

Abstract

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Chord-Enabled Key Storage and Lookup Scheme for Mobile Agent-Based Hierarchical WSN

It has been greatly acknowledged the emergence of the wireless sensor network (WSN) in many applications such as military, environmental and health applications. However, mobile agents have provided flexibility and customizability to overcome some of the WSN constraints such as limitation in power, computational capacities and memory through agent migration from node to node. Security is a crucial concern when it comes to mobile agents, due to threats from malicious hosts and other mobile agents, where the use of symmetric and asymmetric keys has been adopted to provide authentication and confidentiality. The use of asymmetric keys is nowadays feasible due to advances in WSN hardware. In this paper, Chord (A scalable peer to peer lookup service) is used for storing and looking up public keys in a clustered mobile agent WSN to protect sensor nodes from malicious agents. Cluster heads act as a distributed key storage and lookup facility forming a ring overlay network. Performance evaluation results through network simulation show that the proposed scheme provides efficiency and scalability in terms of key storage and lookup.