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分布式系统中动态负载均衡实现模型

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摘 要: 随着计算机技术的发展, 分布式系统日益受到人们的重视因而被普遍应用, 但由于任务提出和执行的随机性, 各台机器上负载不均衡现象时有发生, 所以负载均衡是提高分布式系统效率的重要因素, 但目前的研究都集中在策略的提出上, 对实现模型的研究比较少. 作者在综合许多负载均衡策略的基础上按照性能递增的顺序, 结合网络拓扑结构构建了链式模型、网状模型和链网模型, 对其进行了系统的研究, 对几种模型给出了各自相应的算法, 并进行了评价, 指出了这几种模型各自的优缺点及适用范围. 研究表明: 链网模型在动态负载均衡实现方面具有良好的有效性、稳定性、可靠性、通用性, 对用户具有透明性, 是一种性能优越的动态负载均衡模型.

关键字: 分布式系统; 动态负载均衡; 任务迁移; 链式模型; 网状模型; 链网模型

The dynamic load balancing implementation model in the distributed system

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Abstract: Since the development of the computer technology, the distributed system has been emphasized by people more and more and has been applied wildly, but because of the randomization of the mission proposition and implementation, the problem that each computer's load is not balanced often occurs, so the load balancing is an important factor to improve the efficiency of the distributed system. But most current researches have been concentrated on the proposing of the policies. The researches on the implementation model based on the policy are few. After researching into several current load balancing policy, the authors build several implementation models such as chain model, reticulation model and chain-reticulation model increased by performance and researches them comprehensively based on network topology. Each model is given corresponding algorithm and estimation. The advantages and shortcomings and applicable ranges of each model are also given. The paper has especially emphasized the chain-reticulation model's superiority and high performance on dynamic load balancing. The chain-reticulation model is a better and more advantageous dynamic load balancing model at present.

Key words: distributed system; dynamic load balancing; process migration; chain model; reticulation model; chain-reticulation model

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