EOS and XCache data access performance for LHC analysis at CERN

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Physics analysis is done at CERN in several different ways, using both interactive and batch resources and EOS for data storage. In order to understand if and how the CERN computer centre should change the way analysis is supported for Run3, we performed several performance studies on two fronts: measuring the performance and utilisation levels of EOS with respect to the current analysis workloads, and looking at the performance of different storage configurations, including SSD-based and HDD-based XCache instances, with respect to specific, I/O intensive analysis workloads from ATLAS and CMS. The collected results indicate that the current infrastructure is adequate and works well below saturation, and that specific needs can be fulfilled by dedicated high performance/throughput servers. We expect this type of studies to continue and the CERN infrastructure to adapt to the evolving needs of the LHC analysis community.

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