Abstract

Job scheduling is a fundamental issue in achieving a high performance on the Grids. In grid computing several applications require numerous resources for execution which are not often available for them, thus presence of a scheduling system to allocate resources to input jobs is vital. This paper introduces a model and a job scheduling algorithm in grid computing environments. Computational grids have the potential for solving large-scale scientific problems using heterogeneous and geographically distributed resources. One problem that is critical to effective utilization of computational grids is the efficient scheduling of jobs. This work addresses this problem by describing and evaluating a grid scheduling architecture and a job-scheduling algorithm. The research work introduces NSA (node-selection algorithm) at the global scheduler and the PSA (processor selection algorithm) at the local scheduler. The NSA is based on the rule that the light-loaded processing node is selected for the job allocation. This technique fetches the jobs from the Global job queue that is ready to execute and assign these jobs to the best nodes of the grid. The PSA (processor selection algorithm) schedule the job to the processor of a selected node having maximum available CPU resource (ACR). The algorithm has been tested in a simulated grid environment.
Framework for Job Scheduling in Grid Environment

References

Algorithm for Computational Grid. In IEEE Asiapacific Conference on Services Computing (APSCC'06).


Index Terms

Computer Science  Parallel Processing

Keywords

Grid Computing  Job Scheduling  Scheduler  load  ACR.