ATLAS and CERN IT

RCS-IT Technical Committee

9 December 2022

Alessandro Di Girolamo (CERN) and Zach Marshall (LBNL)
On behalf of ATLAS:
Offline Software and Computing
*Online (TDAQ)*
Physics Coordination

- We are grateful for the support of CERN IT in our many daily activities
- We regularly review the WLCG critical services – these represent many of our most important services
  - Note that criticality is defined w.r.t. data taking. Indico outages are highly disruptive to the activity of the experiment, but they would not affect data taking.
- The stability of these services is paramount to the experiment
  - Changing these requires a great deal of planning and communication
  - We are happy to collaborate on optimal licensing for critical products
- Some have features in development that we are looking forward to
  - We understand a new "CERN search" is coming soon to TWiki, for example
  - Many Zoom features have been requested, e.g. Indico-Zoom-Videos.cern.ch integration
- Many useful collaborations to date, in operations and in R&D
  - Database support, monitoring, tape activities…
- We are happy to engage in new developments, but we must not put these projects at risk (e.g. by 'borrowing' effort)

- You may be aware of our HL-LHC Roadmap
- This describes many of our plans and projects that target the HL-LHC
  - Some, of course, will be delivered long before 2029!
- ATLAS doesn't have a "single big problem" looking towards Run 4
  - That means no obvious "highest priority" project
- We are happy to collaborate with CERN IT on any number of these, depending on the skillset and effort that CERN IT has available
- We have found most effective having ~50% or larger commitments from individuals
  - It's also most effective if we know where *your* expertise lies

ATLAS Software and Computing

HL-LHC Roadmap
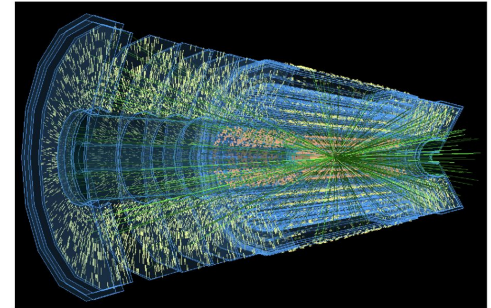
Reference:

Created: 1 October 2021
Last Modified: 22 February 2022
Prepared by: The ATLAS Collaboration

© 2022 CERN for the benefit of the ATLAS Collaboration.
Reproduction of this article or parts of it is allowed as specified in the CC-BY-4.0 license.

Examples of Opportunities for Collaboration

- FTS support – having a stronger CERN IT commitment would be helpful
- CTA and tape in general – how to get the best out of tape, http API, etc
- Tokens and IAM – as the rollout of IAM completes, this will become critical
- CERN batch – improving best practices documentation, user support, etc
- Collaborative tool support
  - Strategies for documentation (Codimd vs Twiki vs Sharepoint vs G'docs vs …, Mattermost vs Egroups vs Discourse vs …)
  - Surveys and e-voting tools, Drupal and associated plugins, SharePoint workflows…
- Non-x86 (incl. GPU) resources – build & interactive machines, batch support, etc.
  - Looking forward to testing MG5_aMC@NLO on a GPU!
- Networking – traffic visibility, traffic pacing, and network orchestration…
  - NOTED; Accounting and packet marking; optimization of flows; xrootd monitoring…
- Operating systems (linux futures committee), moving away from CentosStream9
- Support for ReCast, ReAna, Open Data, Open Science, etc

- **Networking:**
  - Procurement contract:
    - Very good existing collaboration for compute HW procurements
    - Network equipment is also critical, close collaboration would be beneficial. Timeline: 2025
  - Landb improvements during LS3 (programmatic interface, VLAN support, etc)
  - ATLAS Technical Network QoS
    - Prioritizing traffic flow depending on its criticality
  - Campus Network connectivity improvements (e.g. P1 Testbed); ideally near-term
- **ARM support**
  - By beginning of LS3 we will deploy >1000 ARM-based System-on-Chip devices to control and monitor the next generation of custom electronics
  - Need support for "the full stack" (OS, SW, testing platforms, CI/Build, Security…)

- Some of these R&D projects we already discuss extensively with LCG/WLCG
- Our effort (and funding) is also reviewed within the RRB and LHCC
  - We understand that the LCG project is a large part of the CERN-IT department.
  - While we understand that it is difficult to disentangle the pieces, we believe that the experiments have already good collaboration on these topics
- We would love to better understand the interaction and hierarchy between these groups and meetings
  - We risk repeating ourselves quite a bit otherwise, and create confusion if there are different strategies
  - An overview from LCG of ongoing activities within CERN IT would be useful

Extras