Luo, J.; **Wang, Xiaogang**; **Yang, M.**

A resilient P2P anonymous routing approach employing collaboration scheme. (English)

Zbl 1216.68103
J. UCS 15, No. 9, 1797-1811 (2009).

Summary: Node churn is a hindrance to construction of P2P-based anonymous networks, which makes anonymous paths fragile and results in message losses and communication failures. A collaboration scheme combining friendly neighbor-based incentive (FNI) and re-encryption mechanism is proposed to deal with the high node churn characteristic of P2P networks. The FNI mechanism encourages peers to forward other peers' messages, and establishes more connections to improve the performance of P2P networks, where only stable and well-behaved nodes can be chosen as relay nodes to improve the durability of anonymous paths. The re-encryption mechanism is designed to replace those failed relay nodes and achieve routing resilience upon different node availabilities in real-world systems. The results from security analysis and simulation show that the P2P anonymous routing approach employing collaboration scheme significantly improves routing resilience and maintains low latency and modest communication overhead.

MSC:

68P25 Data encryption (aspects in computer science)
68M14 Distributed systems

Keywords:

FNI mechanism; anonymous routing; peer-to-peer; re-encryption mechanism

Full Text: Link