



# Data management at CERN

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## Activities

- An Infosys tool: Ginfo
- NFS/X509
- HTTP data access
- WebFTS
- Grid integration of cluster filesystems



# Ginfo

- Client tool for information system GLUE 2.0
- Available for doing simple requests
- New version in development:
  - Higher level interface
  - More complex requests

<http://gridinfo.web.cern.ch/users/ginfo>



## NFS/X509

### Objective :

- Allow X509 authentication for access to NFS v4.1

### Status :

- This work was discontinued.
- The group decided to consolidate on HTTP for standards-based access.
- A prototype NFS v4.1 implementation (for DPM) was hindered by lack of a stable project to build on.
- NFS v4.1 does not have enough competitive implementations right now to create an interested user community.



## HTTP data access

The group has pioneered an “ecosystem” of HTTP solutions intended to broaden the appeal of its existing solutions :

- “davix” for high performance HTTP data access which is used by ROOT and gfal2
- FTS support for HTTP → WebFTS
- HTTP support for DPM storage system
- HTTP support for the LFC file/replica catalogue
- HTTP federations : <http://federation.desy.de/>

Anyone investigating HTTP data solutions for science is encouraged to contact us.



# WebFTS

You are authenticated as **Andres Abad Rodriguez**

Your current proxy is still valid for 11 hours ▾

webFTS (Beta version)

[Home](#)
[My jobs](#)
[Submit a transfer](#)

gsiftp://xfsr10a01.cern.ch/dpm/cern.ch/home/dteam/ Load

Select All None Refresh Show filters

Name	Mode	Date	Size
+	..		
📁 aalvarez	drwxrwxr-x	25 Mar 13:10	-
📁 af1	-rw-rw-r--	30 Oct 14:08	226 B
📁 af2	-rw-rw-r--	31 Oct 07:24	226 B
📁 atlas20.root	-rw-rw-r--	21 Feb 08:51	0
📁 davix-tests	drwxrwxr-x	20 Feb 14:27	-
📁 df	-rw-rw-r--	08 Nov 15:51	663 B
📁 dynafeds_demo	drwxrwxr-x	13 Mar 09:26	-
📁 fed_connect.pcap	-rw-rw-r--	12 Aug 13:29	332 B
📁 fts3tests.021e5dcd...	-rw-rw-r--	01 Apr 00:40	1020.0 kB
📁 fts3tests.0948e79e...	-rw-rw-r--	02 Apr 00:51	0
📁 fts3tests.0e78bbfc...	-rw-rw-r--	03 Apr 00:54	1020.0 kB
📁 fts3tests.5a96fe9e...	-rw-rw-r--	02 Apr 00:50	0
📁 fts3tests.8ed2fb3f...	-rw-rw-r--	02 Apr 00:54	1020.0 kB
📁 fts3tests.c02ebefb...	-rw-rw-r--	02 Apr 09:28	1020.0 kB



https://dpmhead02.cern.ch/dpm/cern.ch/home/dteam/perfsuite/ Load

Select All None Refresh Show filters

Name	Mode	Date	Size
+	..		
📁 100	drwxrwxrwx	22 Oct 12:51	-
📁 100k	drwxrwxrwx	13 Feb 07:47	-
📁 test1	-rw-r--r--	29 Jan 13:29	58 B
📁 test2	-rw-r--r--	29 Jan 14:07	58 B
📁 test3	-rw-r--r--	30 Jan 10:14	58 B
📁 test4	-rw-r--r--	29 Jan 21:28	58 B
📁 test5	-rw-r--r--	30 Jan 10:15	58 B
📁 test6	-rw-r--r--	30 Jan 10:49	58 B
📁 test7	-rw-r--r--	30 Jan 11:00	58 B

0 File(s) Selected

<http://webfts.web.cern.ch/content/testing>



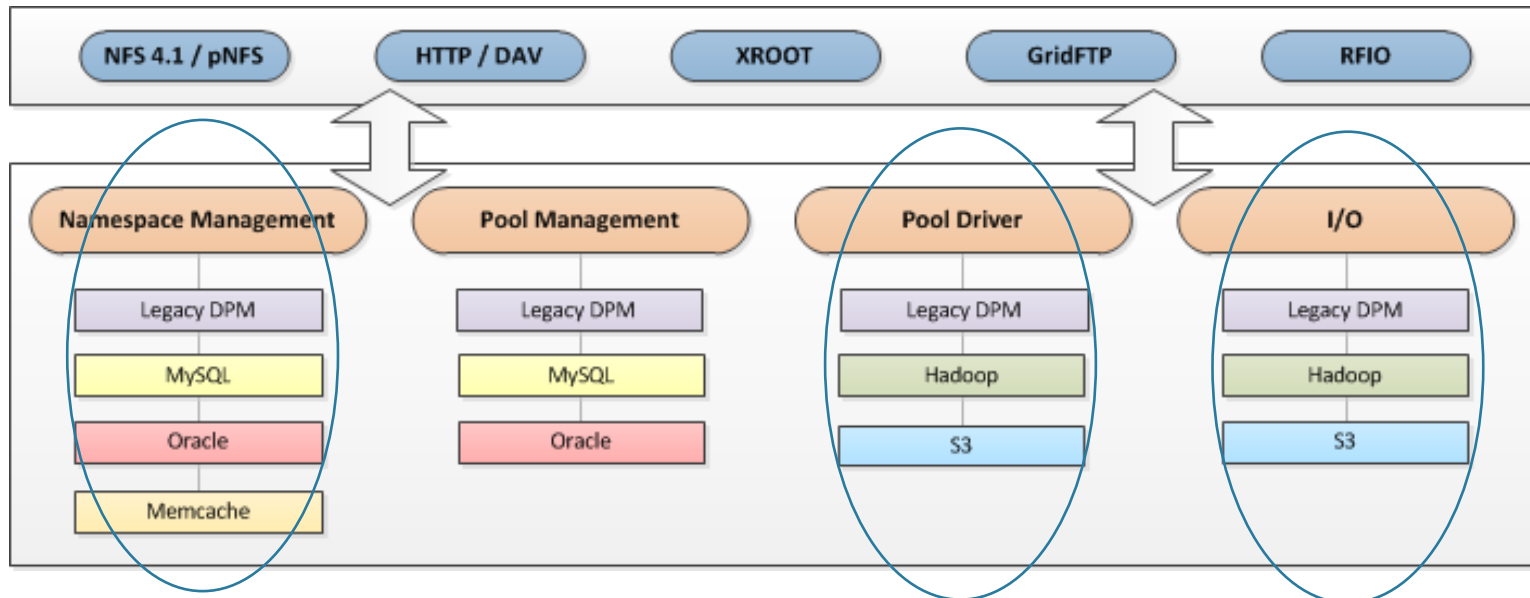
## dmlite stack

- Resource integration framework
- Securely enables access to various kinds of backend storage
- Powers the popular DPM storage system
- We proposed adding support for cluster filesystems : “VFS” plugin

<http://dmlite.web.cern.ch>



# dmlite architecture



- Modular implementation brings benefits of existing plugins (eg frontends, caches, authentication), allowing the sharing of the backend resource.





## Cluster file systems

- Objective: enable sites with cluster file system resources (Lustre, GPFS) to securely offer storage via grid or standard (eg HTTP) interfaces
- Status: prototype complete and under evaluation
- Work completed in collaboration with external partner CESNET.



## VFS potential

Possibilities of future development :

- Single gateway node
  - Access
  - Transfer

If these are interesting, contact us.



## Summary

A number of synergy possibilities explored :

- Cluster file system export
- Infosys
- NFS

A number of potentially interesting possibilities exist :

- HTTP for scientific data
- WebFTS
- Hammercloud (cf other talk)