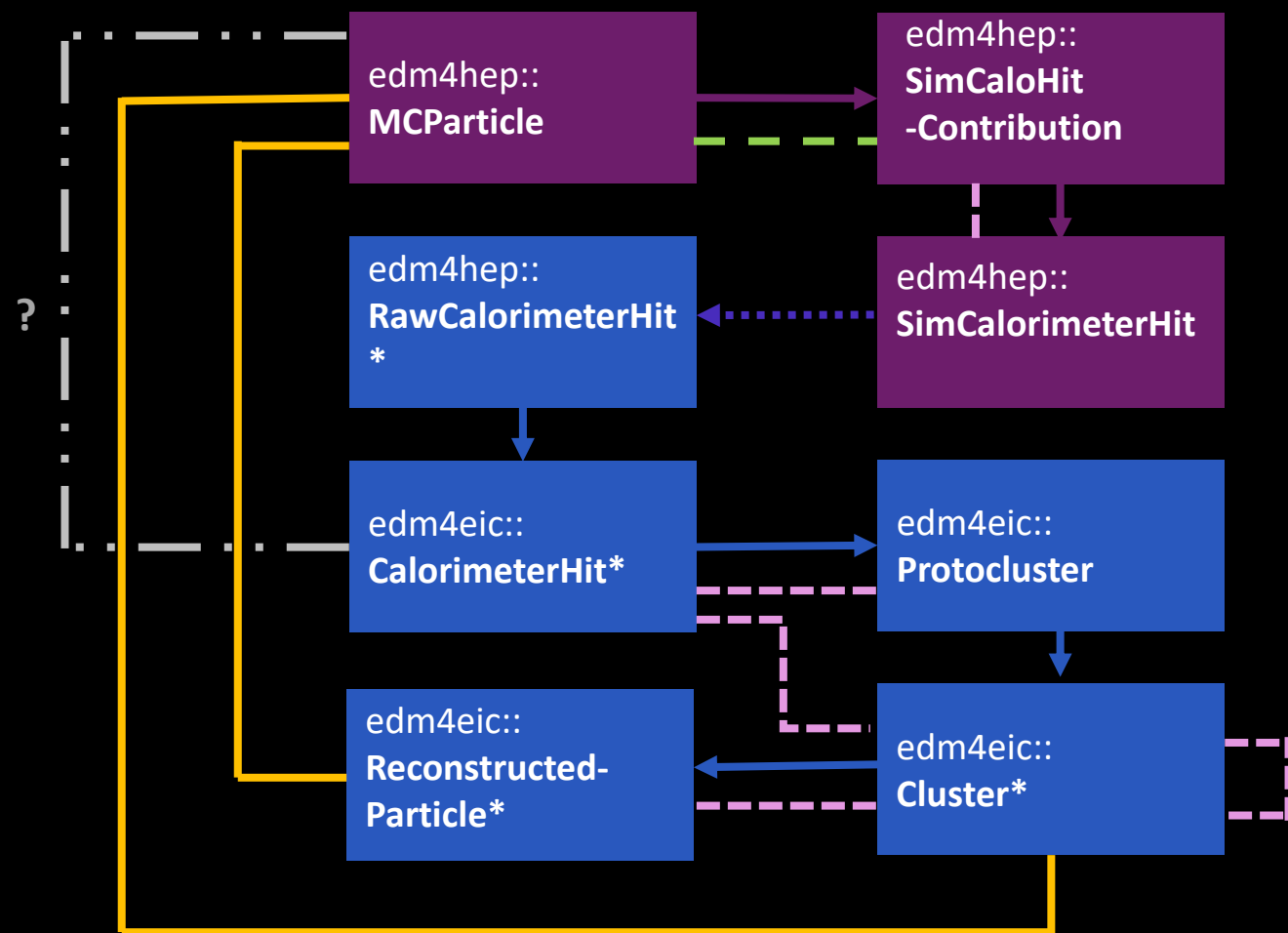
○ **Right:** identified calorimetry TDR needs & wants

- **Big 3:** these are fairly labor-intensive tasks which will require changes in EICrecon
  a) Improved truth-cluster connections
  b) Improved cluster splitting, merging
  c) Improved digitization (esp. ability to do channel masking)

Identified Data Model Needs

☞ **Improved truth-Cluster connections**

Identified Reconstruction Needs/Wants

- Clustering implemented in all systems
- ☞ **Cluster splitting/merging**
- ML Integration
- ☞ **Digitization noise, noise-masking and system-specific digitization model implementations**
- Better neutral identification
- Easier access to janadot output

Identified Simulation Needs/Wants

- Enhanced realism in BEMC implementation and implementation of end-of-sector box material
- Dedicated studies of HGCROC vs. waveform digitizer in BEMC
- Physics-driven performance studies for nHCal
- Update ZDC default to SiPM-on-tile
- Enhanced realism in pECal implementation

(a) Improved truth-cluster connections
- Identified previously that this could be addressed algorithmically (not in data model)
- **Workforce:**
  › Virginia Bailey, Peter Steinberg, Fredi, me
- **Timeline:**
  April Campaign: proposal for changes presented, discussed, and approved
  May Campaign: changes implemented

(b) Improved cluster splitting/merging:
- Task force formed, developed critical tools for tasks while I was at ORNL
- **Workforce:**
  › Peter Steinberg, me
- **Timeline:**
  April Campaign: splitting/merging needs identified, outline of algorithm(s) in place
  May Campaign: algorithm(s) fully implemented

(c) Improved Digitization:
- Presented initial sketch of possible changes to EICrecon in LFHCAL weekly meeting
- **Needs more discussion to establish workforce & timeline**