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Gnutella网络的连接管理

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Abstract

Gnutella is a fully decentralized and unstructured peer-to-peer network. It uses the message broadcasting mechanism of flooding. However, while bringing Gnutella network the characters of high degree of robustness and dynamic, this broadcasting mechanism makes the network give redundant messages that increase exponentially. On basis of resolving Gnutella network message broadcasting mechanism, the paper points out the necessity and feasibility of Gnutella network losing contact, and then bring forward the means which can compartmentalize Gnutella network message's PRI according to the transmitting bandwidth, the time, and the resources which are consumed by servents dealing with all kinds of messages. F-Measure is introduced to connection management, which is usually used to evaluate the performance of searching engine. The paper provides a discarding connection management algorithm, which discards the redundant connection by computation and ensures the maximal attainability of message simultaneously. Finally, the arithmetic example and discussion are given.

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摘要

Gnutella是完全分布式、无结构的对等网络.它采用洪泛式的消息广播机制,使网络具有高鲁棒性和高动态性的同时,也使网络产生了呈指数级增长的冗余消息.在解析Gnutella网络消息广播机制的基础上,指出了Gnutella网络丢弃某些连接的必要性和可行性,提出了根据传输带宽和机器处理各种消息时所耗费的时间和资源,来划分Gnutella网络中消息的优先级.把评价搜索引擎性能的F-Measure参数引入连接管理中,在保障消息可达率的同时,通过计算丢弃某些冗余连接.该解决方案由丢弃连接管理算法(discarding connection management algorithm,简称DCMA)实现,还给出了算法实例和对算法的讨论.

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