Track 5 Summary
Computing Model + Computing Activity + Data Preservation

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Track 5

- Computing Model, Computing Activity, and Data Preservation
- 23 talks and 27 posters
Evolution of Computing System for LHC Run2

- 2 from CMS and 2 from ATLAS
- Many development activities in LS
- Good opportunity to show outcomes
Improvements in the CMS Computing System from Run2

Overview of CMS Distributed Computing System

Focused on CMS Tier0

The CMS Tier0 goes Cloud and Grid for LHC Run 2
Overview of ATLAS Distributed Computing

Focused on evolution of ATLAS Distributed Analysis

A. Dewhurst (RAL), F. Legger (LMU) on behalf of the ATLAS collaboration
- Going to the same direction
  - Reduction for resource requirements, improvements in data and workload management systems, leveraging opportunistic resources, ...

- Better if ALICE and LHCb had “overview” talks as well
Computing Systems for Various Experiments

- Pierre Auger
- AMS
- NOvA
- SACLA
Distributed Computing System for Pierre Auger

Focused on parallelization of the AMS reconstruction and simulation software
Computing Model for NOvA

Data Management for NOvA using SAM (Sequential data Access via Metadata)
Computing and analysis infrastructure for experiments at SACLA
Some collaboration might be possible
- Data management tools/systems
- Software for parallel execution
- ...
Dynamic Data Management

3 from CMS and 1 from ATLAS

- Producing huge amount of data
- Dynamic placement and reduction are key issues
Stephen GOWDY

- A simple simulation tool to model the computing system architecture for the HL-LHC era, in particular for data storage, placement and access.

Thomas BEERMANNN

- Simulation study for dynamic data distribution to minimize waiting time for analysis jobs.
The dynamic data management system works for CMS based on ranking algorithm

Need to develop tools for monitoring and optimization

Building an adaptive data-driven models for data/workflow management using analytics approaches
Trying to address the same issues

Collaborative work would be possible. E.g.,
- Comparison of results from two simulators
- Use the same simulation framework and describe each DDM system as a plugin or simulation parameters
- Share strategy, algorithm, experiences
- ...

Data Preservation and OpenData

- Data Preservation
  - Tevatron
    • A complete example of data preservation
    • Useful for other HEP experiments
  - ATLAS
    • Focus on keeping replicability
    • Requiring forward porting of software, adaptation of new data formats

- OpenData portal, VISPA Internet platform, CRISTAL for Analysis Provenance
Tevatron Run 2 data preservation project completed

Strategy to preserve ATLAS data
Reproducibility vs Replicability
Open Data portal

VISPA provides web-based GUI for scientific research, teaching and outreach
CRISTAL is used to track analysis provenance for Neuroscience experiments on N4U

Work for HEP is ongoing with the DPHEP initiative
Grid Organization

- Worldwide LHC Computing Grid
- Open Science Grid
Possible approaches to optimize WLCG operation costs

OSG Open Facility provides access to opportunistic OSG resources for any researcher from US institutions
Various Topics

➢ “Cross-border” topics
  - Software collaboration, openlab V, security
- Software collaboration across experiments
- The beginning of a new paradigm shift (serial → parallel) maybe a better time to look for collaboration
- A science - industry partnership to drive R&D and innovation
- Many interesting projects
  - Parallelization, data analytics, storage server,
Security
International collaboration is the key aspect of defense
Good to have this kind of educational talk periodically
Thanks

- Enormous thanks to all speakers and poster contributions on behalf of Track 5 conveners