

基于分簇的无线传感器网络克隆攻击检测方案

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基金项目：国家自然科学基金

摘要：

针对无线传感器网络面临的节点克隆攻击，提出了一种基于分簇的检测方案。该方案给网络中的消息都标记上其源节点的ID，在成簇阶段依据节点ID和RSSI值由簇头判断各个簇内是否存在克隆节点，待全部节点的ID汇聚至基站后，利用分簇算法中各个簇是不相交的子集这一特点，在基站处检测是否存在同一个ID属于多个簇的异常情况。仿真实验表明，该方案不但有较高的检测率，还能降低网络的存储和通信开销。

关键词：无线传感器网络；分簇算法；节点克隆攻击；攻击检测

A detection scheme of clone attack based on clustering in wireless sensor networks

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Abstract:

Since wireless sensor networks facing with node clone attacks, a detection scheme based on clustering is proposed. All the messages are marked on the source node's ID in the scheme, the cluster-heads judge whether there is cloned node in each cluster according to nodes' ID and RSSI in clustering phase, and then all nodes' ID are delivered to the sink node. The sink node detect whether there are abnormalities, namely the same ID belongs to multiple clusters by the fact that each cluster is a disjoint subset in clustering algorithm. Simulation results show that the proposed scheme not only has higher detection rate, but also reduces the storage and communication costs of network.

Keywords: wireless sensor networks; clustering algorithm; node clone attack; attack detection

投稿时间：2013-11-20

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