Analysis - HL-LHC Review

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2021-03-31

HL-LHC Computing

- HL-LHC will bring significant challenges in software and computing
  - High pile-up (~200) makes each event more complex, impacting directly on reconstruction times and pile-up digitisation
  - Higher trigger rates (~10kHz) means that the number of events to record, store and analyse rises dramatically from earlier LHC runs
  - *We need analysis to scale up to support the precision physics and the search programme at HL-LHC*
- LHCC want to ensure that preparations to face this challenge are well mapped out and credible
  - This will be an ongoing process over the next few years
    - May 2020 - initial review looked at plans from ATLAS and CMS, from a common software perspective (prepared by HSF, including generators) and DOMA
    - **November 2021** - next review phase, with a particular *focus on common software projects*
      - See charge attached to the agenda
    - Then by CDRs, TDRs in the coming years

Review Organisation

- Discussions between WLCG Software Liaisons (Graeme and Liz), WLCG Project Leader and LHC Experiments
- Converged on two important things
  - Overall structure of inputs, with documents on Generators, Simulation, Foundation, *Analysis*, DOMA, plus an Introduction
  - Strong interactions between the experiments and the software projects
- For the latter point we decided that a mini-workshop would be appropriate as a place for the experiments to present some baselines and boundary conditions, as well as R&D interests
  - This should be a two-way interaction!
- The aim of us meeting today is to start that by defining useful questions and inputs
  - Which we are gathering in this Google Doc

Timeline

- 1 November - Review Week
- 1 October - Documents delivered to reviewers
- September - Polish and finalise
- August and July- Summer holiday time, lower efficiency for group work
- **30 June** - We need a first draft, even if it’s rough
- w/b 26 April - Mini-workshop
- 31 March - You are here

N.B. We really believe that developing the document sections in the open is going to help converge faster and develops a relationship of trust between the projects and experiments