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A DNS-based load-balancing mechanism for the gLite Workload Management System

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Since the beginning, one of the design guidelines for the Workload Management System currently included in the gLite middleware was flexibility with respect to the deployment scenario: the WMS has to work correctly and efficiently in any configuration: centralized, decentralized, and in perspective even peer-to-peer.

Yet the preferred deployment solution is to concentrate the workload management functionality on a small number of certified hosts. This is certainly favored by system and virtual organization administrators, because it limits the amount of system management needed to provide the service. But it also helps the users of the system because it simplifies the configuration of the user interface. On the negative side, it raises some scalability problems, because the overall system is requested to manage millions of jobs in the not-too-distant future.

In this paper we show how a well-known technique, hiding a number of machines under a DNS-based alias mechanism that takes into account suitable load parameters typical of and specific to Workload Management Systems, can be easily applied to the gLite WMS, addressing both the scalability and the usability issues mentioned above and paving the way to more advanced abstraction mechanisms.

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