

基于虚拟Steiner树的无线传感器网络组播随机路由协议研究

作者: 王建萍 贾东耀 周贤伟

单位: 北京科技大学信息工程学院通信工程系, 北京 100083

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摘要:

针对基于树的组播路由协议中组播树鲁棒性不好, 扩展能力差的特点, 又结合无线传感器网络自身能量、计算、存储能力有限的特点, 提出了基于虚拟Steiner树的组播随机路由协议VMRRP (Virtual-steiner-tree-based Multicast Random Routing Protocol)。该协议的随机路由思想, 使得组播树中源节点到各个组成员节点的路径是动态变化的, 与GMP (Geographic Multicast Routing) 协议相比, 增加了组播树的鲁棒性, 也均衡了网络能量, 增加了网络生命周期, 并通过NS-2仿真试验得到了验证。

关键词: 无线传感器网络; 虚拟Steiner树; 组播树; 随机路由

Research on Virtual-Steiner-tree-Based Multicast Routing of Wireless Sensor Networks

Author's Name: WANG Jian-ping, JIA Dong-yao, ZHOU Xian-wei

Institution: School of Information Engineering, University of Science and Technology Beijing, Beijing 100083, China

Abstract:

Tree-based multicast routing protocol usually has a less robust and expansible multicast-tree, for this reason, we propose a Virtual-steiner-tree-based Multicast Random Routing Protocol (VMRRP) in this paper, concerning a limited energy, computing and storage power environment in wireless sensor networks. The thought of random routing proposed in this protocol makes the route from source to each destination a dynamic one. When comparing to GMP, it equilibrates the energy consumption and make the network's life span much longer, which is verified by simulation with NS-2.

Keywords: Wireless sensor network; Virtual steiner tree; Multicast tree; Random routing.

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