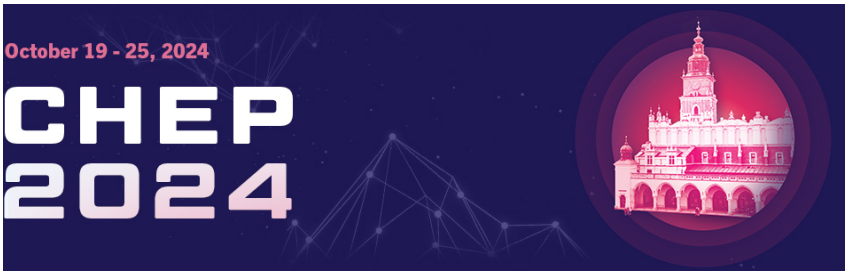

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A Pilot Analysis Facility at CERN, Architecture, Implementation and First Evaluation

Wednesday 23 October 2024 16:15 (18 minutes)

Experiment analysis frameworks, physics data formats and expectations of scientists at the LHC have been evolving towards interactive analysis with short turnaround times. Several sites in the community have reacted by setting up dedicated Analysis Facilities, providing tools and interfaces to computing and storage resources suitable for interactive analysis. It is expected that this demand will increase towards the HL-LHC era and will be only met by scaling out to allow interactive processing of large datasets.

CERN IT launched a Pilot of an Analysis Facility based on established, proven services such as SWAN, HTCondor and EOS. This facilitates the access to massive resources by enabling the use of HTCondor managed resources from SWAN, offering parallel execution via frameworks such as ROOT RDataFrame and Coffea and their Dask backends.

In this contribution we will discuss the architecture of the Pilot Analysis Facility at CERN, giving the rationale for the decisions. For deciding on the next steps the evaluation of the impact of different resource allocation strategies at the CERN HTCondor pool is critical. One especially interesting strategy consists in combining a set of dedicated resources for interactive analysis with the use of the general resources that are subject to experiment quotas. We will put a special focus on the feedback we received from the early testers from the experiments.

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