dCache, an update

Patrick
for the dCache Team

support and funding by

DESY
Open Science Grid
Virtual Data Toolkit
HEP-Grid
Nordic DataGrid Facility
CERN
Work in progress (Main Streams)

SRM 2.2
  Development
  Documentation
  Migration techniques
  WLCG roll out plan

Chimera

NFS 4.1
Status SRM 2.2 (development)

- WLCG SRM 2.2 agreed functionality fully available except for features promised for end of 2007.
- Currently only code improvements are left to be worked on, based on feedback by NDGF and by Flavias tests.
- During the last weeks a lot of long standing issues could be resolved by increased phone conference meeting frequency and input from CDF, FZK (Doris) and NDGF.
Next week (Aug 13-17) : developers meeting at BNL.
- We will mainly work on stability and performance
- Massive stress testing.
- Resilient Manager integration in 1.8

Michael offered the BNL SRM 2.2 evaluation system.
- We promised to leave it in a functional state after testing is done.
Goal: just one day

For small sites, with a low number of files, pools just need to be restarted with dCache 1.8. The transition is done transparently. Disadvantage: talks pretty long

For large sites we provide a tool for preparing the pools in advance while the 1.7 system is still active. Discrepancy is automatically fixed after system restarts with dCache 1.8.

We will have to exercise this. No experience yet.
The configuration for SRM 2.2 spaces in conjunction with all possible configuration options of dCache is not trivial.

The current documentation only covers the basic use cases.

We need external contribution for documentation and possibly 'tutorials'
Status SRM 2.2 (WLCG Roll-Out Plan, oversimplified)

- **Chep, WLCG meeting**
  - August
  - September
  - October
  - November
  - December
  - January

BNL, SARA, NDGF, FZK, IN2P3 configured for Atlas and LHCb (Space tokens)

- Flavias Stress Tests
- High level tools test
- Experiment Tests

- Second and last upgrade window
- Planned: USCMS & Remaining

- First Tier 1 upgrade window
- Planned: NDGF, FZK, ??

- SRM 2.2 will become default for high level tools

- (*)certain restrictions apply

- (*)Upgrade DESY

Patrick Fuhrmann
OSG Meeting, Chicago
August 10, 2007
Main focus for DESY and FERMI has been SRM 2.2

Nevertheless, large sites will require improved file system engine. Chimera will become a must for sites like BNL and FERM

- Scalability and performance (see most recent CDF problems)
- File sizes > 2G
- More complex ACL's
- Prerequisite for nfs 4.1

dCache 1.8 RPM optionally already provides the chimera file system. Instructions at wiki (trac.dcache.org).

1.8 with chimera is independently evaluated by Greig (Edinburg) and very soon by BNL.

Patrick Fuhrmann

August 10, 2007
Nfs 4.1

- Acceptance in HEP community is increasing for obvious reasons.
- An nfs 4.1 interface would make dCache a storage element candidate for other communities, which need random real posix access to underlying storage.
- dCache is very active in the nfs 4.1 group.
- NFS 4.1 in dCache requires Chimera.
- Nevertheless, the roadmap still is
  - SRM 2.2
  - Chimera
  - Nfs 4.1
Stop here ....
SRM 2.2 Status

Basic WLCG MoU functionality
Missing 0 out of 25

WLCG MoU functionality due end of 2007
Missing 2 out of 4

Non MoU functionality
Missing 6 out of 12

Extended use cases
Missing 6 out of 40

Up to date information from Flavias 'test page'
http://grid-deployment.web.cern.ch/grid-deployment/flavia/
Chimera

Expected Improvements compared to PNFS

• Performance scales with back-end database implementation
  - Small to medium sites with mysql/postgres
  - Really huge sites with oracle cluster (planned for DESY)
• Enables protection against misuse
  - Different 'chimera users' (e.g. nfs, dCache, enstore) may get different doors with different priorities if back-end db allows.
• Simplifies maintenance resp. monitoring tasks
  - By using SQL database
  - Easy to add customized web interfaces.
• Allows ACL plug-ins
  - ACL sub-project started beginning of 2007
Chimera (cont.)

Current status

- Functional and performance tests in progress
- Ready for testing by external sites: mid of March
- Setting up pnfs -> chimera (de-)migration scenarios
- Is tested by Greig @ EB and soon atBNL.
Further reading

www.dCache.ORG