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# Migration of the MAGIC Datacenter and Monte Carlo simulation to a Grid infrastructure

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The MAGIC collaboration is moving from a computing model based on local computer farms to a Grid based model. Here we present the recent progress in the adoption of the Grid infrastructure in MAGIC using the current resources of the MAGIC Virtual Organization on EGEE.

## Impact

The proposed system for the Monte Carlo production, based on a Client/Server architecture, focuses on providing the user with a single access point to the simulation environment through a remote graphical user interface, the Client. The Client can be accessed via web browser, using web service technology, with no additional software installation on the user side required. The Server processes the user request and uses a database as a metadata source for both data catalog and job management inside the Grid. The system proposal backend relies on an EGEE-compliant installation of Globus and Gridway. The plans for the migration of the Datacenter services to Grid will be also presented. This migration will affect the data transfer, storage and data processing. All those processes will be monitored using a database, which will also be used to allow users to access all data from the web.

## URL for further information

http://sites.google.com/a/insa-vlabs.org/imgrid/ (private, will update when public site exists)

## Conclusions and Future Work

MAGIC has successfully made its first steps into adopting the Grid infrastructure to meet its computing needs with the development of a Grid-based Monte Carlo production and control tools. In the short term, the Datacenter transition to the Grid will help to provide a better service to the collaboration. The long term plan is to set up the Grid infrastructure which future experiments, such as the Cherenkov Telescope Array (CTA), will use in data analysis and Monte Carlo production.

## Keywords

MAGIC, Gamma-Ray Astronomy, Cherenkov Telescope, Monte Carlo simulations, Datacenter

## Detailed analysis

The MAGIC telescope (Major Atmospheric Imaging Cherenkov Telescope), run by an international collaboration with institutes from 9 different countries, is a 17-meter Cherenkov telescope located on La Palma (Canary Islands) dedicated to the study of the universe in high energy gamma-rays. The main computing requirements of such an experiment comes from data calibration, reduction and storage and from the generation of Monte Carlo simulations. The MAGIC Datacenter is hosted by the Port d'Informació Científica (PIC), the spanish TIER-1 center, which provides storage facility for the collaboration including the data products from the automatic analysis that runs at the PIC computer farm. Monte Carlo simulations play a central role in Cherenkov telescopes. Due to their parallel nature, a Grid-based system is a natural framework for them. Grid tools can

also be applied to many of the Datacenter services to simplify their development inside the PIC infrastructure, largely based on the Grid.

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