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A distributed infrastructure for interactive analysis: the experience at INFN

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The challenges expected for the HL-LHC era, both in terms of storage and computing resources, provide LHC experiments with a strong motivation for evaluating ways of re-thinking their computing models at many levels. In fact a big chunk of the R&D efforts of the CMS experiment have been focused on optimizing the computing and storage resource utilization for the data analysis, and Run3 could provide a perfect benchmark to make studies on new solutions in a realistic scenario. The work that will be shown is focused on the integration and validation phase of an interactive environment for data analysis with the peculiarity of providing a seamless scaling over grid resources at Italian T2s, and possibly opportunistic providers such as HPC. In this approach the integration of new resources has been proved to be exceptionally easy in terms of requirements, thus computing power can be included dynamically in a very effective way. The presentation will firstly focus on an overview of the architectural pillars and the integration challenges. Then the results of a first set of performance measurements will be presented, thanks to a first real user CMS analysis built on top of Root RDataFrame ecosystem that has been successfully executed over such an infrastructure.

Experiment context, if any

References

Significance

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