Abstract

Grid computing is the collection of computer resources from multiple locations to reach a common goal. The grid is a special type of distributed system with non-interactive workloads that involve a large number of files. Partitioning of the application program/software into a number of small groups of modules among dissimilar processors is an important parameter to determine the efficient utilization of available resources in a grid computing environment. It also enhances the computation speed. The task partitioning and task allocation activities influence the distributed program/software properties such as IPC. This paper presents a metaheuristic model, that performs static allocation of a set of "m" modules of distributed tasks/program considering the two conflicting objectives i.e. minimizing the makespan time and balanced utilization of a set of "n" available resources of a grid computing. Experimental results using genetic algorithm indicates that the proposed algorithm achieved these two objectives as well as improve the dynamic heuristics presented in literature.


**Index Terms**

Computer Science  
Artificial Intelligence

**Keywords**

Grid computing  
Task Allocation  
Makespan  
Execution Cost  
Inter Task (module)  
Communication Cost