



TECHNISCHE  
UNIVERSITÄT  
DRESDEN

Center for Information Services and High Performance Computing (ZIH)

# Status of AMon

Ralph Müller-Pfefferkorn,

Reinhard Neumann

Siegen, 13.12.2007

---

## Just to remember

- AMon – Monitoring of jobs and their resource usage
  - Collect job specific information on the worker node
  - Publish in R-GMA
  - Collect the data in a Web Service
  - User access via the web browser (Gridsphere portal)
  - Visualization of the data and interactivity
  - Give hints on possible problems

# Worker Node Monitoring

- Slight extension of collected data

| <i>Category</i>            | <i>Metric</i>   |
|----------------------------|---|
| <i>General Information</i> | job ID; user name; resource broker; computing element; worker node; local job ID on the worker node |
| <i>CPU</i>                 | WallClockTime; CPUTime; Load Averages   |
| <i>Memory</i>              | real, virtual, total and free memory; free and total SWAP;  |
| <i>Disk</i>                | free space in HOME, TEMP and the working directory; summary of the disk usage of the filesystem     |
| <i>File I/O</i>            | I/O rates for every file the application is accessing   |
| <i>Network</i>             | sent and received network traffic   |
| <i>Output</i>              | the last lines of a number of user specified output files   |

GridSphere Portal - Mozilla Firefox

Datei Bearbeiten Ansicht Chronik Lesezeichen Teilen Extras Hilfe

http://ite90161.inf.tu-dresden.de:8080/gridsphere/gridsphere?cid=

Google

ZIH ZIH - Grid ZIHGridWiki OTRS D-Grid Ganglia: MediGRID WebMDS DGrid MediGrid issue tracking ... GridKa-CA

dCache GridS... R-GMA B... GridSphe... [grafmw] flexible ar... Java Pro... java.io.tr... Mantis [root]

gridsphere portal framework

Deutsch

AMonVis Login

Refresh Status Jobs InOut Logfiles Credentials VOMS Access Help

MonitorLog

Log-Files

SELECTED: J00007 --- [https://grid-rb1.desy.de:9000/2\\_5D-KvWG-Y74R-AVNWZA](https://grid-rb1.desy.de:9000/2_5D-KvWG-Y74R-AVNWZA)

2007-12-12 -- 11:01:06 >>> J00007 [https://grid-rb1.desy.de:9000/2\\_5D-KvWG-Y74R-AVNWZA](https://grid-rb1.desy.de:9000/2_5D-KvWG-Y74R-AVNWZA)

/O=GermanGrid/OU=TUD/CN=Ralph Mueller-Pfefferkorn

CKMfitter.out:

```
84, 51) / time left: 205 min
--> #loops: 25100 (ix, iy) = ( 84, 50) / time left: 204 min
--> #loops: 25200 (ix, iy) = ( 84, 150) / time left: 204 min
--> #loops: 25300 (ix, iy) = ( 85, 51) / time left: 204 min
--> #loops: 25400 (ix, iy) = ( 85, 50) / time left: 204 min
--> #loops: 25500 (ix, iy) = ( 85, 150) / time left: 203 min
--> #loops: 25600 (ix, iy) = ( 86, 51) / time left: 203 min
--> #loops: 25700 (ix, iy) = ( 86, 50) / time left: 203 min
--> #loops: 25800 (ix, iy) = ( 86, 150) / time left: 203 min
--> #loops: 25900 (ix, iy) = ( 87, 51) / time left: 203 min
--> #loops: 26000 (ix, iy) = ( 87, 50) / time left: 202 min
--> #loops: 26100 (ix, iy) = ( 87, 150) / time left: 202 min
--> #loops: 26200 (ix, iy) = ( 88, 51) / time left: 202 min
--> #loops: 26300 (ix, iy) = ( 88, 50) / time left: 202 min
--> #loops: 26400 (ix, iy) = ( 88, 150) / time left: 201 min
--> #loops: 26500 (ix, iy) = ( 89, 51)
```

CKMfitter.err:

."

Skipping namelist "PARAM": seeking namelist "CORRELATIONS".

Skipping namelist "PARAM": seeking namelist "CORRELATIONS".

Skipping namelist "PARAM": seeking namelist "CORRELATIONS".

Applet MonLogDisplay started

---

# Worker Node Monitoring

- Problem found just this week:
  - monitoring is started in parallel to job when a environment variable is set
  - check is integrated in LCG resource broker
  - submission via new glite WMS does the check no longer  
--> monitoring is not started
  - in EGEE SA3 wiki lcg-mon-wn is still listed as required package for WN

---

# Data collection and storage

- Data are collected in parallel
  - 4 R-GMA tables
- Possibility to store monitoring data persistently in a database
  - for resource providers
  - access will be the same as for R-GMA data

---

# Data Analysis

- Analysis of monitoring data
- Single job analysis
  - Combine data and try to find possible problems
  - e.g. CPU time over wallclock time, network traffic and I/O  
if no CPU time consumed, no network traffic and no I/O  
--> problem
  - A set of analysis filters
  - Visualization will show red/yellow/green







---

# Data analysis

- Multijob analysis
  - Compare and visualize job parameters of all jobs
  - Find outliers in data, which might point to problems
  - Is only valid for jobs of the same kind
    - analysis jobs of a user
    - simulation production

---

## Other things

- many improvements in visualization
- performance improvements (parallelizations)
- bug fixing
- code stabilization
- Online Help and documentation
- Setup a portal to test it
- ...

---

# Packaging

- worker node monitoring
  - two RPM's for SL3/SL4
  - just update of existing lcg-mon-wn
  - needs to be on every WN
- Web Service
  - tarball for installation into tomcat
- Visualization
  - tarball for installation into Gridsphere

---

# Something totally different

- dCache-Installation at ZIH
  - 20 Tbyte disk
  - disk only currently, tape access will be installed beginning next year
  - is open for use
  - SRM door: `ophelia.zih.tu-dresden.de`
  - gridftp doors: `helena/juliet.zih.tu-dresden.de`
  - VOs currently allowed: ghep, atlas
  - other VO: just tell me
  - more on `http://tu-dresden.de/die\_tu\_dresden/zentrale\_einrichtungen/zih/forschung/grid\_computing/ressourcen/index\_html#dCache`