

An Adaptive Evolutional Algorithm for Scheduling Tasks in Computational Grid,

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Abstract

Job scheduling is an important issue in computational grid. In computational grid, computing resources are connected through networks and may locate at different network or regional areas. So, the computational capabilities or network status of computing resources may be different. If we want to take advantage of computational grid, an efficient scheduling algorithm is necessary to assign jobs to the appropriate computing nodes. In this paper, we propose a genetic algorithm based evolutional algorithm (G-EA) to solve the scheduling problems in computational grid. The proposed algorithm uses the optimal searching technique of genetic algorithm and takes different computing capabilities of computing nodes and dynamic network status into consideration. In order to verify the performance of G-EA, a simulation was performed, and it was then compared with four other scheduling algorithms. The results show that the proposed G-EA outperformed all other schedulers across a range of scenarios

Keyword : heterogeneous environment; grid computing; genetic algorithm; scheduling