

DISTINCT PATH ROUTING FOR SAFE DATA TRANSFER IN WIRELESS SENSOR NETWORKS

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ABSTRACT

Distinct-path routing establishes distinct paths between a source and destination node in a network. In order to achieve efficient, secure and reliable distinct-path routing for Wireless sensor networks, we propose a routing mechanism that uses multi route strategies for secure data transfer from node to node in Distributed Environment. The cross-layer strategy involves incorporating feedback and information from layers below the network layer to make decisions at the network layer. We also propose a path evaluation mechanism for the paths returned by the proposed multi-path routing mechanism. Compromised node and denial of service are two key attacks in wireless sensor networks (WSNs). In this paper, we study data delivery mechanisms that can with high probability circumvent black holes formed by these attacks. We argue that classic multipath routing approaches are vulnerable to such attacks, mainly due to their deterministic nature. So once the adversary acquires the routing algorithm, it can compute the same routes known to the source, hence, making all information sent over these routes vulnerable to its attacks. In this paper, we develop mechanisms that generate randomized distinct routes. So even if the routing algorithm becomes known to the adversary, the adversary still cannot pinpoint the routes traversed by each packet. Besides randomness, the generated routes are also highly dispersive and energy efficient, making them quite capable of circumventing black holes.

KEYWORDS: Routing, Sensor Networks, Denial of Service and Secured Data Collection



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