dCache, activities

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Content

Do we still have enough money?

Is dCache still *en vogue*?

What are we working on and what will follow?

WLCG Activities
Do we have enough money?

NO, but
What/who is funding dCache?

- **Labs:**
  - DESY
  - FermiLab

- **Organizations:**
  - NDGF
  - European Middle Initiative, EMI
  - Open Science Grid (US) [no funding, only first level support]

- **German Government:**
  - Helmholtz Alliance, “Physics at the Terra Scale”
  - German D-Grid, “Integration Project II”

About 12.5 core team members in total.

Of which 8 are at DESY

Of which 6 will get funding for at least 3 more years w/o further action needed.
Different funding bodies have different goals

**Physics at the Terascale**
Quality Management (1 FTE for 2+1 years)

**NDGF**
“Feature support” for Nordic Tier 1 and SNIC

**European Middleware Initiative**
- NFS 4.1 1.25 FTE 3 years
- WebDav Starting Mai 1
- Cloud Storage Protocols (e.g. CDMI)
- Catalogue synchronization
Is dCache still *en vogue*?

More and more, because
The International LOFAR Radio Telescope
(The first software telescope)

Information provided by
hanno HOLTIES, LOFAR
The European LOFAR Software antenna

As of now:

✧ 15 Complete Stations
✧ 17 In Progress
✧ 12 Planned
✧ NL, DE, UK, SE
The Center of Free-Electron Laser Science, CFEL

Information provided by
anton BARTY, CFEL

Free Electron Light Sources
Swedish National Infrastructure for Computing

Information provided by

tom LANGBORG, SNIC

A project within SNIC will provide centralized Swedish storage solutions.
For details on the new communities please find the dCache presentation at the *International Grid Symposium* at dCache.org
But in summary, what they need is
Modern Storage Systems

Managed Storage
- SRM 2.2
- Storage Attributes
  - Disk/Tape
- Hot storage detection
- Maintenance Operations

Access by Standard protocols
- gsiFtp
- http/https
- WebDav (s)
- Mounted File-system
  - NFS 4.1

Unified Identity Management
- Fine grained
- ALC’s
- Kerberos/X509
- Password
- Unique Identity System
- ACL’s on File System
  - And Tape Access
The dCache Roadmap
New customers require standard data access protocols

- Light Sources (Petra III, FLASH, X-FEL)
- Astronomy: LOFAR (Amsterdam, Juelich)
- BioMed

We are busy implementing/deploying

- NFS 4.1
- WebDav
Further roadmap: Sysadmin only

- Integrated monitoring
  - Information provided in xml format
  - Already done for all GLUE values.
  - Will be extended for ‘interesting values’
- Simplified component location configuration
  - Single file replaces node/pool config
  - Easy parameter setting per domain/host
  - Gerd’s presentation from yesterday.
Further roadmap : Sysadmin & User

- Unifying of ‘User Representation’ (May workshop)
  - Same user representation for:
    - File system
    - tape protection
    - space tokens

- Gerard : Tape protection : DN/FQAN & Directory/sGroup

- Improved data distribution on bulk transfers
  - Already done for pool to pool transfer
  - Next for write into dCache (avoiding cpu/space cost)

- Moving from manual to automatic redistribution of data
Further roadmap : User

- https : User/Password authentication
- https : support of Proxy/FQAN/Groups/Roles
- ACL’s : setting ACLs by user and not only sysadmin
- NFS 4.1 : secure (Kerberos, Certs by modified KDC)
Further roadmap: Data access

dCache/DESY test-bed with

(gsi)dCap
NFS 3 (native)
NFS 4.1 dCache
Xrootd (dCache)
Xrootd (native)

More at HEPIX
Details on the NFS 4.1 integration.
Roadmap : NFS 4.1 (pNFS) in dCache

- Name server and I/O protocol fully implemented.
- No security yet
  - Soon : Kerberos. (Tigran : Kerberos Token already in server)
  - X509 possibly: Solution : modified KDC or user space gsi deamon.
- No automatic recall from tape to protect tape system.
  - Soon : part of the standard tape protection mech.
- Full support of NFS Access Control List (ACLs)
  - Right now only by system administrator
  - Soon : through NFS4 ‘setacl’ call by all users.
    - (NFS4 is already part of SL5 dist)
- Fully supports storage control (tape/disk) on directory bases.
Details on the WebDav integration.
Roadmap: WebDAV (s)

- Requested by
  - Bio Grid and other communities at NDGF
  - Light sources (Petra3 and XFEL) at DESY

- Available since 1.9.6 (3)

- Tested with
  - Mac OSX (write with 1.9.8 ?, certs not supported by Mac OS, use stunnel)
  - Windows(XP) seems to be ok.
  - SuSE11.2 (Gnome, KDE)

- Supports read and write

- Write via ‘redirect’ or if not supported by client via ‘proxy’.

- Security
  - Plain or x509 (user, password in preparation)

- On redirect, only control line is encrypted.
Roadmap: NFS 4.1 (pNFS) Linux clients

- NFS 4.1 and the Linux kernel
  - NFS 4 already in SL5
  - NFS 4.1 in 2.6.32
  - NFS 4.1 plus pNFS in 2.6.34
- Kernel 2.6.34 will be in Fedora 13 and RH6 Enterprise (summer)
- Windows Client expected 4Q10.
- We are testing with:
  - SL5 and 2.6.34 plus some special RPM. (mount tools)
  - See our wiki for further information
WLCG Activities

Storage Jamboree in Amsterdam 16-18 June
On the new WLCG Storage Concept
In summary:

- Funding is save for another 3 years.
- Becoming part of the UMD in EGI through EMI.
- Community base is growing.
- Implementation of common standards lets dCache successfully compete with industry solutions.
- Making dCache easier to operate (e.g. configuration, monitoring)
- Growing into the Cloud storage domain.
- Keeping an eye on our WLCG friends
Further Reading

www.dCache.org