Abstract

The Grid Workflow scheduling is considered an important issue in Workflow management. Workflow scheduling is a process of assigning workflow tasks to suitable computational
resources. Workflow scheduling significantly affects the performance and the execution time of the workflow. A Workflow scheduling approach falls in one of three categories: static, dynamic or adaptive. Grid environment is a highly changing environment in which static approaches performance is questioned. Effective workflow scheduling approaches are essential to make use of the Grid heterogeneous resource capabilities. The main objective of this paper is to introduce an adaptive heuristic list scheduling approach which utilizes the MAHEFT algorithm. MAHEFT algorithm considers the new changes in the Grid environment in order to minimize the total execution time (makespan) and to increase the speedup. The improvement rate in makespan of MAHEFT algorithm ranges between 2% to 21%. With respect to Speedup, MAHEFT is faster than both static HEFT and adaptive AHEFT algorithms with speedup values between 2.08 and 4.16.

References

MAHEFT-based Adaptive Grid Workflow Scheduling Approach


Index Terms

Computer Science Grid Computing

Keywords

Grid Workflow Workflow Scheduling DAG

Adaptive Scheduling

Makespan

Speedup