虚拟计算环境中的可扩展分布式资源信息服务

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Abstract

Based on the characteristics of evolution, autonomy and diversity of Internet resources, researchers recently proposed to realize the publication and query of Internet resource information through common DHT (distributed Hash table) information services. However, current research on resource information services is insufficient in generality, usability and adaptability. Aiming at the needs of iVCE (Internet-based virtual computing environment) for resource aggregation, the SDIRIS (scalable distributed resource information service) is proposed to construct. First, the adaptive DHT (A-FissionE) infrastructure is presented, which supports to adapt to different system scale and stability transparently. Second, the MR-FissionE, which is an efficient multiple-attribute range query algorithm, is presented based on A-FissionE. Theoretical analysis and experimental results prove that SDIRIS can realize resource information publication and query efficiently.

摘要

基于网络资源的"成长性"、"自治性"和"多样性",近年来,人们提出以通用DHT(distributed Hash table)信息服务的形式实现网络资源信息的发布和查询.然而,现有的资源信息服务在通用性、易用性和自适应性等方面仍存在不足.针对虚拟计算环境iVCE(Internet-based virtual computing environment)的资源聚合需求,提出构建可扩展的分布式资源信息服务SDIRIS(scalable distributed resource information service).首先,提出采用自适应DHT(adaptive FissionE,简称A-FissionE)底层架构,以对上层应用透明的方式适应不同的系统规模和稳定性;其次,基于自适应DHT提出高效的多属性区间搜索算法(multiple-attribute range FissionE,简称MR-FissionE).理论分析和模拟结果表明,SDIRIS能够高效地实现资源信息的

发布与查询功能.

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