Network Locality Positioning System in P2P Networks

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Abstract

In this paper, we propose a network locality positioning system (NLPS) to provide precise locality information of nodes in networks instead of designing new P2P systems. It can not only be used to solve the consistent problem whatever the P2P systems are unstructured or structured but also provide how to select the best candidates for downloading the desired resource from the searching result. The nodes in P2P system can be classified into logical clusters and assigned the same locality code to define their locality by the proposed NLPS. The approximate distance between two nodes is embedded in locality codes. To evaluate the performance of NLPS, DHT-based P2P systems cooperating with NLPS are simulated. The locality code of a node is associated with its DHT-based identifier (ID). The searching process is performed as normal operation in DHTbased P2P system, then searching results will include the locality code of each node which owns the desired resource. Therefore, best candidate node(s) can be selected from the searching result by their associated locality codes. Extended simulation results show that DHT-based P2P system cooperating with NLPS has better performance than the others DHT-based P2P systems.

Keyword：NLPS, P2P