基于邻接信任的路由安全评估

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摘要　针对路由黑洞等路由攻击问题提出了融合邻接信息和信任信息的邻接信任概念，利用邻接信任有效抑制了中间节点在路由信息传递中的欺骗行为，并以此为基础建立了网络邻接信任评估模型。给出了该模型的数学描述和基于移动代理信息采集平台的实现方案，并设计了贪婪评估算法对模型中节点以及相邻节点间邻接路径的信任安全程度进行量化分析。与其他算法相比，本文提出的贪婪评估算法具有敏锐感知网络中的路由攻击行为的优势。仿真结果表明，评估产生的威胁警报和节点攻击概率不仅能够检测MANET网络中外部非法节点的路由攻击，而且能够感知网络内部具有合法身份节点的路由攻击行为，有效提高了MANET网络系统的安全性。

关键词　计算机应用,MANET, 邻接信任, 路由攻击, 量化评估, 内部威胁

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Adjoining trust based routing security assessment

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Abstract To solve the problem of routing attacks, the concept of adjoining trust is presented. The adjoining trust is used to effectively inhibit deceptions from middle nodes when transferring routing information. An adjoining trust assessment model is also constructed based on this concept. A mathematical description of this model and a mobile agent based implementation are given. Using this model, a greed algorithm is designed to quantitatively assess the security of the MANET and to sense attacks at the same time. Compared with other algorithms, the greed algorithm has the advantage of high sensitivity to routing attacks. Simulation results show that the proposed assessment scheme can not only detect the attacks by illegal outsiders but also sense the attacks by legal authorized insiders. Therefore, the proposed assessment scheme effectively improves the security of the MANET system.

Key words　computer application　MANET　adjoining trust　routing attacks　quantitative assessment　insider threa

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