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The LHC Tier1 at PIC: experience from first LHC run

The Large Hadron Collider (LHC), in the European Laboratory for Particle Physics (CERN, Switzerland), is the largest scientific instrument ever built. It started operating in November 2009 and it has generated a few hundreds of Petabytes of raw, simulated and processed data, from all of its detectors, since the stop of the successful first run in February 2013. Managing this amount of data and enabling its analysis by thousands of physicists around the world is, and has been, a technological challenge. This is addressed by the largest scientific distributed computing infrastructure in the world: the Worldwide LHC Computing Grid (WLCG), adding up the computing resources of more than 170 centers in 34 countries. In the WLCG, the computing centers are functionally classified in Tiers. Tier0 is at CERN, where the raw data is stored and promptly reconstructed. A copy of these data are distributed via a dedicated high-speed network to eleven Tier1 centers, which provide permanent storage and perform data-intensive analysis and re-processing. Finally, Tier2 centers concentrate on simulation and end-user analysis. Spain contributes to the WLCG with one Tier1 centre: Port d'Informació Científica (PIC), located in the campus of the Universitat Autònoma de Barcelona, near the city of Barcelona. PIC provides Tier1 services to three of the LHC experiments: ATLAS, CMS and LHCb, and acts as a reference Tier1 for the Tier2 centers in Spain and Portugal. This contribution summarizes the operational experience of the PIC Tier1 from first LHC run. During the Long Shutdown (LS1) of the accelerator, the LHC experiments are entering into a review phase of their computing models and operations. The current ongoing activities prior to the restart of the LHC program in 2015 are as well reviewed.

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