Data Access with File Protocol and StoRM

Riccardo ZAPPI & Antonia GHISELLI

INFN, IT

In production data grids, high performance disk storage solutions using parallel file systems are becoming increasingly important to provide reliability and high speed I/O operations needed by High Energy Physics (HEP) analysis farms. Today, Storage Area Network solutions are commonly deployed at Large Hadron Collider (LHC) data centres, and parallel file systems such as GPFS and Lustre provide reliable, high-speed native POSIX I/O operations in parallel fashion.

In this article we describe the StoRM component, a grid middleware component implementing the standard SRM (Storage Resource Manager) v2.2 interface. Its elegant architecture allows to fully exploiting the potential offered by the underlying cluster file system. Indeed, it allows and encourages the use of the native POSIX file protocol (i.e. "file://") allowing a great benefit jobs efficiency in managed Storage Element. The job running on the worker node can perform a direct access to the Storage Element managed by StoRM as if it were a local disk, instead of transferring data from storage elements to the local disk.