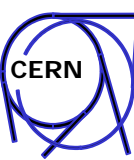




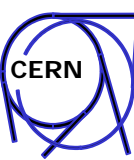
dCache SE in LCG-2



- History
- Sites today
- Caveats
- Rpms
- Configuration
- Compatibility



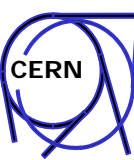
History



- CERN IT/GD/CT started work on dCache in Feb. 2004
- Uncovered many issues preventing *grid* deployment
 - Packaging, various misbehaviors, missing functionality
 - Most matters were addressed by the developers
 - Priorities different for different projects
- Remaining problems do not seem showstoppers:
 - <http://cern.ch/litmaath/dCache> (bit out of date)
 - See below, though
- dCache part of LCG-2_4_0 (Apr. 2005) and later



Sites today



```
$ Idapsearch -x -h lcg-bdii.cern.ch:2170 -b o=grid | grep -c  
'^GlueSARoot.*pnfs/'
```

97

```
$ Idapsearch -x -h lcg-bdii.cern.ch:2170 -b o=grid | grep  
'^GlueSARoot.*pnfs/' | sed 's-.*pnfs/--;s-/.*--' | sort -u
```

cern.ch

desy.de

ft.uam.es

gridpp.rl.ac.uk

gsi.de

ifh.de

itep.ru

pp.rl.ac.uk

tier2.hep.man.ac.uk

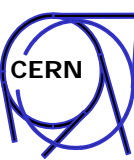
zam.kfa-juelich.de

zib.de

...plus Fermilab and other sites that do not expose /pnfs...



Caveats



- IT/GD does not propose that each site switch to dCache for all its storage needs:
 - Simple standard configurations are certified w.r.t. other LCG-2 middleware
 - Services sufficiently stable, etc.
 - Non-trivial problems will be forwarded to dcache.org
 - Alternative SE solutions include Castor and DPM
- dCache access to byte ranges:
 - Experiment applications use `rfio`, not `(gsi)dcap`
 - `gsidcap` supported by GFAL → applications should use GFAL



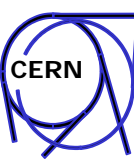
Rpms



- Standard dCache rpms for LCG-2_6_0:
 - pnfs-3.1.10-15
 - d-cache-client-1.0-99
 - d-cache-core-1.5.2-82
 - d-cache-opt-1.5.3-83
 - postgresql-7.4.6-2PGDG etc.
- Special rpms for LCG-2:
 - d-cache-lcg-5.1.0-1
 - Contains grid-mapfile2dcache-kpwd script to convert standard grid-mapfile into /opt/d-cache/etc/dcache.kpwd (orig. by Derek Ross)
 - Hack needed to deal with “Email=...” in DNs for Java Globus CoG kit
 - lcg-info-dynamic-dcache-1.0.8-1_sl3
 - Contains dynamic part of info provider for LCG-2 information system
 - Calculate available and used spaces
 - Code bit of a hack...



Configuration



- Script was provided by d-cache-lcg rpm, now YAIM function maintained by [GridPP \(Jiri Mencak\)](#)
- A few standard configurations are supported:
 - Head node can run all services except disk pool, pool nodes not directly accessible
 - Not good for scaling
 - Same, but extra door nodes can be set up
 - Already better...
 - Pool nodes can run doors
 - Best for scaling
 - Head node can run everything
 - Could be OK for small SEs
- dCache admin guide created by [Judit Novak \(CERN\)](#) and [Matthias de Riese \(DESY\)](#)
 - To be merged with The Book
 - Script available to vacate a pool → no longer needed



Compatibility



- Note to developers and site admins:
 - A dCache SE must be usable as a standard LCG-2 SE
- That means:
 - Standard tools like lcg-cr should work
- Which means:
 - SE must correctly appear in information system
 - SE server code must be able to handle client code used in LCG-2, *even if the current client code is badly behaved* (we cannot fix the client code and upgrade the whole grid overnight)
 - Example: lcg-cr currently does not set file size in SRM put request
 - Bad for space reservation, but default can be used
 - Will be fixed for lcg-cr and friends
 - GFAL cannot set the file size, because POSIX open() cannot