

StoRM: status and future plans

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Current status

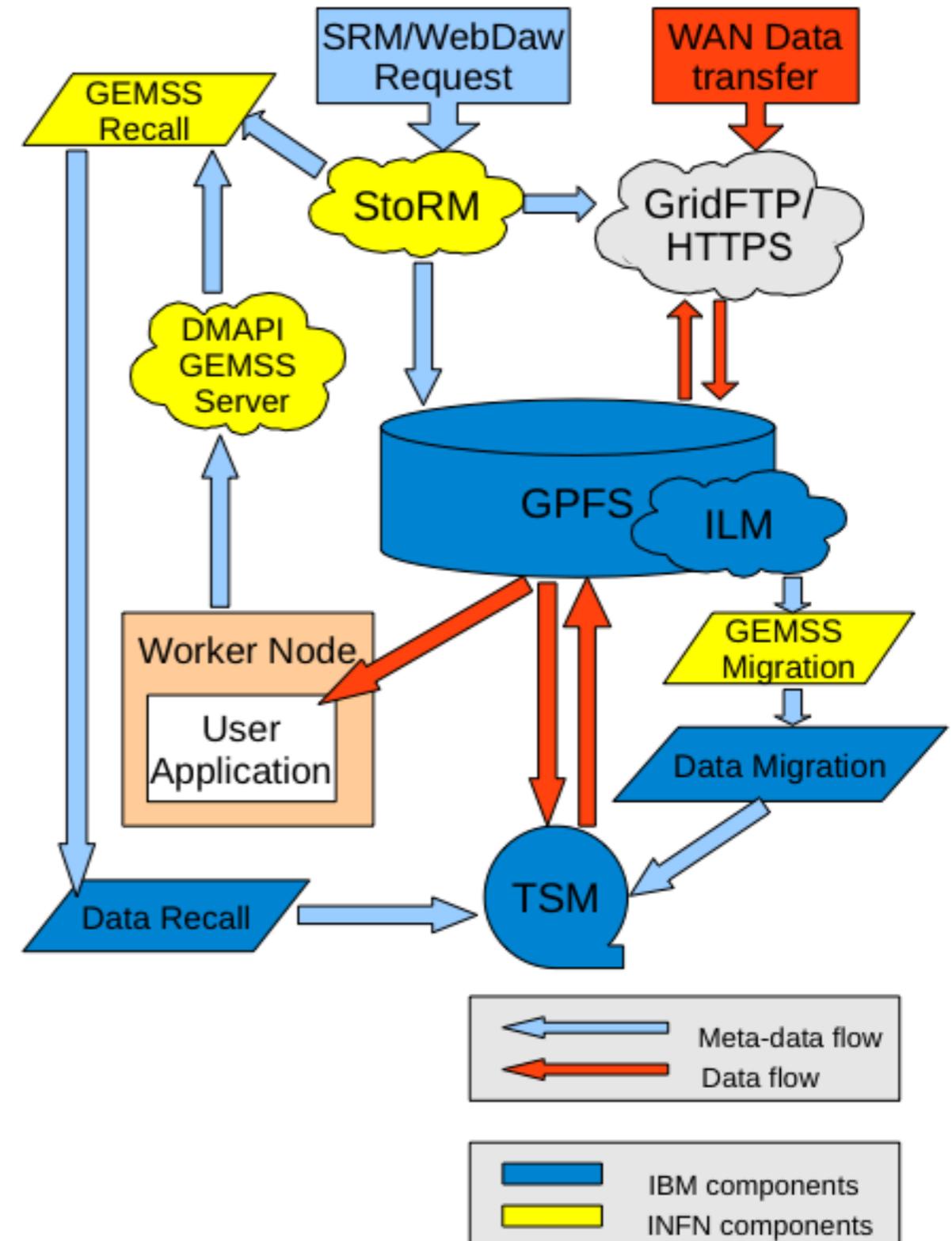
StoRM/GEMSS current overall architecture

StoRM provides SRM/WebDAV interfaces for management

Data transfer through GridFTP or HTTPS (via StoRM WebDAV service)

Recall from tape triggered by SRM requests or direct FS access and handled by GEMSS

Data migration handled via ILM
GPFS policies



StoRM customers

The main and more important StoRM customer is INFN-T1

- Only site with tape support via GEMSS

But more than **40** sites rely on StoRM as the disk-based SRM

StoRM maintenance & support in 2015

5 releases:

- 1.11.5 → 1.11.9 between January and May
- 66 Request For Change implemented (fixes/enhancements)
- Resolved scalability issues that impacted badly on the service operations for big experiments @ CNAF T1

New WebDAV service

- Avoid tight coupling with the SRM backend
- Provide efficient handling of HTTP multi-range requests

Support:

- 7 tickets opened, 21 tickets closed
- 6 tickets (4 low priority, 2 medium priority) still open
- Low traffic on GGUS, more traffic on storm-users lists, but in general few problems reported
- Support for INFN-T1 (which is our **main** support activity) not exposed by these numbers

Next planned StoRM release: 1.11.10

1.11.10 (December 11th, 2015)

Bug fixes:

- **STOR-835 - Improper management of SURL status can lead to PutDone errors and locked SURLs**
- STOR-234 - StoRM BE does not manage correctly abort request of expired tokens
- STOR-837 - Missing GlueSAPath from Storage Areas BDII info

Enhancements:

- STOR-700 - Add support for token checksum requests (RFC 3230) in StoRM WebDAV

Main maintenance backlog items

1. Puppet StoRM services configuration + CENTOS7 porting
2. Posix group quotas for space reporting
3. Space reporting without SRM
4. Nearline space reporting
5. Argus banning support in StoRM-ified GridFTP
6. Token-based authorization for HTTP access

Puppet StoRM services configuration

StoRM configuration still relies on YAIM, but YAIM is not supported

Move StoRM services configuration to Puppet, and make puppet the only supported configuration mechanism on CENTOS 7

All StoRM components are now packaged for CENTOS7

Functionality testing depends on puppet modules and will be done once 1.11.10 is released

Posix group quotas for space reporting

StoRM has two ways of finding out used space for a storage area

1. By using quota on a GPFS file set configured with quota enabled:
accurate and fast, default for large experiments @ CNAF
2. From the information returned by periodically running *du* commands
(may be really slow on large filesystems)

Planned solution

- Leverage POSIX group quotas: each SA has a unix group that is used for space accounting

Pros

- Keeps the “state” in the filesystem
- Information easily accessible to other StoRM services (WebDAV, INFO provider)

Cons

- requires chgrp-ing all files on the SA

Space reporting without SRM

Discussion started with DPM and dCache to implement [RFC 4331](#), which defines a way for WebDAV servers to report about used space in directories.

WLCG experiments would like to have this information accessible on the top two directory levels of the storage area

Easy for StoRM to report about the overall storage area used space (leverage existing quota mechanisms), requires du for lower levels

Nearline used space reporting

Currently StoRM provides only information about online space.

Nearline space utilization reporting was also requested.

Nearline space reporting requires

- changes in StoRM database to keep information about used space on tape
- definition of an endpoint to manage near line space information
- changes in GEMSS/other scripts to set the information using the above endpoint

Up to now considered low priority. Is this really needed?

Argus banning support in StoRM-ified GridFTP

Currently banning works at the SRM level (a banned user cannot run any SRM operation) but not at the GridFTP level

GridFTP service configuration needs to be changed to include the callout to Argus (as it is done in CREAM)

Low priority, easily fixed.

Token based authorization for HTTP access

This can be related to INDIGO AAI integration activities, but is a long-standing request for StoRM

Expose OAuth endpoint so that clients can obtain a token that can be used later to authorize read/write access to selected files without further authentication

Evolution

Objectives

Make StoRM a really “lightweight” storage manager not bound to a specific management interface

- SRM
- WebDAV
- CDMI
- ?

Reduce maintenance and evolution costs

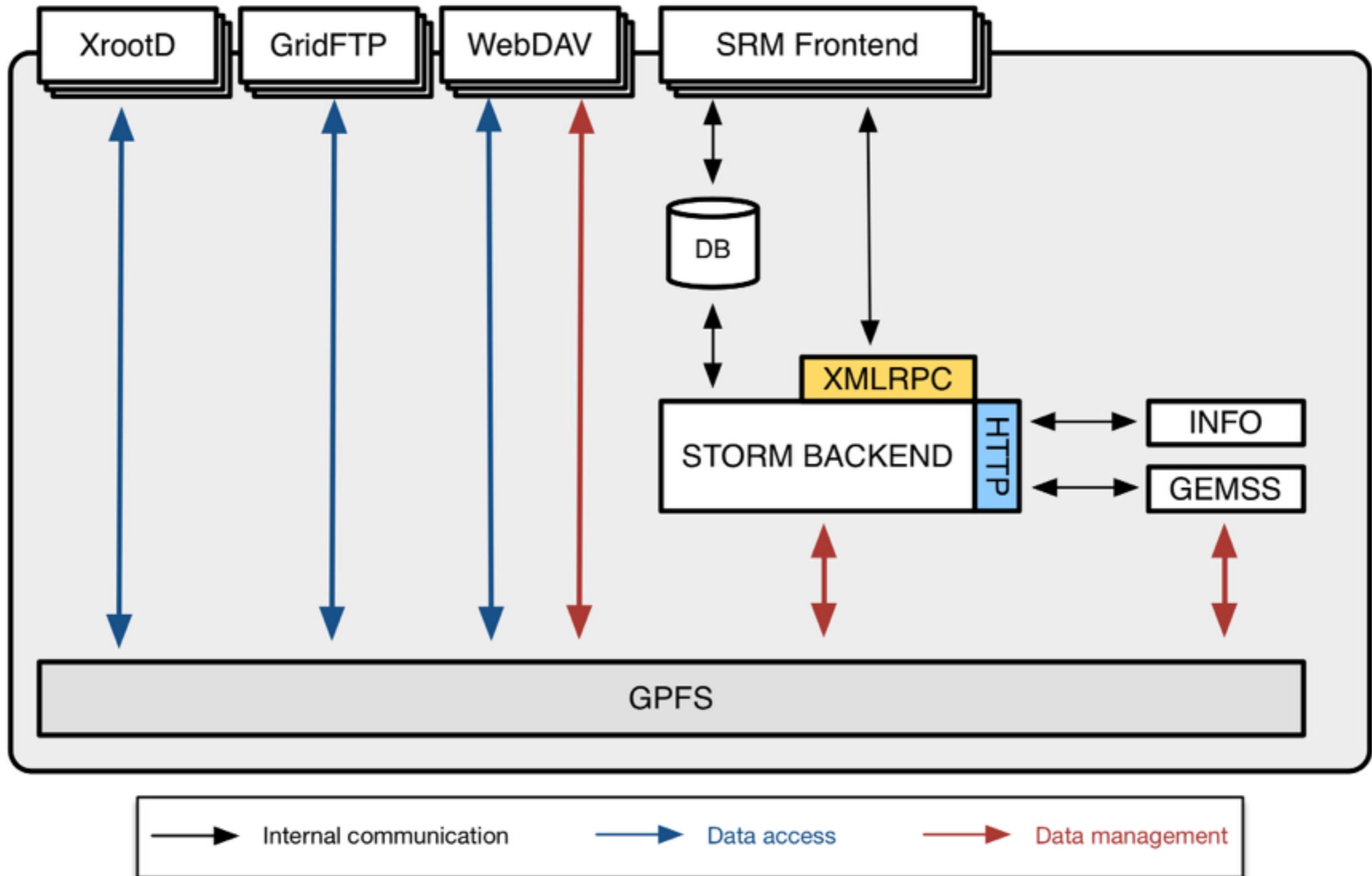
- Current complexity mostly due to unused SRM “features”

Provide horizontal scalability for all StoRM services

- Currently the StoRM BE cannot be replicated

Simplify service operation and deployment

Current StoRM architecture



Envisioned StoRM architecture

