HEP-CCE IOS: Recap and Discussion of Kick Off meeting

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Recap: Plan of Work

Phase I: Preparation
- Document existing implementations for participating experiments
- Define a set of representative synthetic benchmarks
- Discuss viability of alternatives for HPC workflows

Phase II: Prototyping
- Develop proof-of-concept prototype(s)
- Work with PPS team to ensure efficient mapping to memory constructs

Phase III: Benchmarking and reporting
- Run experiments using synthetic benchmarks on relevant platforms, refine prototypes
- Develop recommendations for experiments and engage in dialog on outcomes

Outcome

- Milestones
  - 1st quarter: Document i/o patterns and EDM
    - Get to know one another!
      - Give short presentations on background topics with Q&A
        - ROOT i/o and HEPnOS, DAOS etc
      - Learn each others' language

Outcome…

- Milestones
  - 2nd quarter: Performance of HEP experiment benchmarks on Grid resources
    - ATLAS: EventService Simulation (fined-grained (event-wise) processing).
      - Known to be I/O inefficient. Used on HPC. Produces single event, purely temporary output ROOT files that are copied off node and ROOT slow merged (needs re-compression).
    - ROOT: Optimizable for HPC, xCache, Instrument ROOT I/O patterns.
  - 3rd quarter: produce benchmarks either by packaging experiments workflows or by building synthetic benchmarks

Experiment Use cases

- As IRIS-HEP is covering analysis, HEP-CCE is going to focus on production workflows:
    - Simulation, including ATLAS Event Service
    - Reconstruction
    - Derivation?
- ROOT I/O
    - Most/all HEP experiments use ROOT for most of their data.

Communication

- Mailing list:
  - https://lists.anl.gov/mailman/listinfo/cce-ios
  - cce-ios@lists.anl.gov
- Open weekly meetings Wed. 11-12 CST, please share
  - https://indico.fnal.gov/event/23680/
  - https://bluejeans.com/102100194
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List of topics for presentation/discussion

- This week, Peter: "HEP Experiment and ROOT I/O"
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