New KanGA Export Scheme

Tim Adye
Rutherford Appleton Laboratory

BaBar Collaboration Meeting
Data Distribution Session
13th December 2000

- ftp TNG
- Selecting events for export
- Running the export procedure

Optimising ftp throughput

- ftp / scp / rsync (syncslac) are not optimised for bulk transfers over the WAN

- Optimisations possible
  - Use multiple-streams
    - Separate processes/threads copy different parts of the data
  - Adjust TCP/IP parameters
    - Large improvements from increasing TCP window size

- Tools: bbftp, sfcp, grid-ftp (new version of gsi-ftp)

New “ftp” tools

- bbftp [Gilles Farrache, IN2P3]
  - Retry mechanism
  - On-the-fly compression
  - Now with ssh authentication option [TJA]
    - Greatly simplifies automatic operation
    - Allows access to `bbrdist@datamove3`

- sfcp [Artem Trunov and Andy Hanushevsky, SLAC]
  - Better control of transfer parameters
  - Simple setup, but Solaris only
  - No compression, retry, etc.

New “ftp” tools

- grid-ftp (gsi-ftp) [GLOBUS]
  - GLOBUS authentication
  - Not yet publicly available

Transfer performance

- SLAC->RAL Kanga exports
  - syncslac / rsync gave ~300 kbits/s per job
    - Scales with number of parallel copies
  - bbftp with 2 streams gives 3-6 Mbits/s
    - Nearing 10 Mbits/s Janet-ESnet peering
  - sfcp with 2 streams gives 600 kbits/s
    - Scales with number of streams
    - Need to understand sfcp/bbftp differences

- RAL->SLAC SP imports
  - bbftp gives 10-20 Mbits/s
    - Benefits from x3 compression of Objy files

Caveat

- The optimal bbftp/sfcp choice/settings will vary from site to site.
  - Rome->RAL: bbftp and sfcp are similar
  - Eg. SLAC<->INFN gain with larger number of streams
- Need systematic tests to give better advice

Kanga export procedures

- Kanga export controlled by skimData database
  - David Kirkby, Alessandra Forti, Alvise Dorego,TJA

- **`skimSqlMirror`** makes local copy of skimData db
- **`skimSqlSelect`** selects data for import
- **`skimImport`** copies the selected files
- **`skimBackup`** backup/archive to tape
- **`skimDelete`** remove files from local disk

- Documentation under construction at
  - `http://www.pd.infn.it/~dorigoa/BFROOT/KDDIBT.html`
  - BaBar -> Computing -> Data Dist -> skimData remote

skimSqlSelect

- Selects data for import by setting a flag in skimData database
- Run as part of skimData mirroring to automatically select new data
- Use skimData options to select data, eg.
  - `skimSqlSelect --skimData '-sAllEventsKanga:-S>=Skim880f'`

skimImport

- Copies files that are marked for import in the skimData database

- Can use different ftp programs
  - Currently implements bbftp and sfcp
  - Plan to add rsync which can check existing files
  - Perl OO interface can be used by other scripts
    - Eg. Automatic SP export procedure
- Can distribute files across different filesystems.

- Eg.
  - `skimImport --ftp-type=bbftp -config=ral.cfg`

Deployment

Need guinea pigs to try this all out