

网络、通信、安全

P2P环境中基于粒子群算法的信任模型

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摘要 P2P系统的开放和匿名等特征,使其成为一些恶意节点发布虚假信息的温床,因此在P2P环境中构建一个完善的信任机制显得尤为重要。针对现有信任模型对于寻找信任路径速度慢且难以防止联合欺诈等缺点,提出了一种适合P2P环境的基于粒子群算法的信任模型。在BBK信任模型的基础上引入粒子群算法,将信任路径转化为每个粒子,通过对粒子速度和位置的更新来寻找信任度高的路径,最终再根据BBK模型得出全局信任度。通过数学分析和证明,该模型具有较好的防止联合欺诈的性质。实验表明,算法效率较高,较其他算法具有明显优势。

关键词 [信任模型](#) [粒子群算法](#) [BBK信任模型](#) [防止联合欺诈](#)

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Trust model based on PSO in P2P

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Abstract

There are many malicious nodes spreading false information in P2P networks, because of its open and anonymous characteristics. So it is of great importance to build a sound mechanism of trust in the P2P environment. To avoid the shortage of the existing trust model, the paper provides a Trust Model based on PSO. In the model, after initializing the particle swarm, each particle can update the speed and location according to its information, then produce a new particle with better value. Doing that process continually and implementing the global search of the space, finally, they can get a better overall value, that is the better trust path in the networks. The simulation results show that it can get the overall optimum solution in a relatively short time after many times of iteration, and the more times it iterates, the better the trust path is. It can be proved that the algorithm can prevent the fraud.

Key words [trust model](#) [Particle Swarm Optimization algorithm](#) [BBK trust model](#) [preventing the fraud](#)

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