

基于改进蚁群算法的云计算任务调度研究

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摘要: 为了找到最优的云计算任务调度方案, 减少任务的完成时间, 提出了基于改进蚁群算法的云计算任务调度算法。首先建立云计算任务调度的目标函数, 然后采用蚁群算法模拟蚂蚁搜索食物过程对目标函数进行求解, 并引入局部、全局信息深度更新方式进行改进, 加快搜索速度, 最后在 CloudSim 仿真平台进行性能测试实验。结果表明, 改进蚁群算法不仅大幅度减少了云计算任务执行时间, 而且解决了资源负载不均衡难题, 很好地实现了云计算任务的最优调度。

关键词: 云计算系统; 任务执行时间; 蚁群算法; 初始信息素; 最优调度方案

Task Scheduling in Cloud Computing by Using

Improved Ant Colony Algorithm

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Abstract: In order to find the optimal scheduling scheme for cloud computing tasks, and reduce completion time of tasks, a task scheduling model in cloud computing by using improved ant colony algorithm is proposed in this paper. Firstly, mathematical model of cloud computing task scheduling is established, and secondly ant colony algorithm is used to simulate the process of ants searching for food to obtain the solution which And the local and global information depth updating method is introduced to speed up search speed, finally, performance is tested on cloudsims simulation platform. Results show that improved ant colony algorithm not only greatly reduces task execution time of cloud computing to solve the problem of unbalanced load of resources, and it is very good to achieve optimal scheduling of cloud computing tasks.

Key words: cloud computing system; task execution time; ant colony algorithm; initial pheromone; optimal scheduling scheme

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