



Considerations for future framework development

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Driving factors

- Physics programs are international collaborations, usually with collaborative software development.
- Most framework users don't want to develop deep programming expertise (e.g. language choice, multi-threading). They want to be able to use what they know as much as possible.
- Most available computing cycles will come from centralized (i.e. "exascale") machines. We don't dictate or drive the computing environment.

Principles of a processing model

- The processing model should support a distributed system architecture with low-latency communication, and it should not rely on communication through files for the workflow.
- Flexible modularity is essential.
- The framework should *allow* user code to run in an isolated environment (cannot interfere with other user code).
- Framework scheduling should not be limited to “Event” granularity.
- The definition of an “Event” in terms of its constituent data should be amenable to rearrangement as required by the workflow.
- The programming and data models should neither be defined nor dictated by the programming language.
 - Data-processing modules should only consume and produce data.
- Data provenance and traceability will be even more important in a distributed processing model.

Current R&D

- Our development approach is *consistent* with this model.
- We are not yet addressing all the aspects of this model.