

StoRM, an SRM implementation for LHC analysis farms

Wednesday, 15 February 2006 09:00 (20 minutes)

LHC analysis farms - present at sites collaborating with LHC experiments - have been used in the past for analyzing data coming from an experiment's production center. With time such facilities were provided with high performance storage solutions in order to respond to the demand for big capacity and fast processing capabilities. Today, Storage Area Network solutions are commonly deployed at LHC centers, and parallel file systems such as IBM/GPFS and HP/Lustre allow for reliable, high-speed native POSIX I/O operations.

With the advent of Grid technologies, existing LHC analysis facilities have to face the problem of adapting current installations with Grid requirements to allow users to run their applications both locally and from the Grid in order to provide efficient usage of the resources.

The Storage Resource Manager (SRM) protocol has been designed to provide a standard uniform interface to storage resources for both disk and tape based storage systems. As of today SRM implementations exist for storage managers such as Castor, d-Cache and LCG DPM. However, such solutions manage the entire storage space allocated to them and force applications to use custom file access protocols such as rfiio and d-cap, sometimes penalizing performance and requiring changes in the application. StoRM is a disk-based storage resource manager that implements SRM v.2.1.1. It is designed to work over native parallel filesystems, provides for space reservation capabilities and uses native high performing POSIX I/O calls for file access. StoRM takes advantage of special features provided by the underlying filesystem like ACL support and file system block pre-allocation.

In this article, we describe the status of the StoRM project and the features provided by the current release. Permission management functions are based on the Virtual Organization Management System and on the Grid Policy Service. StoRM caters for the interests of the economics and finance sectors since security is an important driving feature.

We report on the tests performed on a dedicated test bed to prove basic functionality and scalability of the system together with interoperability with other existing SRM implementations.

Primary authors: TERPIN, Alessio (ICTP - Trieste); Dr GHISELLI, Antonia (INFN - CNAF); CORSO, Ezio (ICTP - Trieste); Dr DONNO, Flavia (CERN AND INFN); Dr STOCKINGER, Heinz (University of Vienna); MAGNONI, Luca (INFN - CNAF); Prof. MAZZUCATO, Mirco (INFN - Padova); MURRI, Riccardo (ICTP - Trieste); ZAPPI, Riccardo (INFN - CNAF); COZZINI, Stefano (ICTP - Trieste); VAGNONI, Vincenzo (INFN - Bologna)

Presenters: MAGNONI, Luca (INFN - CNAF); ZAPPI, Riccardo (INFN - CNAF)

Session Classification: Poster

Track Classification: Grid middleware and e-Infrastructure operation