Storage Outlook

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Development plans

- **Only the developers plans are reported here.**
  - The developers for Tier-1s storage systems were asked to provide an update.
  - In particular the implementation of short/long term plans of the Addendum to the WLCG SRM v2.2 Usage Agreement :
    - https://twiki.cern.ch/twiki/pub/LCG/WLCGCommonComputingReadinessChallenges/WLCG_SRMv22_Memo-14.pdf

- **The experiments were not involved in the plans**
  - New urgent requirements should be taken into account ?

CASTOR

- Used in Tier-0 and 3 Tier-1 centres to support T1D1, T1D0 , T0D1 and T0D0 Storage Classes.
- The release currently in production is:
    - CASTOR Core: 2.1.7-17
        - RAL (2.1.7-15) and ASGC (2.1.7-16) are still not at this release
    - CASTOR SRM v2.2: 1.3-28 on SLC3
- The recommended release is
    - CASTOR Core: 2.1.7-19 (released last week)
    - CASTOR SRM v2.2: 1.3-28 on SLC3
- Detailed installation and configuration instructions and recommendations can be found here:
    - *https://savannah.cern.ch/files/?group=castor*

- The CERN analysis facility is about to be available for experiment use.
    - CASTOR Core: 2.1.8-1 with xroot support
    - No SRM interface.

CASTOR development plans

- CASTOR Core:
  - New modules for the CASTOR tape back-end services
    - https://twiki.cern.ch/twiki/bin/view/DataManagement/CastorTapeSubsystem
  - Addressing file access latency issues for analysis facilities

- CASTOR SRM (Addendum short/long term plans):
  - Improved protection for tape usage (already provided in release 2.1.7-19)
  - Improved space protection (already provided)
  - Support for quota on analysis instance from January
  - Strong authentication enabled, but perhaps only fully implemented on analysis instance
  - srmPurgeFromSpace and srmLs with tokens available in CASTOR SRM 2.7.

StoRM

- It is used by the Italian Tier-1 to offer support for T0D1 and T1D1.

- The current StoRM version is 1.3.20-04.

- StoRM offers an SRM implementation for all POSIX filesystems with ACLs support.
    - GPFS, Lustre, ext3 and xfs
    - Only GPFS and Lustre (SUN Microsystem) recommended for Tier-1s

- It is recommended to install StoRM-FE and StoRM-BE+MySQL on different machines.
    - The number of GridFTP servers can be calculated using: #GridFTP servers = Total Throughput in MBs/70MBs

StoRM

- Available file access protocols:
    - File, gsiftp, rfio, root (not well tested)

- StoRM is very flexible for implementing experiment requirements
    - A Storage Area corresponds to a partition of the filesystem and it is associated to a specific directory.
    - Through the configuration file (namespace.xml) it is possible to fully define the characteristics of a storage area.
    - Quotas can be enabled to control the usage of the space.

- Detailed information concerning StoRM can be found on the StoRM web site:
    - http://igrelease.forge.cnaf.infn.it/doku.php?id=doc:guides:start
      http://igrelease.forge.cnaf.infn.it/doku.php?id=doc:guides:site-info-variables

StoRM development plans

- **StoRM version 1.4 in production by the end of the year**
  - SRM MoU short term agreement.
  - New Information Providers following the recommendations of the "Installed Capacity Working Group".
  - Quotas supported directly in StoRM and not by the underlying filesystems.
    - This allows for support of quotas on more filesystem types.

- **After that, work focused on the new release to mainly provide *support for Storage Class T1D0*.**

Thank You