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SRM AND GFAL TESTING FOR LCG2

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Storage Resource Manager (SRM) and Grid File Access Library (GFAL) are GRID middleware components used for transparent access to Storage Elements. SRM provides a common interface (WEB service) to backend systems giving dynamic space allocation and file management. GFAL provides a mechanism whereby an application software can access a file at a site without having to know which transport mechanism to use or at which site it is running.
Two separate Test Suites have been developed for testing of SRM interface v 1.1 and testing against the GFAL file system. Test Suites are written in C and Perl languages.
SRM test suite: a script in Perl generates files and their replicas. These files are copied to the local SE and registered (published). Replicas of files are made to the specified SRM site. All replicas are used by the C-program. The SRM functions, such as get, put, pin, unPin etc. are tested using a program written in C. As SRMs do not perform file movement operations, the C-program transfers files using "globus-url-copy". It then compares the data files before and after transfer.
GFAL test suite: as GFAL allows users to access a file in a Storage Element directly (read and write) without copying it locally, a C-program tests the implementation of POSIX I/O functions such as open/seek/read/write. A Perl script executes almost all Unix based commands: dd, cat, cp, mkdir and so on. Also the Perl script launches a stress test, creating many small files (˜5000), nested directories and huge files.
The investigation of interactions between the Replica Manager, the SRM and the file access mechanism will help making the Data Management software better.

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