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Building a Prototype of LHC Analysis Oriented Computing Centers

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A Consortium between four LHC Computing Centers (Bari, Milano, Pisa and Trieste) has been formed in 2010 to prototype Analysis-oriented facilities for CMS data analysis, using a grant from the Italian Ministry of Research. The Consortium aims to the realization of an ad-hoc infrastructure to ease the analysis activities on the huge data set collected by the CMS Experiment, at the LHC Collider. While “Tier2” Computing Centres, specialized in organized processing tasks like Monte Carlo simulation, are nowadays a well established concept, with years of running experience, site specialized towards end user chaotic analysis activities do not yet have a de-facto standard implementation. In our effort, we focus on all the aspects which can make the analysis tasks easier for a physics user not expert in computing. On the storage side, we are experimenting on storage techniques allowing for remote data access and on storage optimization on the typical analysis access patterns. On the networking side, we are studying the differences between flat and tiered LAN architecture, also using virtual partitioning of the same physical networking for the different use patterns. Finally, on the user side, we are developing tools and instruments to allow for an exhaustive monitoring of their processes at the site, and for an efficient support system in case of problems.

We will report about the results of the test executed on different subsystem and give a description of the layout of the infrastructure in place at the site participating to the consortium.

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