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Commissioning the CERN IT Agile Infrastructure with experiment workloads

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In order to ease the management of their infrastructure, most of the WLCG sites are adopting cloud based strategies. In the case of CERN, the Tier 0 of the WLCG, is completely restructuring the resource and configuration management of their computing center under the codename Agile Infrastructure. Its goal is to manage 15,000 Virtual Machines by means of an OpenStack middleware in order to unify all the resources in CERN's two datacenters: the one placed in Meyrin and the new on in Wigner, Hungary.

During the commissioning of this infrastructure, CERN IT is offering an attractive amount of computing resources to the experiments (800 cores for ATLAS and CMS) through a private cloud interface. ATLAS and CMS have joined forces to exploit them by running stress tests and simulation workloads since November 2012.

This work will describe the experience of the first deployments of the current experiment workloads on the CERN private cloud testbed. The paper is organized as follows: the first section will explain the integration of the experiment workload management systems (WMS) with the cloud resources. The second section will revisit the performance and stress testing performed with HammerCloud in order to evaluate and compare the suitability for the experiment workloads. The third section will go deeper into the dynamic provisioning techniques, such as the use of the cloud APIs directly by the WMS. The paper finishes with a review of the conclusions and the challenges ahead.

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