计算机科学与技术

基于云计算环境的蚁群优化计算资源分配算法

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摘要　　提出一种基于蚁群优化(Ant Colony Optimization)的计算资源分配算法.分配计算资源时，首先预测潜在可用节点的计算质量，然后根据云计算环境的特点，通过分析诸如带宽占用、线路质量和响应时间等因素对分配的影响，利用蚁群优化算法得到一组最优的计算资源.通过在Gridsim环境下的仿真分析和比较，这种算法能够在满足云计算环境要求的前提下，获得比其他一些针对网格的分配算法更短的响应时间和更好的运行质量，因而更加适合于云环境.
关键词　　云计算；网格；蚁群；资源分配
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Ant colony optimization algorithm for computing resource allocation based on cloud computing environment (Chinese)

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Abstract

  A new allocation algorithm based on Ant Colony Optimization (ACO) was established to satisfy the property of cloud computing. When start, this algorithm first prognosticated the capability of the potential available resource nodes, then analyzed some factors such as network qualities or response times to acquire a set of optimal compute resources. This algorithm met the needs of cloud computing more than others for grid environment with shorter response time and better performance, which were proved by the simulation results in the Gridsim environment.

Key words　 cloud computing 　 grid 　 ant colony optimization 　 resource allocation

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