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Conclusion
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StoRM status and future plan

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CERN - Pre-GDB

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Outline	Status and activity	StoRM features	Conclusion

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- StoRM status.
- Activities on StoRM.
- Current features.
- Next version of StoRM: v.1.4
- Advanced features.
- Conclusion.

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Status and Activities on StoRM

StoRM status

StoRM general status:

- Latest stable release: v**1.3.14**
- Available by **Yaim**, **APT** - **rpm** or **Quattor**.
- File system driver available:
    - GPFS v2.3
    - GPFS v3.x (Improved ACL management using the new GPFS API)
    - XFS
    - PosixFS (ACL management through the Linux **setf/getfacl()**)
- SRM v2.2 CLI Client.
- StoRM web site: http://storm.forge.cnaf.infn.it for documentation, installation guide and client tutorial.

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Status and Activities on StoRM

Installation endpoint

Current installation of StoRM:

- CNAF development endpoint (ibm139.cnaf.infn.it).
- CNAF PPS endpoint (storm02.cr.cnaf.infn.it).
- Bristol endpoint (bfa-se.phy.bris.ac.uk).
- EGRID production endpoints (2 sites).

StoRM in PPS

In agreement with the GSSD deployment plan, the *storm02* endpoint has been added in the PPS at CNAF.

Test running on it:

- **LHCb tests** The main LHCb interests is create a grid job that access real data (copied from CERN) via *file* protocol into the GPFS cluster manged by StoRM.
- **FTS 2.0** test by LHCb and ATLAS.
- S2 test suite.
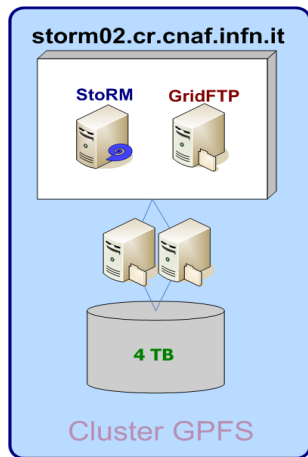
StoRM at CNAF Tier 1

The **CNAF T1** will use StoRM as the SRM v2.2 endpoint for the **T0D1** storage class.

We are upgrading the configuration of StoRM as following:

- **Multiple FE** instances.
- Single BE and DB.
- **40 TB** of disks available for experiments.
- **4 GPFS Disk server** with the gridftp server in dynamic DNS configuration.

Outline   Status and activity   StoRM features   Conclusion
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Status and Activities on StoRM

file protocol support in GFAL

Mirco Ciriello is actively working on the integration of the **file** protocol into GFAL:

- Tests UI at CNAF that belongs to the GPFS cluster (cert-ui-02)
- BDII on the same machine.
- First tests shows a problem probably due to the TURL format returned by StoRM for the file protocol. Under investigation.

This features is important for offer StoRM and cluster file system advantages also using an high level tools as GFAL for file access.

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StoRM features

Current StoRM features 1/3
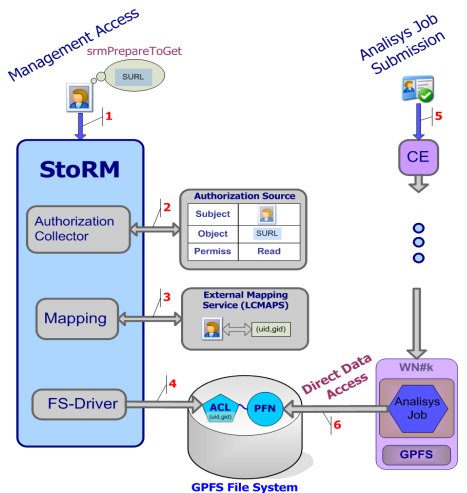
Current StoRM features:

- Support for different file system provided by a **driver** mechanism. Easy to expands.

- It's able to works on different file system type **at the same time**.

- Support for **file** protocol.

- As well as for other standard protocol as **rfio** and **gridftp**.

- Guaranteed dynamic space reservation (using underlying file system functionalities)

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StoRM features
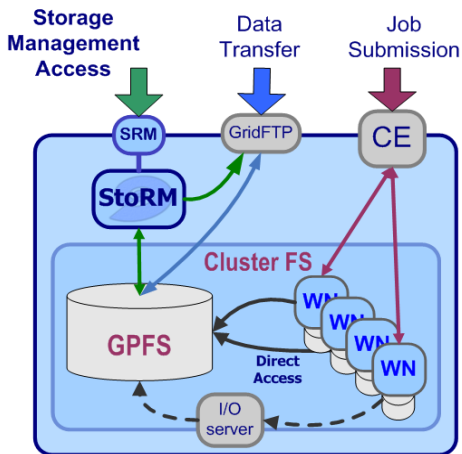
Current StoRM features 2/3

Layered security mechanism:

- **VOMS** compliant.
- Capability to **retrieve authorization information** from:
  - External services (as the LFC catalogue).
  - Local configuration.
- Enforcing of **file system ACL** on file and directory at user/group level.

Current StoRM features 3/3

- **Storage Area (SA)**:
  - New SA can be created editing the StoRM service configuration (through an XML structured file).
  - Each SA is addressed by path.
- **Quota**, relying on the underlying file system capabilities (as GPFS).
- Space and file garbage collector.
- Static information provided.

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StoRM features

Next release: v1.3.16

Features in the next release of StoRM: **v1.3.16**:

- Fixes in SRM open issuses.
- Fix on implict PutDone behavior.
- Fix on space garbage collector

Available this week on the StoRM repository.

StoRM v1.4

What's new in the next version of StoRM: **v1.4**:

- Upgrade in user credential management.
- Full support for **Approchable rules** for storage area: possibility to define which users can access a storage area depending on user credentials and VOMS attributes.
- Database table upgrade for accounting operations.

Available by the end of June.

More advanced features 1/2

New features:

- **Orthogonality** between path and storage area, using an improved **XML based** configuration mechanism.

- **Multivolume**: aggregate different file system in a common logical view

- Glue Schema v1.3 with dynamic information.

- SrmCopy in pull mode.

- **xrootd** integration. StoRM has been indicated as the best solution to provide a SRM interface to the xrootd service.

- SetPermission method.

More advanced features 2/2

Features under investigation:

- Administrative interface
- Oracle support for database clustering.
- Space accounting tool.
- Interaction with external authorization tools as G-PBox.

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Conclusion

Conclusion

- StoRM will be used at **CNAF T1** to provide T0D1 storage class.
- Working together with LHCb people to provide the best support as possible for their tests.
- Improving the PPS endpoint for a full integration.
- Working with CNAF T1 staff to set up a new production ready endpoint.
- Many sites having GPFS as file system have shown interest on StoRM.
- StoRM lacks SRM interface v1.1. This should not be a problem anymore since the high level tools compliant with SRM v2.2 interface are now available.

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Conclusion

StoRM team and acknowledgement

- StoRM team: leaded by Antonia Ghiselli. Developer: Alberto Forti, Luca Magnoni, Riccardo Zappi from INFN-CNAF , Ezio Corso and Massimo Sponza from ICTP-EGRID.
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  - Mirco Ciriello for file protocol support in GFAL.
  - Elisa Lanciotti, Roberto Santinelli, Angelo Carbone and Vincenzo Vagnoni from LHCb.
  - Daniele Cesini and Danilo Dongiovanni for the PPS installation.
  - Luca Dell'Agnello, Vladimir Sapunenko for the T1 CNAF layout.

StoRM

http://storm.forge.cnaf.infn.it

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