Framework for measurement of resource broker parameters

Abramovsky V.A., Prikhod'ko N.V.

Any ways to monitor WMS?

- modify WMS code to include additional logging for all interesting data
- modify job database on WMS node to include triggers for logging
- periodically check job database on WMS node
- parse some existing log-file

Requirement

- Non-intrusive
  - run-once mode should be supported
  - no configuration
  - no deployment
- Extensive statistics
  - should measure all states
- Easy updatable
  - just get new version to run

What tools to use?

- rbwmsmon
  - some deployment already
  - should be deployed
  - not enough data can be collected with it
- write our own

Which log-files to analize

- /var/log/glite/logmonitor_events.log ; /var/log/glite/workload_manager_events.log ;
  - too little info
  - no job separation
- /var/log/glite/rgma-servicetool.log
  - too little info
- /var/log/glite/networkserver_events.log
  - job description, requirement
- /var/log/glite/jobcontoller_events.log
  - too little info

Which log-files to analize

- /var/local/condor/spool/job_queue.log
  - job description, requirement
- /var/local/condor/spool/Accountantnew.log
  - too little info
- /var/glite/logmonitor/CondorG.log/*
  - job separation
  - all job phases
  - description

Structure of /var/glite/logmonitor/CondorG.log/*

- Status
- Job ID
- Timestamp
- Different metadata (sender, receiver etc.)

Statuses in /var/glite/logmonitor/CondorG.log/*

- 000 => 'Job submitted from host‘
- 001 => 'Job executing on host
- 004 => 'Job was evicted‘
- 005 => 'Job terminated‘
- 008 => 'Job cancelled from queue‘
- 009 => 'Job was aborted by the user‘
- 012 => 'Job was held‘

Statuses in /var/glite/logmonitor/CondorG.log/*

- 017 => 'Job submitted to Globus‘
- 018 => 'Globus job submission failed!‘
- 019 => 'Globus Resource Back Up‘
- 020 => 'Detected Down Globus Resource‘
- 025 => 'Grid Resource Back Up‘
- 026 => 'Detected Down Grid Resource‘
- 027 => 'Job submitted to grid resource'

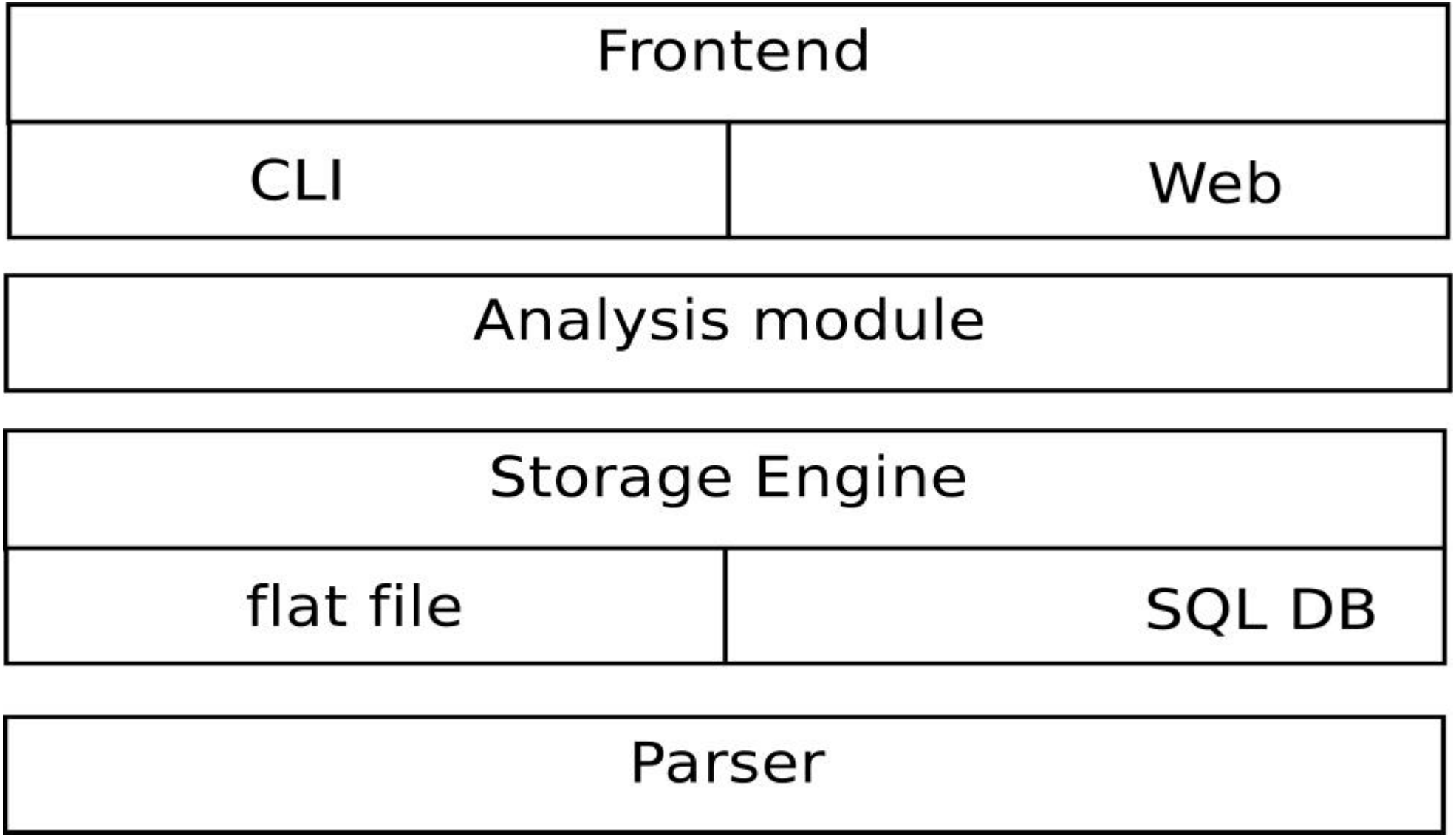
Useful statuses in /var/glite/logmonitor/CondorG.log/*

- 000' => submited
- 001 => executed on CE
- 005 => completed
- 009 => terminated for some reason by user glite
- 012 => before terminated(contain reason)
- 027 => will be sended to CE

What to measure?

- Different status rates
- Status transition times averaged and distribution
- Misc correlations

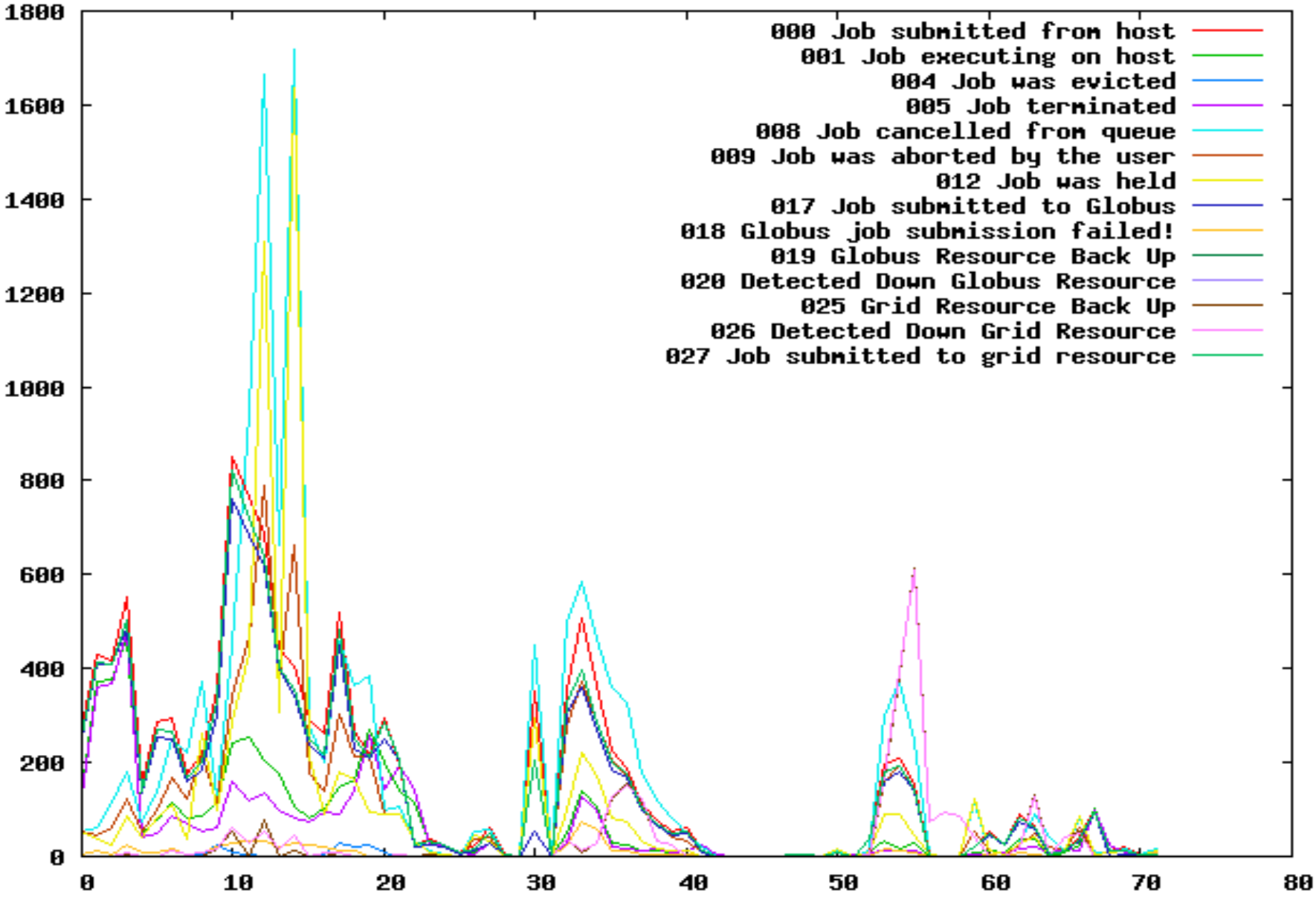
Monitor architecture



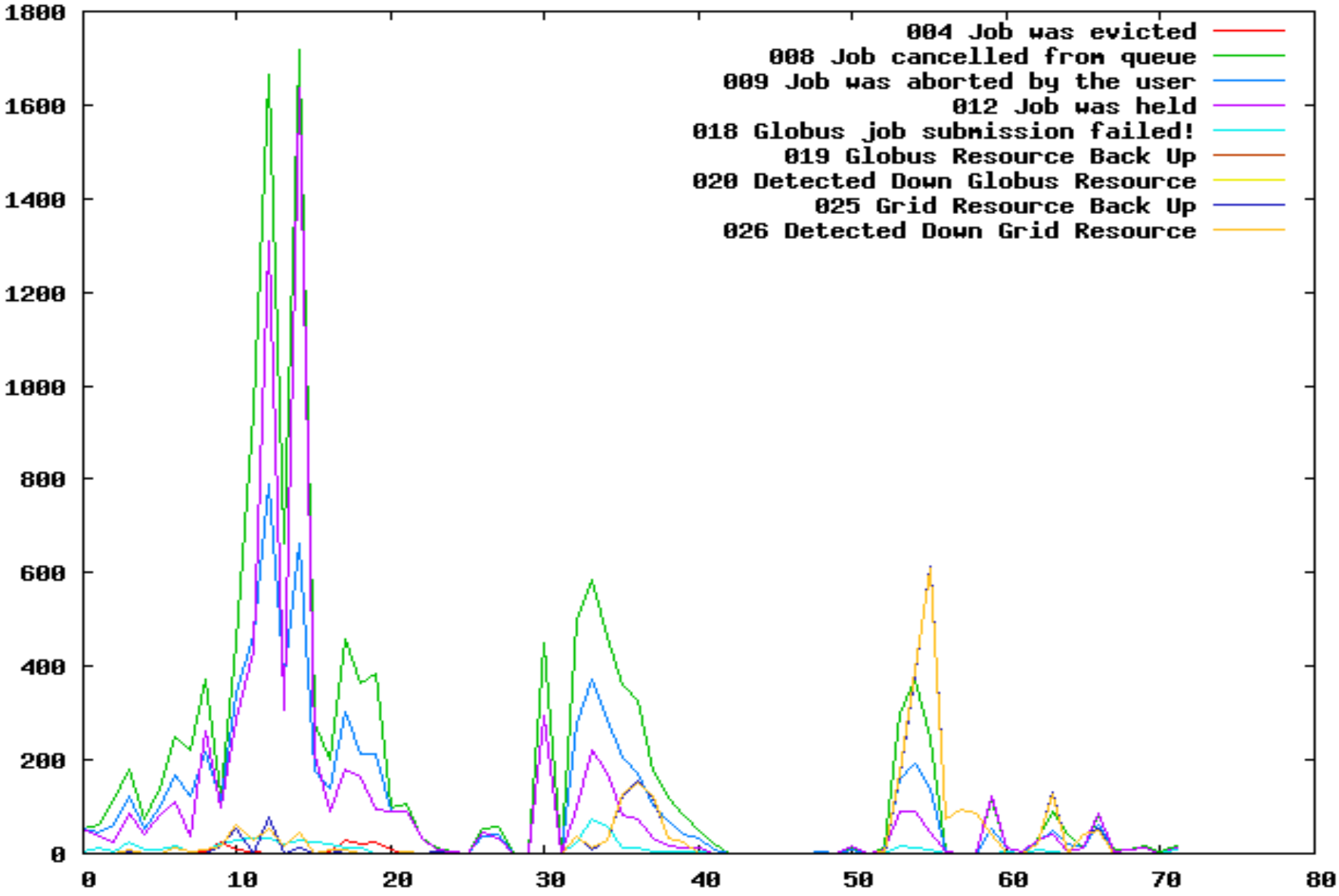
Deployment variants

- CLI
  - run-once mode to obtain statistics
  - easy deployment: just extract and run
  - easy updates: just get new versions
- WEB
  - can be deployed and updated as package
  - monitor user can deploy additional statistic modules
  - can use any SQL database instead flat file

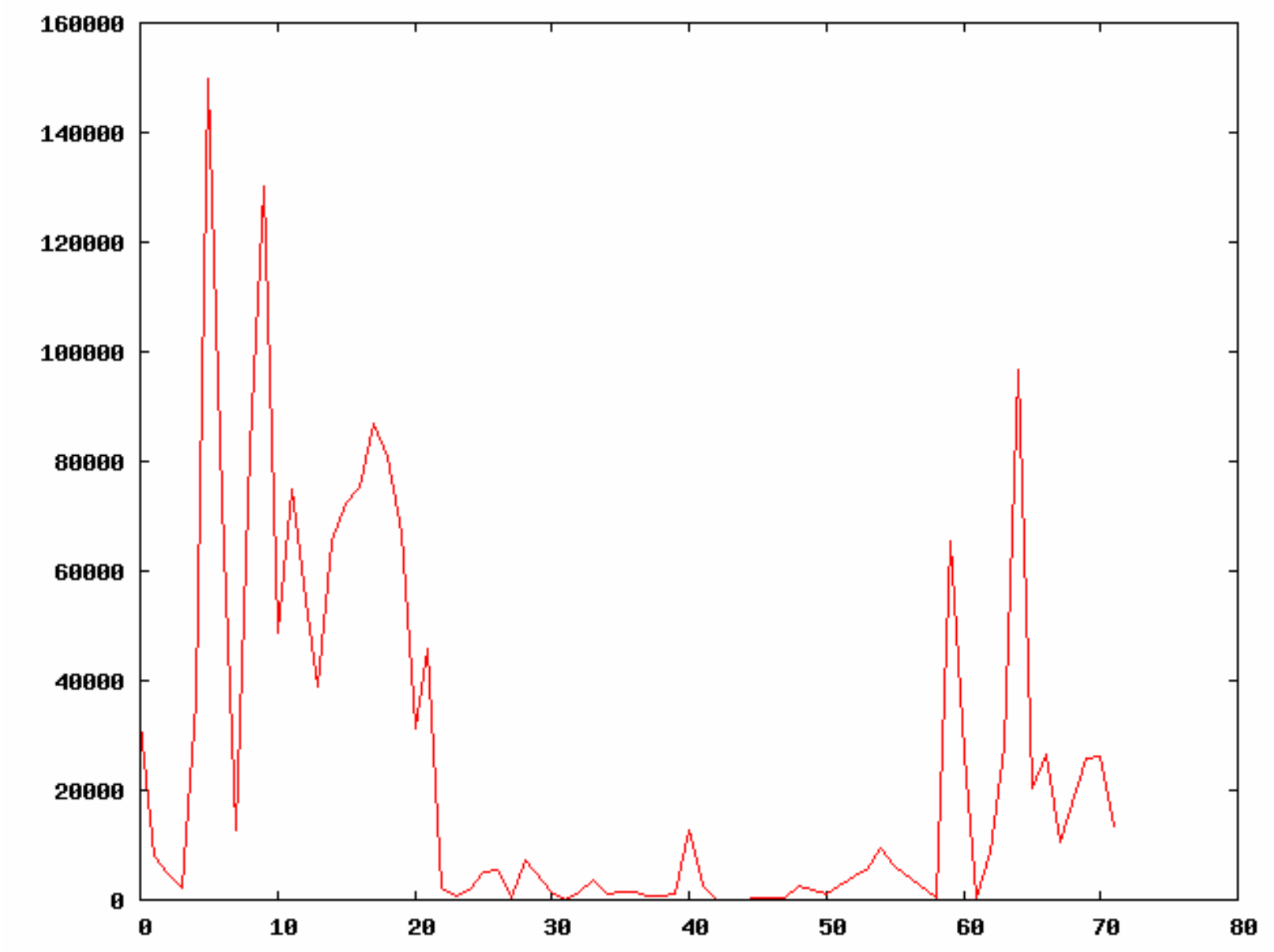
Different status rates(time vs rate)



Different status rates(time vs rate)



Transition time 027=>001
(time vs average transition time)



Transition time distribution 027=>001 (log(time+1) vs log(jobs))