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Performance measurements for the WLCG Cost Model

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High energy physics community needs metrics that allow to characterize the resource usage of the experiments workloads detailed enough so that the impact of changes in the infrastructure or the workload implementations can be quantified with a precision high enough to guide design decisions towards improved efficiencies. This model has to express the resource utilization of the workloads in terms of fundamental capabilities that computing systems provide, such as storage, memory, network, computational operations, latency, bandwidths etc. To allow sites and user communities use this model to improve also their cost efficiency, an approach to map these capabilities to local costs is highly desirable. This can't be achieved at a global level, since the conditions at different grid sites are too different, but the model should be constructed in such a way that this mapping on a local level can be done easily, following given examples. Decisions on the evolution of workloads, workflows and infrastructures impact the quantity and quality of human resources required to build and operate the system. It is important that a cost and performance model at the system level takes these adequately into account to allow to optimize the global infrastructure cost into a constrained budget.

In this report there are presented methods and results of grid sites benchmarking with typical HEP tasks. Comparative analysis and correlation studies of these results against the data from accounting portals (Rebus, etc.) are discussed.

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