Multiphase scalable grid scheduler based on multi-QoS using min-min heuristic.

ABSTRACT

In scheduling, the main factor that affects searching speed and mapping performance is the number of resources orthe size of search space. In grid computing, the scheduler performance plays an essential role in the overall performance.So, it is obvious the need for scalable scheduler that can manage the growing in resources (i.e. scalable). With the assumption that each resource has its own specifications and each job has its own requirements; then searching the whole search space (all the resources) can waste plenty of scheduling time. In this paper, we propose a two-phase scheduler that uses min-min algorithm to speed up the mapping time with almost the same efficiency. The scheduler is also based on the assumption that the resources in grid computing can be classified into clusters. The scheduler tries first to schedule the jobs to the suitable cluster (i.e. first phase)and then each cluster schedule the incoming jobs to the suitable resources (i.e. second phase). The scheduler is based on multidimensional QoS to enhance the mapping as much as it can.The simulation results show that the use of two-phase strategy can support the scalable scheduler.

Keyword: Multi-phase; QoS; Grid Scheduling.