Abstract

Application-layer peer-to-peer (P2P) networks are considered to be the most important development for next-generation Internet infrastructure. For these systems to be effective, load balancing among the peers is critical. Most structured P2P systems rely on ID-space partitioning schemes to solve the load imbalance problem and have been known to result in an imbalance factor of $\theta (\log N)$ in the zone sizes. First addressing the virtual-server-based load
balancing problem systematically using an optimization-based approach and derive an proposal in general and its advantages over previous strategies in particular. We also explore other important issues vital to the performance in the virtual server framework, such as the effect of the number of directories employed in the system and the performance ramification of user registration strategies. Second, and perhaps more significantly, we systematically characterize the effect of heterogeneity on load balancing algorithm performance and the conditions in which heterogeneity may be easy or hard to deal with based on an extensive study of a wide spectrum of load and capacity scenarios.

Reference

- Yingwu Zhu, Yiming Hu" Towards Efficient Load Balancing in Structured P2P Systems" Proceedings of the 18th International Parallel and Distributed Processing Symposium (IPDPS'04), 0- 7695-2132-0/04 (C) 2007 IEEE.

Index Terms

Computer Science

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imbalance factor of $\theta$

(log N)