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 ?
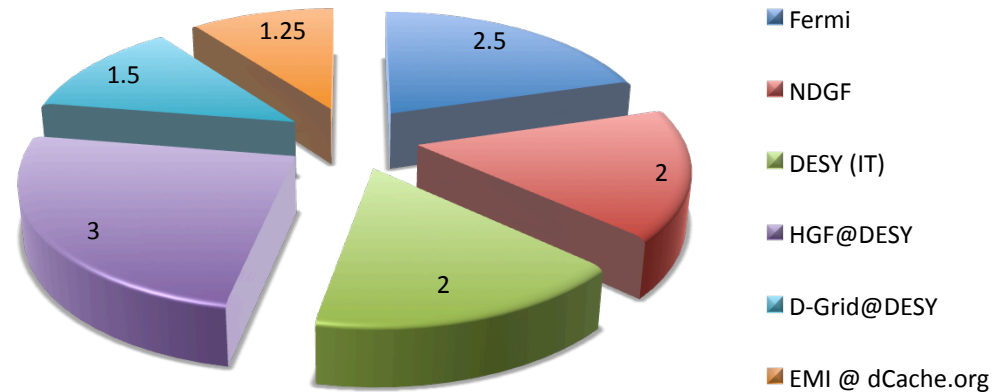

NO , but

What/who is funding dCache ?

➤Labs:
  o DESY
  o FermiLab
➤Organizations:
  o NDGF
  o European Middle Initiative, EMI
  o Open Science Grid (US) [no funding, only first level support]
➤German Government:
  o Helmholtz Alliance, "Physics at the Terra Scale"
  o German D-Grid, "Integration Project II"

Pie chart values:
- Fermi: 2.5
- NDGF: 2
- DESY (IT): 2
- HGF@DESY: 3
- D-Grid@DESY: 1.5
- EMI @ dCache.org: 1.25

Legend:
- Fermi
- NDGF
- DESY (IT)
- HGF@DESY
- D-Grid@DESY
- EMI @ dCache.org

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
WebDav
Cloud Storage Protocols (e.g. CDMI)
Catalogue synchronization

1.25 FTE 3 years
Starting Mai 1

Is dCache still *en vogue* ?

More and more, because

The International LOFAR Radio Telescope

(The first software telescope)

Information provided by

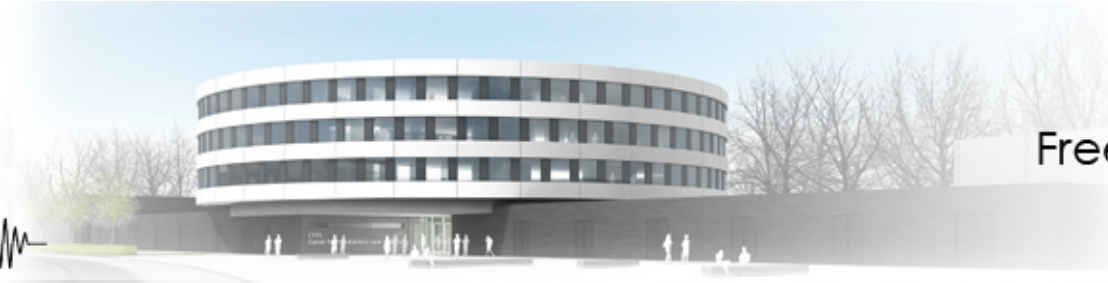hanno HOLTIES, LOFAR

The European LOFAR Software antenna

As of now :

✧ 15 Complete Stations

✧ 17 In Progress

✧ 12 Planned

✧ NL, DE, UK, SE
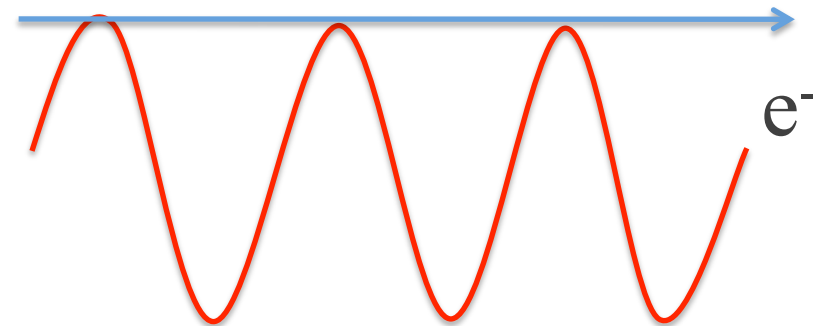
The Center of Free-Electron Laser Science, CFEL

Information provided by

anton BARTY,   CFEL

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Free Electron Light Sources

SNIC

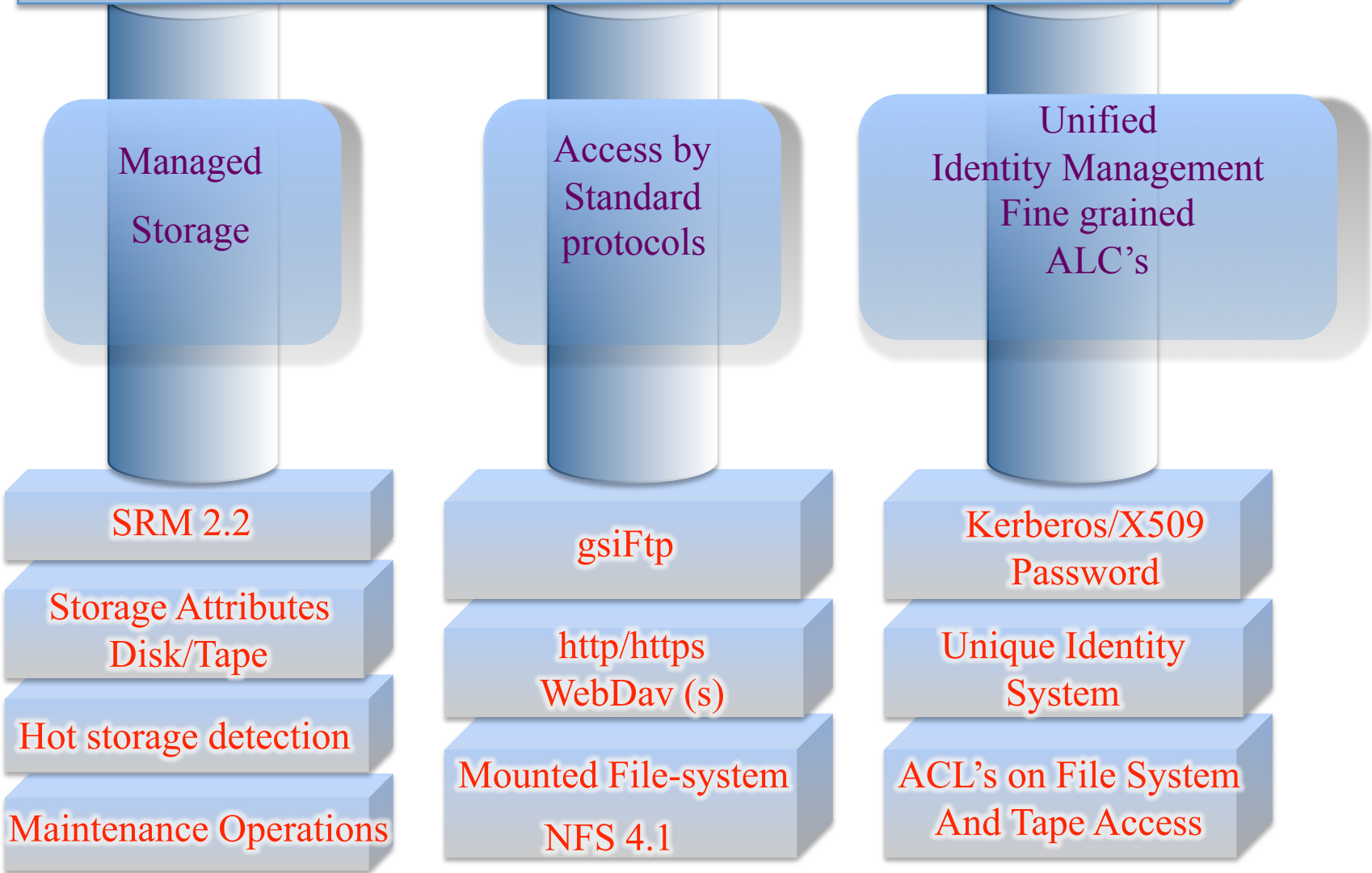## Swedish National Infrastructure for Computing

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

Further Roadmap : Going standard

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