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Monitoring of the data processing and simulated production at CMS with a web-based service: the Production Monitoring Platform (pMp)

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Physics analysis at the Compact Muon Solenoid (CMS) requires both a vast production of simulated events and an extensive processing of the data collected by the experiment.

Since the end of the LHC runI in 2012, CMS has produced over 20 Billion simulated events, from 75 thousand processing requests organised in one hundred different campaigns, which emulate different configurations of collision events, CMS detector and LHC running conditions. In the same time span, sixteen data processing campaigns have taken place to reconstruct different portions of the runI and runII data with ever improving algorithms and calibrations.

The scale and complexity of the events simulation and processing and the requirement that multiple campaigns must proceed in parallel, demand that a comprehensive, frequently updated and easily accessible monitoring be made available to the CMS collaboration.

Such monitoring must serve both the analysts, who want to know which and when datasets will become available, and the central teams in charge of submitting, prioritizing and running the requests across the distributed computing infrastructure of CMS.

The Production Monitoring Platform (pMp) web-based service, has been developed in 2015 to address those needs. It aggregates information from multiple services used to define, organize and run the processing requests; pMp updates hourly a dedicated Elastic database, and provides multiple configurable views to assess the status of single datasets as well as entire production campaigns.

This contribution will cover the pMp development, the evolution of its functionalities and one and half year of operational experience.

Secondary Keyword (Optional)

Data processing workflows and frameworks/pipelines

Primary Keyword (Mandatory)

Monitoring

Tertiary Keyword (Optional)

Author: WALKER, Jacob (University of Sheffield (GB))

Co-authors: POL, Adrian Alan (CERN); NORKUS, Antanas (Vilnius University (LT)); FRANZONI, Giovanni (CERN); SRIMANOBHAS, Norraphat (Chulalongkorn University)

Presenter: NORKUS, Antanas (Vilnius University (LT))

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