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Improvement of the ALICE Online Event Display using OO patterns and parallelization techniques

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The visualization applications called event displays, are used in every high energy physics experiment as a fast quality assurance method for the entire process flow: starting from data acquisition, data reconstruction & calibration and finally obtaining the global view: a 3D view.

In this paper, we present a method that parallelizes this process flow and show how it is used for the ALICE online event display. This method presents how the offline reconstruction is parallelized at the event level and constructed as a mini server in order to serve the reconstructed event data to clients: event displays. This method incorporates an object orientated pattern called MVC - Model, View, Controller and brings the main advantage: the complete separation of the data (coming from DAQ in RAM), of the controller (reconstruction server) and of the view (event display). Another advantage is the improvement of the responsiveness of the event display while the acquisition/reconstruction process.

Separating the whole process in this manner, brings also the possibility to more easily parallelize its components. This fits perfectly with the upgrade plans for the long shutdown.

Summary

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