SRM v2.2 working group update

- Results of the May 22-23 workshop at FNAL
  https://srm.fnal.gov/twiki/bin/view/WorkshopsAndConferences/GridStorageInterfacesWorkshop

- SRM v2.2 definition geared to WLCG usage, but still compatible with other implementations

- Some notions backported from SRM v3, others added for WLCG

- WLCG "MoU"
  https://srm.fnal.gov/twiki/pub/WorkshopsAndConferences/GridStorageInterfacesWSAgenda/SRMLCG-MoU-day2.doc

  – Needs some updates and polishing

- Schedule for implementation and testing
  https://srm.fnal.gov/twiki/pub/WorkshopsAndConferences/GridStorageInterfacesWSAgenda/Schedule.pdf

- Friday phone conferences to monitor progress and discuss issues

SRM v2.2 MoU for WLCG

- Summarize agreed client usage and server behavior for the SRM v2.2 implementations used by WLCG applications
  - Servers can ignore non-WLCG use cases for the time being

- Clients
  - FTS, GFAL, lcg-utils

- Servers
  - CASTOR, dCache, DPM

Storage classes

- Stick with SRM v3 terminology for now, but with a WLCG understanding
- TRetentionPolicy {REPLICA, CUSTODIAL}
  - OUTPUT is not used
- TAccessLatency {ONLINE, NEARLINE}
  - OFFLINE is not used

- Tape1Disk0 == CUSTODIAL + NEARLINE
- Tape1Disk1 == CUSTODIAL +   ONLINE
- Tape0Disk1 == REPLICA   +   ONLINE

- All WLCG files (SURLs) are permanent
  - Files can only be removed by the user

Information discovery

- WLCG does not need an SRM information interface for the time being
  - Client implementations provide list of required information
  - GLUE schema will be modified accordingly

- An interface to obtain (all) the relevant information can be defined later
  - Would allow the SRM clients and servers to be self-sufficient

srmReserveSpace

- Only deals with disk
  - E.g. cache in front of tape back-end
  - Tape space considered infinite

- TapeNDiskM storage classes only require static reservations by VO admins
  - Can be arranged out of band without using the SRM interface (CASTOR)
    - Agreement between VO admin and SE admin will be needed anyway

  - Networks of main clients can be indicated (dCache)

- Dynamic reservations by ordinary users not needed in the short term
  - At least CMS want this feature in the medium term

- userSpaceTokenDescription attaches meaning to opaque space token
  - "LHCbESD" etc.

srmLs

- To get all metadata attributes for individual files, but only some for directories
  - Directory listings quickly become very expensive

- Directory listing use case would be to check consistency with file catalog
  - An implementation-dependent upper limit will apply for the time being
    - Use of the offset and count parameters requires further discussion

- TFileLocality {ONLINE, NEARLINE, ONLINE_AND_NEARLINE, LOST, NONE, UNAVAILABLE}

srmPrepareToPut

- To store a file in the space (i.e. storage class) indicated
  - WLCG clients will supply the space token

- WLCG files are immutable, cannot be overwritten

- TConnectionType { WAN, LAN }
  - Will be set by FTS (for 3rd party transfers)

- TAccessPattern { TransferMode, ProcessingMode }
  - ProcessingMode would apply to a file opened by GFAL (but not via lcg-utils)

srmPrepareToGet

- To prepare a file for "immediate" transfer or access
  - Recall from tape and/or copy to pool accessible by the client should now be done through srmBringOnline

- WLCG usage excludes changing space or retention attributes of the file

- TConnectionType { WAN, LAN }
  - Will be set by FTS (for 3rd party transfers)

- TAccessPattern { TransferMode, ProcessingMode }
  - ProcessingMode would apply to a file opened by GFAL (but not via lcg-utils)

srmBringOnline

- To indicate that a prepareToGet for the files is expected in the near future
  - A delay parameter can be used for further optimization
  - A prepareToGet could tie up resources, e.g. I/O movers in dCache

- Signature very similar to that of prepareToGet
  - No TURLs are returned

srmCopy

- To copy files or directories between SEs
  - Directories will not be supported for the time being

- srmPrepareToGet and srmPrepareToPut restrictions apply

- Individual copies in a multi-file request can be aborted
  - Target SURLs uniquely identify the copy requests

- removeSourceFiles flag has been deleted from the specification
  - Too dangerous...

srmChangeSpaceForFiles

- To change the storage class of the given files

  - Tape1Disk0 ←→ Tape1Disk1 (add/remove disk copy)
  - Tape0Disk1 ←→ Tape1DiskN (add/remove tape copy)

- To be decided which transitions shall be supported

- The SURL shall not be changed
  - Absolute path may change if SURL only contains relative path (as desired)

- Not required in the short term

Removal functions

- srmRm
  - Remove SURL

- srmReleaseFiles
  - Removes pins e.g. originating from prepareToGet
  - May flag disk copies (TURLs) for immediate garbage collection

- srmPurgeFromSpace
  - As previous, but not associated with a request

- srmAbortFiles
  - To abort individual copy requests

- srmRemoveFiles has been deleted from the specification

Schedule (1/3)

- WSDL and SRM v2.2 spec - June 6th
  - First version of WSDL available, not yet usable
    - Some inconsistencies to be fixed
    - Discussion about the need for some unexpected changes w.r.t. v2.1
    - Still to be examined by Timur

- srmPrepareToGet, srmPrepareToPut at the same level of functionality as it is present now - June 20
  - Not technically challenging
  - Need 3 endpoints by the end of this period
  - Need a test suite, Java, C and C++ clients are included
    - LBNL tester
    - FNAL srmcp - Apache Axis + Globus Cog Kit
    - Castor C++ client – gSoap + gsiPlugin
    - DPM C client - gSoap+ gsiPlugin

- Compatibility 1 week after that - June 27
  - ML to run the tests and work with the developers

- dCache srmCopy compatibility with DPM and Castor srmPrepareTo(Get/Put) - work by Fermilab - July 4

- Space Reservation prerelease implementations - Sept 1

- Space Reservation / Storage Classes - Sept 30 (optimistic)
  - Proper SRM or out-of-band way to reserve space
  - srmGetSpaceTokens
  - Modifications to srmPrepareToPut and srmCopy; srmPrepateToGet optional
  - srmRm, srmReleaseFiles (srmPurgeFromSpace not needed)

- Space Reservation may only work for special deployment configurations

Schedule (3/3)

- srmBringOnline - Oct 6
- srmLs - return of space tokens is not required for October

- WLCG clients should follow the same schedule
  - Ready to be used as testers by the end of Sept
  - Will have several SRM test suites
  - Functionality, stress tests, error handling and resilience to "malicious" clients

- Integration week at RAL - Oct 9-13
  - Firm dates to be decided as milestone (by end of June)

- It all works by Nov 1! ☺