GridFTP issues for SC3

- standard GT2 gridftpd has problems under high load
- code is no longer supported
- should use new GT4 gridftpd instead:
  - new, complete reimplementation of the server
  - support for striping (using multiple hosts to move a single file)
  - to come: automatic buffer size determination
  - ease new feature additions and modifications of the server:
    - new commands
    - new data sources/sinks such as MSS
    - transport protocols other than TCP
    - automatic data processing (e.g. tar)
  - resolves a commercial licensing issue with the WU-ftpd

Remote data-nodes and striped operation

- hostB> globus-gridftp-server -p 6000 -dn
- hostC> globus-gridftp-server -p 7000 –dn

- hostA> globus-gridftp-server -p 5000 -r hostB:6000,hostC:7000

- Client:

globus-url-copy -stripe gsiftp://hostA:5000/file file:///dest

globus-url-copy -stripe gsiftp://hostA:5000/file gsiftp://hostX/dest

– Why "-stripe" option needed?

Known problems

- e-block mode: connect in data flow direction vs. firewalls
  - will be fixed in mode X
- host and port must be given before file is known
  - also for mode X
- data port range vs. firewalls
  - no plans yet
- need for group-writable files and directories
  - no plans yet

- others...?

Tests

- performance tests at Argonne:

  - 27/30 Gb/s for 32 nodes mem-mem, 2 GB/s disk-disk

- U. of Chicago + PlanetLab scalability tests, 1 server at ISI:

  - 10 MB file/request from disk to /dev/null on server:

    - 363 GB/3h (37,200 files),   500 clients/100 nodes
    - 131 GB/1h (13,425 files), 1100 clients/130 nodes
    - 917 GB/6h (93,858 files), 1100 clients/100 nodes
    - 151 GB/1h (15,428 files), 1800 clients/130 nodes

  - limitiations from server 1 Gbit network link

Practical issues

- new gridftpd uses new Globus XIO, OpenSSL 0.9.7, ...
  - not yet available through VDT
  - DNs with "email=" in OpenSSL 0.9.7 vs. 0.9.6
    - put hacks in grid-mapfile

- new features can only be used when both ends implement them
  - does feature negotiation always work?
  - Globus gridftpd vs. dCache vs. Castor vs. ...
  - dCache vs. DCAU

- <u>Plan</u>: evaluate and package new gridftpd well before SC3