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Experience producing simulated events for the DZero experiment on the SAM-Grid

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Most of the simulated events for the DZero experiment at Fermilab have been historically produced by the "remote"collaborating institutions. One of the principal challenges reported concerns the maintenance of the local software infrastructure, which is generally different from site to site. As the understanding of the community on distributed computing over distributively owned and shared resources progresses, it becomes increasingly interesting the adoption of grid technologies to address the production of montecarlo events for high energy physics experiments. The SAM-Grid is a software system developed at Fermilab, which integrates standard grid technologies for job and information management with SAM, the data handling system of the DZero and CDF experiments. During the past few months, this grid system has been tailored for the montecarlo production of DZero. Since the initial phase of deployment, this experience has exposed an interesting series of requirements to the SAM-Grid services, the standard middleware, the resources and their management and to the analysis framework of the experiment. As of today, the inefficiency due to the grid infrastructure has been reduced to as little as 1%. In this paper, we present our statistics and the "lesson learned" in running large high energy physics applications on a grid infrastructure.

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