Active Black Holes Detection in Ad-Hoc Wireless Networks

王俊鑫, 李泱瑭
Computer Science & Information Engineering
Computer Science and Informatics
chwang@chu.edu.tw

Abstract

In mobile ad-hoc networks (MANET), network security problems emerge in an endless stream. For example, malicious nodes may become immediate nodes of routing paths first by replying spoof routing information. Then data packets might be stolen, modified, and even dropped by malicious nodes. These kinds of behavior interfere or interrupt communication between nodes, wasting unnecessary bandwidth resource. In the literature, there exists many works on solving malicious nodes problems in MANET. Most of proposed solutions need to modify original routing protocols or add new protocols. It's hard to be practicable for real-world deployment. In this paper, we proposed a new method to detect malicious nodes actively. Without modifying or adding routing protocols, only few pairs of detection nodes are needed, which can identify and isolate malicious nodes. In our simulation, the results show that packets delivery rate can be improved 17% by one pair of detection nodes and the average extra overhead of each node is only increased by 0.1 KB/s.