网络、通信、安全

基于贝叶斯网的P2P系统路由查找算法

赵成贵,李 孟,余建坤

云南财经大学 信息学院，昆明 650221

摘要　　对等网络中的一个关键问题就是如何找到储存有期望数据的节点，因而目标资源的查询算法研究是P2P网络的关键部分，该算法决定了P2P系统的性能。在对等网络中的每一个节点都存有一张记录与之相邻的节点的路由信息表，着重讨论如何根据各节点所存储的路由表建立相应的贝叶斯网络，并分析某一节点接收到查询请求的概率，进而得出一个计算概率的数学公式。为使所得概率计算公式尽可能地符合现实情况，每一个对等点分别被赋予不同的权，随后对所赋权进行调整。最后，对每个节点的可信度提出一个设置方案，并基于可信度提出一个改进的路由算法，试验表明该算法能够一定程度上改善对等网络的性能。

关键词　 P2P　 贝叶斯网络　 查找　 路由　

分类号

Algorithm of resource location on P2P system based on Bayesian network

ZHAO Cheng-gui,LI Meng,YU Jian-kun

Information School，Yunnan University of Finance and Economics，Kunming 650221，China

Abstract

  One of essential problems on P2P network is how to find a node which saves expected data.So exploring lookup algorithms is a key component for P2P technology，which decides the performance of P2P system.Each node keeps a list that records the routing information of its neighbor.This paper focuses on building a Bayesian network corresponding with their routing table of nodes.Depending on this Bayesian network，we analyze the node probability of receiving a lookup request and obtain a formula to compute this probability.For making this formula more closed to reality，we assign a weight to each of nodes and adjust these weights.At last，a scheme of assigning reliability to each node is presented and an improved routing algorithm is given based on Bayesian method.Some simulations show that this improved routing algorithm can enhance the performance of P2P network to some extent.

Key words　 Pere to Pere（P2P）　 Bayesian network　 lookup　 routing　

通讯作者　赵成贵 zhaochenggui@126.com