

# CMS readiness for multi-core workload scheduling

*Monday 10 October 2016 14:30 (15 minutes)*

In the present run of the LHC, CMS data reconstruction and simulation algorithms benefit greatly from being executed as multiple threads running on several processor cores. The complexity of the Run-2 events requires parallelization of the code in order to reduce the memory-per-core footprint constraining serial-execution programs, thus optimizing the exploitation of present multi-core processor architectures. The allocation of computing resources for multi-core tasks however becomes a complex problem in itself. The CMS workload submission infrastructure employs multi-slot partitionable pilots, built on HTCondor and GlideinWMS native features, to enable the scheduling of single and multi-core jobs simultaneously. This provides a solution for the scheduling problem in a uniform way across grid sites running a diversity of gateways to compute resources and batch system technologies. This contribution will present this strategy and the tools on which it has been implemented. The experience of managing multi-core resources at the Tier-0 and Tier-1 sites during 2015 will be described, along with the current phase of deployment to Tier-2 sites during 2016. The process of performance monitoring and optimization in order to achieve efficient and flexible use of the resources will also be described.

## Tertiary Keyword (Optional)

## Secondary Keyword (Optional)

Computing models

## Primary Keyword (Mandatory)

Distributed workload management

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

**Co-authors:** MASON, David Alexander (Fermi National Accelerator Lab. (US)); KHAN, Farrukh Aftab (National Centre for Physics (PK)); LETTS, James (Univ. of California San Diego (US)); HERNANDEZ, Jose (CIEMAT); BAL-CAS, Justas (California Institute of Technology (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