



Diplomanden- und Doktorandenseminar
des Instituts für Informatik

A Two-Tier Approach to Workflow Scheduling in MediGRID

Dipl.-Inf. Dietmar Sommerfeld, Gesellschaft für
wissenschaftliche Datenverarbeitung mbH
Göttingen (GWDG)

Contemporary workflow scheduling strategies that perform full-ahead planning of the complete workflow graph are typically designed for a resource model with high availability and good control over resources by the scheduler. In production Grids, meta-scheduling has to deal with high utilization and autonomous sites, and is mostly focused on single jobs. Workflow scheduling strategies for Grids usually require continuous rescheduling during workflow execution or schedule single workflow tasks only.

In the face of this, we developed a new hybrid methodology to schedule application workflows which presumably supersedes existing methods. Our algorithm combines existing scheduling strategies for the Grid and for workflows. It employs a list scheduling heuristic to create a full-ahead schedule of tasks, which are then distributed just-in-time according to resource performance predictions calculated from up-to-date monitoring data. For this, the algorithm uses three methods to predict expected queue waiting times. In a series of measurements on the D-Grid, three site scenarios could be identified where one respective prediction works best.

Dienstag, den 17.11.2009

13:00 Uhr in Raum 106, IfI, Julius-Albert-Straße 4