IRIS-HEP & the Blueprint Activity

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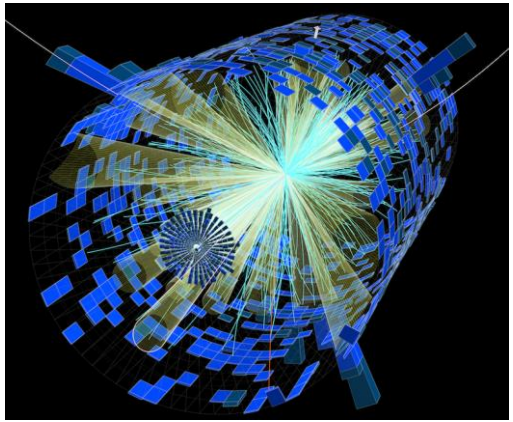
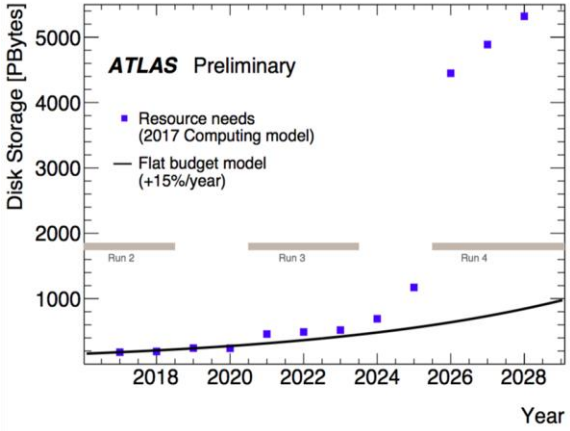
Sustainable Software for HEP
Blueprint Workshop
July 22, 2020

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.

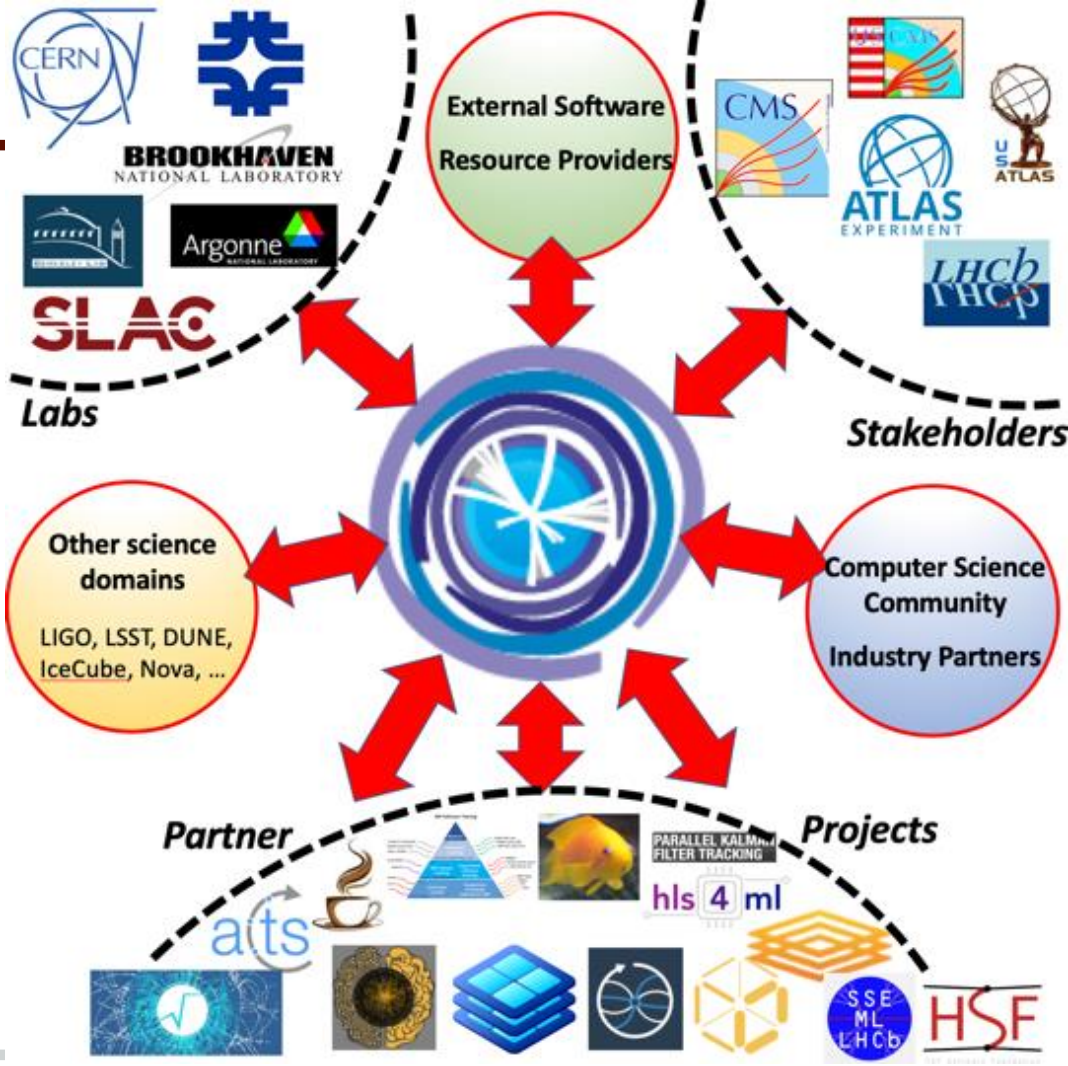
Blueprint Activity and Process

- 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

Intellectual Hub

- Through our partnerships with other projects, our stakeholders and activities like the Blueprint workshops, IRIS-HEP serves as an **intellectual hub** for HEP software and computing R&D

  → an *evolution* from the *strong foundation* we built during the Community White Paper (CWP) and the conceptualization period



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- 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 *breakout sessions*

Topic / Title	Focus Areas	Dates	Location	Summary Report
Completed (also see the top-level Indico page)				
2019				
Analysis Systems R&D on Scalable Platforms	AS, SSL	June 21-22	NYU	report.pdf
Fast Machine Learning & Inference	IA,, SSL	Sept 10-13	FNAL	report.pdf
A Coordinated Ecosystem for HL-LHC Computing R&D	All	Oct 23-25	CUA	[Gordon organizing the report]
2020				
Software Training	SSC	Feb 20	Virtual	report
Scheduled (also see the top-level Indico page)				
2020				
Sustainable Software in HEP	SSC	July 22	Virtual	report
In Planning				
2020				
Future Facilities for Data Analysis	AS, DOMA, SSL			
Strengthening Theory & Experiment Connections	AS, IA			
Challenges and Opportunities with FPGA Accelerators	IA			
Other Proposed Workshops				
Analysis Preservation & Open Access Data	SSC, AS			
Analysis Software Ecosystem	AS			

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  - *Topical presentations* and *breakout sessions*
- Discussions are captured and inform key outcomes which are summarized in a short report made publicly available