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The gLite Workload Management System

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The gLite Workload Management System (WMS) is a collection of components providing a service responsible for the distribution and management of tasks across resources available on a Grid. The main purpose is to accept a request of execution of a job from a client, find appropriate resources to satisfy it and follow it until completion. Different aspects of job management are accomplished by different WMS components such as the WMProxy (a Web Service managing users authentication/authorization and operation requests) and the Workload Manager (which performs the matchmaking on the job's requirements and determines where it has to be actually executed).

Different kinds of job can be described providing needed information through a flexible high-level language called JDL. The most interesting and innovating job types are the Directed Acyclic Graphs (a set of jobs where the input/output/execution of one or more jobs may depend on one or more other jobs), the Parametrics (which allow the submission of a large number of jobs by simply specifying a parametrized description), and the Collections (which represent a possibly huge number of jobs specified within a single description)

Several new functionalities (such as the use of Service Discovery for obtaining new service endpoints to be contacted, the automatic sandbox files archiving/compression and sharing, the bulk-matchmaking support), intense testing and a constant bug fixing activity dramatically increased job submission rate and service stability.

Future developments of the gLite WMS will be focused on reducing external software dependency, improving its portability, robustness and usability.

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