Abstract

The motivation of Grid computing is to aggregate the power of widely distributed resources, and provide non-trivial services to users. To achieve this goal, an efficient Grid scheduling System is an essential part of the Grid. Rather than covering the whole Grid scheduling area, this survey provides a review of the subject mainly from the perspective of scheduling algorithms. In this review, the challenges for Grid scheduling are identified. First, the
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architecture of components involved in scheduling is briefly introduced to provide an intuitive image of the Grid scheduling process. Then various Grid scheduling algorithms are discussed from different points of view, such as static vs. dynamic policies, objective functions, applications models, adaptation, constraints, strategies dealing with dynamic behavior of resources, and so on. Thus, in this paper, the following definition for the term Grid adopted: “A type of parallel and distributed system that enables the sharing, selection, and aggregation of geographically distributed autonomous and heterogeneous resources dynamically at runtime depending on their availability, capability, performance, cost, and users' quality-of-service requirements”. To facilitate the discussion, the following frequently used terms are defined: - A task is an atomic unit to be scheduled by the scheduler and assigned to a resource. The properties of a task are parameters like CPU/memory requirement, deadline, priority, etc. A job (or metatask, or application) is a set of atomic tasks that will be carried out on a set of resources. Jobs can have a recursive structure, meaning that jobs are composed of sub-jobs and/or tasks, and sub-jobs can themselves be decomposed further into atomic tasks. In this paper, the term job, application and metatask are interchangeable. A resource is something that is required to carry out an operation, for example: a processor for data processing, a data storage device, or a network link for data transporting. A site (or node) is an autonomous entity composed of one or multiple resources. A task scheduling is the mapping of tasks to a selected group of resources which may be distributed in multiple administrative domains.

Reference

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**Index Terms**

Computer Science

Wireless Networks

**Key words**

OLB

MET

Min_min

GA

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