

PERFORMANCE IMPROVEMENT OF CHORD, DISTRIBUTED HASH TABLE UNDER HIGH CHURN RATE

Giang Ngo Hoang, Hung Nguyen Chan, Vinh Vu Thanh, Khang Nguyen Van, Thu Le thi Xuan,
Thang Nguyen Manh

TÓM TẮT:

Structured peer-to-peer (P2P) networks is becoming popular for their advantages of high scalability and good performance. These networks are based on the Distributed Hash Tale or DHT mechanism to establish and maintain a certain topology. However, while adopting structured P2P network for wireless environment, one have to deal with the phenomenon of frequent join and leave of mobile nodes, namely churn. In this study, we focus on modification of Chord, a well-known DHT protocol, in order to improve its performance under high churn rate. We adopt the atomic ring maintenance mechanism to mitigate the effect of churn over lookup consistency and successfully implement this mechanism in OverSim simulator. Our simulation showed significant performance improvement of the modified Chord protocol under high churn rate in wireless environments. Structured peer-to-peer (P2P) networks is becoming popular for their advantages of high scalability and good performance. These networks are based on the Distributed Hash Tale or DHT mechanism to establish and maintain a certain topology. However, while adopting structured P2P network for wireless environment, one have to deal with the phenomenon of frequent join and leave of mobile nodes, namely churn. In this study, we focus on modification of Chord, a well-known DHT protocol, in order to improve its performance under high churn rate. We adopt the atomic ring maintenance mechanism to mitigate the effect of churn over lookup consistency and successfully implement this mechanism in OverSim simulator. Our simulation showed significant performance improvement of the modified Chord protocol under high churn rate in wireless environments.