L&B and JP use in job statistics tools

CESNET JRA1 team

Statistics data flow

- L&B bookkeeping server dump (on regular purge)
- upload to central server
- conversion to XML format
- processing by JRA2 applications

LB dump

- **old data should be periodically purged from LB server**
  - to keep LB database size manageable
  - to save raw data for later analysis (job statistics)
- **existing glite-lb-purge (or edg-wl-purge) utility**
- **driven by LB server administration (cron script) ideally**
  - minimal changes to LB (RB) setups
  - easier to choose the time of low server load
- **single raw dump file in LB internal format**
  - huge – contains complete LB information
  - but easily compressible

Data collection

- **gridftp upload of LB dump file to configured (central) statistics server**
  - optimized performace
  - reliable (failed uploads would be retried on next run)
  - secure (LB data may be sensitive)
- **job statistics server should allow only authorized LB servers in**
  - to maintain consistency of statistic data
  - peer trust relations can be managed by some authorization service, not by simple service-discovery

Conversion to XML

- **agreed schema (JobRecord) will be used by JRA2 tools**
- **batch conversion utility provided by LB**
  - understands LB internals
  - can be modified to extract different information from old saved raw dumps
  - can work on dumps obtained from Job Provenance

Implementation status

- **purge/dump LB server functionality available for a long time already**
  - usable with existing servers (LCG etc.)
- **XML schema defined**
  - org.glite.lb.server generates and installs job-attrs.xsd and job-record.xsd
  - available also at http://egee.cesnet.cz/en/Schema/LB/Attributes http://egee.cesnet.cz/en/Schema/LB/JobRecord
- **conversion utility partly done**
  - included in gLite 1.5 (org.glite.lb.utils)
  - does not support attributes extracted from JDL and some complex ones yet

Job Provenance overview

- **permanent, well known primary storage servers**
  - L&B and WMS push data into PS
    - L&B uploads the information some time after job is finished
  - JP serves the raw data (sandboxes, LB dumps) and attributes computed by appropriate plugins
- **volatile index server**
  - created as needed (e.g. to analyze jobs from a given week)
  - configured with chosen sets of queryable and index attributes
  - index servers are populated using
    - one-time query (for given time interval)
    - or continuous feed from PS (IS registers for further updates)
- **PS knows identities that are allowed to run an index server (obtain sensitive information)**
  - do we need more fine grained control?

JP status

- **JP initial release in gLite 1.5**
- **JP primary storage limitations**
  - not all foreseen attributes computed yes (further work on type plugins)
  - limitations in authorization (only job owner can access job data now)
    - Even smaller
      - *Tiny weenie*
        - Micro bullet
  - Another Smaller Bullet
- **JP index server limitations**
  - suboptimal re-configuration code (drops and re-queries data even when not really necessary)
  - PS to IS updates may get lost in case of network problems (integration of extended L&B interlogger planned)

full JP planned for gLite release 2, early adopters