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## 基于相似度加权推荐的P2P环境下的信任模型

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### Abstract

In decentralized peer-to-peer file-sharing networks, due to the anonymous and self-organization nature of peers, they have to manage the risk involved with the transactions without prior knowledge about each other's reputation. SWRTrust, a global trust model, is proposed to quantify and to evaluate the trustworthiness of peers, which includes a mathematical description and a distributed implementation. In SWRTrust, each peer is assigned a unique global trust value, computed by aggregating similarity-weighted recommendations of the peers who have interacted with it. Previous global trust models are based on the assumption that the peers with high trust value will give the honest recommendation. This paper argues that this assumption may not hold in all cases. Theoretical analyses and experimental results show that SWRTrust is still robust under more general conditions where malicious peers cooperate in an attempt to deliberately subvert the system, converges more quickly, and decreases the number of inauthentic files downloaded more effectively than the previous models.

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### 摘要

在诸如文件共享等无中心的Peer-to-Peer网络中,对等节点具有匿名性和高度自治的特点,并且由于缺乏对与之交互的节点的可信程度的知识,节点需应对交互过程中可能出现的威胁.提出了一种基于节点评分行为相似度加权推荐的peer-to-peer环境下的全局信任模型(简称SWRTrust),用于量化和评估节点的可信程度,给出了模型的数学表述和分布式实现方法.已有的全局信任模型建立在信任值高的节点其推荐也更可信这个假设基础上,SWRTrust对该假设的合理性提出了质疑.分析及仿真实验结果表明,SWRTrust较已有模型适用于遏制更广泛类型的恶意节点攻击,在迭代的收敛速度和网络中的成功下载率等性能指标上有较大提高.

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