

Funded Projects



DGI-2 Deutsche Grid-Initiative 2

- Members:
- Fraunhofer FIRST
 - Fraunhofer ITWM
 - Forschungszentrum Jülich
 - FZ-Karlsruhe (IWR)
 - Leibniz Compute Center (LRZ)

Workpackage 2.6: Cluster process management in the Grid

The Federal Ministry of Education and Research (BMBF) is funding the development of Grid related software modules.

Duration: Jan 2008 to Dec. 2010; Project successfully finished, see overview next page. URL: <http://www.d-grid.de>

ISAR Integrated system and application analysis for massive parallel computer

- Members:
- University of Munich
 - Leibniz Compute Center (LRZ)
 - Compute Center Garching (Max-Planck)
 - ParTec CCC GmbH

Workpackage 3: Scalable system monitoring tools, porting and testing on ParaStation cluster

The Federal Ministry of Education and Research (BMBF) is funding this project.

Duration Jan. 2009 to Dec. 2011, URL: <http://www.in.tum.de/index.php?id=isar>



ee-Clust Energy efficient cluster computing

- Members:
- DKRZ Hamburg
 - TU Dresden
 - Forschungszentrum Jülich
 - ParTec CCC GmbH

Workpackage 3: software based collection, monitoring and control of energy specific system and application data, new features for GridMonitor.

The Federal Ministry of Education and Research (BMBF) is funding this project

Duration: April 2009 to March 2012, URL: <http://www.eeclust.de>



Grid-Process-Management

ParaStation Accounting Facility

The ParaStation process-management was enhanced to collect extended accounting data like overall usage of distributed resources (e.g. memory usage, CPU-time). These data are condensed into extended accounting records and the GridMonitor was enabled to display them.

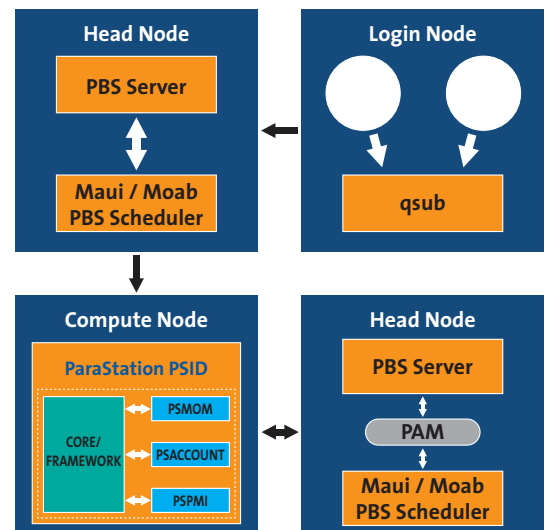
ParaStation Management Plug-In API

In order to enable the ParaStation process-management for easy extension of the established functionality a sophisticated plug-in API was designed and implemented. Besides the enhanced accounting facility, the first consumer of this interface is the *psmom* plug-in.

Integration into the Torque Batchsystem using the *psmom* plug-in.

For the tight integration of ParaStation into the Torque Batchsystem, the Torque execution daemon *pbs_mom* is completely replaced by the *psmom* plug-in. The ParaStation process-management software is therefore able to communicate with the Batchsystem Server and is the only software needed on the compute nodes for batch integration.

As a result of the close integration the ParaStation *psmom* provides advanced resource control and cleanup functionalities. Easy-to-use secure ssh connections are allowed to the compute nodes on which the user has a running job. The *psmom* has demonstrated to scale beyond 3000 nodes and is the next step in reducing Operating System Jitter. At the D-Grid resource JUGGLE and the new GPU cluster JUDGE at the Forschungszentrum Jülich *psmom* is used in productive operation.



Integration into the D-Grid Monitoring Infrastructure (D-Mon)

An XML converter was designed and implemented in order to enable the comprehensive ParaStation GridMonitor database for further processing. This converter is used to connect the ParaStation GridMonitor to the D-Grid Monitoring Service the D-Mon.

Generic Plug-in Framework for the ParaStation GridMonitor

A generic plug-in framework for the ParaStation GridMonitor is now available. It enables the easy integration of third-party data-collectors into the existing Grid-Monitor in order to extend its functionality. A first example using this new interface is the Nagios monitoring system.

Integration into the D-Grid Accounting Infrastructure

The ParaStation accounting client is able to generate accounting data in a format compatible with Torque. This simplifies the integration into higher-level systems like the D-Grid accounting infrastructure. Existing tools can be continued to use for processing accounting data records.