Data Management

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Overview

Current situation + some outstanding problems:

◆GDMP status – Jeff Templon

◆Directing jobs to data

◆Replica Manager

◆Mass storage

GDMP Status

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Sending jobs to data

◆ The JDL can specify a list of LFNs and an access protocol, and the address of the Replica Catalogue.

◆ Protocols are "file" for local (NFS) access, "gridftp" and RFIO – but Castor files can't easily appear in an RC so RFIO is not so useful (see later).

◆ Currently all SEs support all protocols.

◆ The job will go to a CE which has all files locally.

◆ Information about the local system and filenames is available through the BrokerInfo interface.

Replica Manager

◆ No real Replica Manager yet (i.e. no code to replicate files automatically), but some prototype commands are available.

◆ There are commands to copy a file into or between SEs, and to update the Replica Catalogue.

◆ There are commands to delete files and RC entries .

◆ Designed for single files rather than batches.

◆ Does not write full file information into the RC.

◆ See the tutorial by Heinz Stockinger.

Mass Storage: RFIO

- The basic solution for accessing tape stores is RFIO. Files can be copied between Castor and disks at CERN using *rfcp* as normal.

- Anyone with a CERN tape account is mapped to that account, otherwise to generic accounts with enough privilege to read and write.

- *rfcp* can be used from a WN at CERN. It is not currently on the UIs.

- This usage can be extended to HPSS at Lyon.

- RFIO can do direct file access with API calls.

RFIO drawbacks

◆ RFIO only works on machines local to the tape store (security issues).

◆ Files in Castor can't easily be recorded in a Replica Catalogue, and even if they could the WP2 tools would not know how to deal with them.

◆ There is no GridFTP access to tape files (coming soon?).

◆ RAL has a completely different system (virtual tapes), although this can also be used in a similar way.

GDMP hooks

◆ GDMP has some hooks to allow MSS access. When a file is replicated from another site to CERN it can be automatically copied to a fixed location in Castor.

▪ However, locally-created files are not copied automatically.

◆ When GDMP gets a request to replicate a CERN file, if the file is not on disk it tries to stage it first (this currently fails due to a bug).

▪ Again, local access does nothing.

WP5 staging scripts

◆ The current testbed has some staging scripts which use rfcp to copy files to/from a fixed directory in Castor.

◆ Drawbacks: file names can clash, Castor has a maximum file name length of 130 (?) characters, the scripts are not callable by users.

◆ New scripts will solve all these problems, at the cost of using a relatively opaque file naming scheme (MD5 hashes).

MSS Problems

◆ No disk space management, users need to manage the space themselves.

◆ Automatic staging is limited to replication, in general users have to stage in and out themselves.

◆ Files are staged to a specific place with opaque filenames, which may be hard to integrate with an external file catalogue.

◆ Files in other places in Castor cannot be registered in Replica Catalogues or manipulated by Grid tools.

◆ Experiments need to define their needs to see if they can live with this in TB1.2.