A Novel Bee Colony Approach to Distributed Systems Scheduling

Abstract

The problem of task scheduling in distributed systems is known as an NP-hard problem, and methods based on heuristic or metaheuristic search have been proposed to obtain optimal and suboptimal solutions. The scheduling problem is a key factor for distributed systems to gain better performance. In this paper, an efficient method based on memetic algorithm is developed to solve the problem of distributed systems scheduling. With regard to load balancing efficiently, Bee Colony Optimization (BCO) has been applied as local search in the proposed memetic algorithm. The proposed method has been compared to existing GA-based method and two memetic-Based methods in which Tabu method and Learning Automata method have been used as local search. The results demonstrated that the proposed method outperform the above mentioned methods in terms of CPU Utilization, communication cost and Makespan.
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References

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