MILESTONES

G. Watts
2019-09-12
iris-hep Retreat

iris·hep

Institute for Research & Innovation
in Software for High Energy Physics

Milestones
Important Dates

- Quarterly Boundaries
  - *September 1st (Y1Q4)*
    - Meeting shifted to this coming Weds (18th)
  - *December 1st (Y2Q1)*
  - *March 1st (Y2Q2)*
- Reviews
  - *November*
  - *March*
- Ignoring milestones that are due now...

- The milestones are an agreement with the NSF
- We can change them
  - *Time to do it is soonish*
- It would be best not to miss any milestones on March 1st
- We will have a chance to really shift milestones after the renewal
  - *Great time to carefully review milestones beyond Y2Q2*
- I won't discuss those now

Current Milestones

[Milestone Registry](#)

Management (Y2Q2)

- Organize and execute the IRIS-HEP general workshop

- First publications from IRIS-HEP

- Additional Blueprint Workshops

Analysis Systems

- Initial roadmap for ecosystem coherency

- Develop initial design for interface of analysis query system to the IDDS

- Translate analysis examples into new specifications, provide feedback, iterating as necessary

- Initial roadmap for high-level cyberinfrastructure components of analysis system

- Benchmarking and assessment of existing analysis systems

- Implement prototype query-based and cache-aware dispatch

- Establish analysis description database schema and integrate with archival tools like CAP, INSPIRE, HEPDATA, etc.

- GPU/accelerator-based implementation of statistical and other appropriate components

DOMA

- Prototype of HEP event data on object storage using alternate organization approaches

- With OSG, help transition 30% of data transfers at one USLHC site to use a non-Globus Toolkit implementation

- Report on feasibility of hardware accelerators for event data

- IDDS prototype that can automatically transform / optimize data formats.

Innovative Algorithms

■ Initial benchmark results of vectorized KF in CMS environment for trigger and/or reconstruction applications

■ First benchmarking of ACTS components with GPU performance relative to ACTS CPU only

■ Assess performance improvements relative to CPUs and GPUs of prototype reconstruction algorithms on FPGA systems

■ Machine learning implementation for tracking ambiguity resolution

■ Implement and release hybrid ML vertexing algorithm

■ Complete evaluation of neural network exchange format specification against HEP use cases

Software Sustainability Core

- Co-organize (with FIRST-HEP) boot camp on domain specific topics like advanced ROOT, Geant4 and other HEP-specific tools

- First Data Carpentry Workshop catered to HEP needs (expert input from CoDaS-HEP tutors and IRIS-HEP Fellows and field experts)

- Software and Data Carpentry Workshops for HEP community by IRIS-HEP program, IRIS-HEP Fellows form a community of tutors for workshops and future domain specific topics

SSL

■ Nothing due by Q2 of year 2. By end of the year:

  – With DOMA, scale test a data lake prototype across multiple sites.

OSG-LHC

- Complete the transition of data collection from pull to push

- Implement the matrixed cybersecurity activity plan among OSG, the US-LHC Ops program, the US-LHC Tier-1s, and WLCG, including the foundation of a new cybersecurity interest group for OSG resource providers, plus interested VO and users

- Evaluate operations of data federation services by US ATLAS and US CMS for common use

- Add an OSG software deployment model based on container orchestration, including test deployments in the SSL

- Note: OSG has no milestones beyond Q2 (which is fine!)