
Welcome and Workshop Overview

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Analysis Systems & Facilities

Blueprint Workshop

October 26-27, 2020

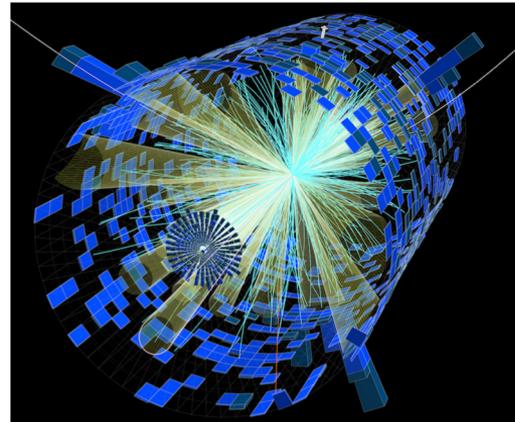


>Welcome!

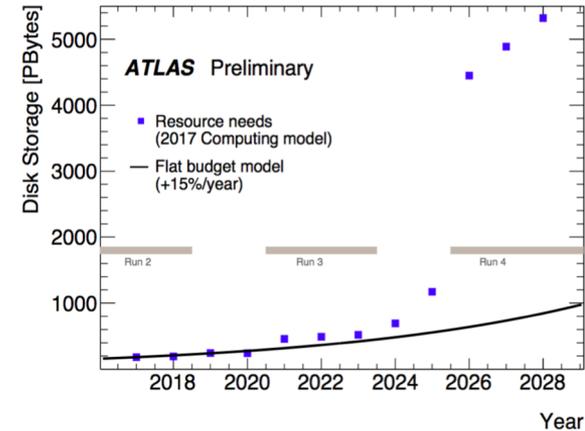
Institute for Research and Innovation in Software for HEP (IRIS-HEP)



Computational and Data Science Challenges of the High Luminosity Large Hadron Collider (HL-LHC) and other HEP experiments in the 2020s



- The HL-LHC will produce **exabytes of science data** per year, with **increased complexity** — 200 overlapping proton-proton collisions on average per event — as compared to the LHC
- During the HL-LHC era, the ATLAS and CMS experiments will record **~10 times as much data** from **~100 times as many collisions** (and at twice the pp collision energy) as was used to discover the Higgs boson.



IRIS-HEP resulted from a 2-year community-wide effort involving 18 workshops and 8 position papers, most notably a [Community White Paper](#) and [Strategic Plan](#). IRIS-HEP started in Sept 2018. 3

Blueprint Activity and Process



- The **Blueprint activity** is used to
 - inform **development** and **evolution** of the IRIS-HEP **strategic vision**
 - **build** (or strengthen) **partnerships among communities** driven by innovation in **software** and **computing**
- A **series of workshops** that bring together **IRIS-HEP team members**, **key stakeholders** and **domain experts** from disciplines of importance to the Institute's mission
 - *Topical presentations and dedicated discussion sessions*
- Discussions are captured and inform **key outcomes** which are summarized in a **short report** made publicly available

This workshop: Data Analysis!



Developing **sustainable analysis tools** that extend the physics reach of the LHC experiments is a primary goal of IRIS-HEP

Day 1 focus: **Analysis Systems** (AS)

- *AS: The ecosystem of software & services which provide analyzers with the necessary tools for end-to-end data analysis, from collaboration analysis data formats to the dissemination of physics results*

Day 2 focus: **Analysis Facilities** (AF)

- *AF: The infrastructure that provides data, software and computational resources used to implement specific elements (in whole or part) of Analysis Systems*

Format & Goals



Workshop Sessions

- Morning: Short topical presentations
- Afternoon: Group discussions around key questions

Day 1 Goals*

*trivially transformed into questions

- 1) *Define and describe a vision for end-to-end data analysis systems during the HL-LHC*
- 2) *Describe the AS Grand Challenge and its role in achieving the primary AS goal (see previous slide)*
- 3) *Inform on the utility and status of IRIS-HEP (and close partner) projects relevant to Analysis Systems*
- 4) *Establish semantics for Analysis Systems and identify specific AS sets (tools integrated together into a workflow) to work on toward achieving our primary AS goal (and our milestones & deliverables)*
- 5) *For each of the AS sets in 4), identify the tools that need to interoperate and specify the interfaces*
- 6) *Informed by 4) and 5) and also considerations around performance and sustainability metrics, begin to develop requirements for prototyping the identified AS sets on the [Scalable Systems Laboratory](#)*

Other notes and practicalities



- All participants of this workshop are expected to abide by the IRIS-HEP Code-of-Conduct found at <http://iris-hep.org/about/code-of-conduct>
- Please raise your hand if you want to ask a question during a talk in the morning session. You are encouraged to add to [live notes](#) if not addressed
- We will be experimenting with the [Miro Whiteboard tool](#) during this workshop to facilitate exchange and shared development. Try it out w/ us!
- Feel free to use Zoom chat, as well as [#analysis-systems](#) Slack channel
- This workshop is an important step in an ongoing process – it is neither the only step nor the final step. A Day 2 question: “What follow-up meetings?”
- This workshop is designed to provide an environment for us to make progress on an important topic. It is up to all of us to seize this opportunity and make the most out our time “together” → so lets get started!