Improving Routing Load Fairness in Structured P2P Overlay Networks

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Abstract—**Structured P2P overlay networks provide rather balanced query routing load compared to centralized network systems. Despite their distributed and scalable design, issues such as different in-degrees of peers, peer churn and non-uniform request distribution may lead to poor routing load fairness in the overlay. In this paper, we propose an enhanced routing strategy that dynamically selects next-hop destination based on peers' current load information and the characteristics of the routing load distribution in the overlay network. Our approach can fairly balance the routing load among close neighbors as well as diverting a portion of the routing load from heavily loaded areas to less loaded ones. Simulation results show that our proposal significantly improves the routing load fairness among peers while the query performance remains almost the same.**

Keyword—**Overlay network, routing algorithm, load balancing, Chord**

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