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## WHALE, a management tool for Tier-2 LCG sites

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The LCG (Worldwide LHC Computing Grid) is a grid-based hierarchical computing distributed facility, composed of more than 140 computing centers, organized in 4 tiers, by size and offer of services. Every site, although independent for many technical choices, has to provide services with a well-defined set of interfaces. For this reason, different LCG sites need frequently to manage very similar situations, like jobs behaviour on the batch system, dataset transfers between sites, operating system and experiment software installation and configuration, monitoring of services.

In this context we created WHALE (WHALE Handles Administration in an LCG Environment), a software actually used at the T2\_IT\_Rome site, an LCG Tier-2 for the CMS experiment.

WHALE is a generic, site independent tool written in python: it allows administrator to interact in a uniform and coherent way with several subsystems using a high level syntax which hides specific commands.

The architecture of WHALE is based on the plugin concept and on the possibility of connecting the output of a plugin to the input of the next one, in a pipe-like system, giving the administrator the possibility of making complex functions by combining the simpler ones. The core of WHALE just handles the plugin orchestrations, while even the basic functions (eg. the WHALE activity logging) are performed by plugins, giving the capability to tune and possibly modify every component of the system. WHALE already provides many plugins useful for a LCG site and some more for a Tier-2 of the CMS experiment, especially in the field of job management, dataset transfer and analysis of performance results and availability tests (eg. Nagios tests, SAM tests). Thanks to its architecture and the provided plugins WHALE makes easy to perform tasks that, even if logically simple, are technically complex or tedious, like eg. closing all the worker nodes with a job-failure rate greater than a given threshold. Finally, thanks to the centralization of the activities on a single point and to its logging functionalities, WHALES acts as a knowledge-base of the site and a handful tool to keep track of the activities at a given site. For this reason it also provides a tailored plugin to perform advanced searches in the activity log.

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