

Stability and scalability of the CMS Global Pool: Pushing HTCondor and glideinWMS to new limits

Tuesday, 11 October 2016 11:15 (15 minutes)

The CMS Global Pool, based on HTCondor and glideinWMS, is the main computing resource provisioning system for all CMS workflows, including analysis, Monte Carlo production, and detector data reprocessing activities. Total resources at Tier-1 and Tier-2 sites pledged to CMS exceed 100,000 CPU cores, and another 50,000-100,000 CPU cores are available opportunistically, pushing the needs of the Global Pool to higher scales each year. These resources are becoming more diverse in their accessibility and configuration over time. Furthermore, the challenge of stably running at higher and higher scales while introducing new modes of operation such as multi-core pilots, as well as the chaotic nature of physics analysis workflows, place huge strains on the submission infrastructure. This paper details some of the most important challenges to scalability and stability that the Global Pool has faced since the beginning of the LHC Run II and how they were overcome.

Tertiary Keyword (Optional)

Distributed workload management

Secondary Keyword (Optional)

Computing middleware

Primary Keyword (Mandatory)

Computing facilities

Primary author: LETTS, James (Univ. of California San Diego (US))

Co-authors: TIRADANI, Anthony (Fermilab); PEREZ-CALERO YZQUIERDO, Antonio (Centro de Investigaciones Energ. Medioambientales y Tecn. - (ES)); BOCKELMAN, Brian Paul (University of Nebraska (US)); MASON, David Alexander (Fermi National Accelerator Lab. (US)); HUFNAGEL, Dirk (Fermi National Accelerator Lab. (US)); KHAN, Farrukh Aftab (National Centre for Physics (PK)); MARRA DA SILVA, Jadir (UNESP - Universidade Estadual Paulista (BR)); BALCAS, Justas (California Institute of Technology (US)); HURTADO ANAMPA, Kenyi Paolo (University of Notre Dame (US)); LARSON, Krista (Fermi National Accelerator Lab. (US)); MASCHERONI, Marco (Fermi National Accelerator Lab. (US)); VERGUILOV, Vassil (Bulgarian Academy of Sciences (BG))

Presenter: PEREZ-CALERO YZQUIERDO, Antonio (Centro de Investigaciones Energ. Medioambientales y Tecn. - (ES))

Session Classification: Track 3: Distributed Computing

Track Classification: Track 3: Distributed Computing