Reliable File Transfer Requirements

- LCG created a set of requirements based on the Robust Data Transfer Service Challenge
- This translated into an architecture document
  - A prototype (radiant) was created to test out the architecture and used in SC1 and SC2
  - gLite FTS is an instantiation of part of the architecture and is the candidate for use in SC3

Notes on architecture

- FTS provides point to point movement of SURLs
  - Aims to provide reliable file transfer, and that's it!
  - Does not do 'routing' (e.g like Phedex)
  - Does not deal with GUID, LFN, Dataset, Collections
- These are all higher level concepts and can be dealt with by higher level services
- Provides pluggable agent-based architecture where some of this work could be done, if required
  - VOs would provide their own agents to do VO specific things (e.g integrated cataloging)

Functional Requirements

#	Requirement Description	Current status
1.1	Asynchronously and reliably copy files	YES
1.2	Recovery from partial/failed transfers	PARTIAL Improvements for SC3.
1.3	Report to user the current progress	YES
1.4	Allow user to prioritise their requests	NO. Not for SC3.
1.5	Multi-file requests as single atomic unit	YES
1.6	Access files over a cluster of data servers	YES
1.7	Handle files on disk, accessing via gridFTP	YES
1.8	Handle files via SRM (gridFTP as TURL)	YES
1.9	Other protocols should be usable	NO. Not for SC3.
1.10	Interact with mass storage when scheduling requests	PARTIAL Improvements for SC3.

Security Requirements

#	Requirement Description	Current status
2.1	Require user to be authenticated to use service	YES
2.2	Require user to be authorized to use service	YES
2.3	Use user's proxy to do the transfer	YES

Scalability Requirements

#	Requirement Description	Current status
3.1	Scale to 500MB/s continuous point-to-point	Still to demonstrate
3.2	Scale to 1GB/s peak point-to-point	Still to demonstrate
3.3	Scale to simultaneous transfer of 100 files point-to-point	Still to demonstrate
3.4	Be able to store 1000 multi-file requests in the "pending transfer" queue per point-to-point connection	Still to demonstrate

- Test setup is currently running which is incrementally stressing the transfer software
- Setup is as close to SC2 production setup as possible, and will be stepped up in preparations for SC3

Manageability Requirements

#	Requirement Description	Current status
4.1	Less than 1 day to setup and configure software at a site	YES
4.2	Require less than 1 FTE per 100 servers to manage	To be demonstrated
4.3	Be able to run for weeks unattended	To be demonstrated
4.4	Be able to be restarted and carry on with previous or ongoing jobs	YES
4.5	Require X interventions per month where X ~ 0 (related to #1.2)	PARTIAL. Some automated recovery for SC3.
4.6	Admins should be able to manage channels easily (pause, throttle, change params, …)	PARTIAL. Improvements for SC3.
4.7	System should be deployable on production setup (managed hardware, managed DB, …)	YES

Monitoring Requirements

#	Requirement Description	Current status
5.1	Bandwidth monitoring	NO. To do for SC3.
5.2	Channel performance monitoring	NO. To do for SC3.
5.3	Information for individual jobs	YES
5.4	Dynamic information on a monitoring web page.	PARTIAL. Improvements for SC3.
5.5	Information available as command-line tools	YES Improvements for SC3.

Scheduling Requirements

#	Requirement Description	Current status
6.1	Support simple FIFO scheduling	YES
6.2	More complex scheduling algorithms	NO. Not for SC3. (although it will be able to use srm-cp).
6.3	Allow for bandwidth quotas (MB/s , GB/day)	NO. Not for SC3.
6.4	Allow for per-VO bandwidth quotas	NO. Not for SC3.

User Interface Requirements

#	Requirement Description	Current status
7.1	Allow for user-level submission, monitoring, management and monitoring of transfer requests via command line.	YES Improvements for SC3.
7.2	Allow for user-level submission, monitoring, management and monitoring of transfer requests via a web-based GUI.	YES Improvements for SC3.
7.3	Allow for monitoring and management of the service via a GUI.	PARTIAL Improvements for SC3.