机会网络数据收集中的转发控制

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基金项目：国家自然科学基金资助项目

摘　要：

针对机会网络（opportunistic networks）中由于节点移动、网络稀疏等各种原因通常导致网络拓扑动态变化大，消息源节点到汇聚节点之间往往不存在稳定的端到端的通信链路，提出了一种基于偏好顺序决策法（the Technique for Order Preference by Similarity to Ideal Solution, TOPSIS）的数据收集策略（data gathering based on the TOPSIS, DGT）。DGT根据节点的剩余能量属性、传感器节点到汇聚节点的距离属性以及传感器节点的连通变化属性，采用TOPSIS评估选择下一跳中继节点。仿真实验表明，与现有的几种典型转发控制相比，DGT在保证较低传输延迟和较高传输成功率的基础上，通过减少节点间的转发次数，降低了网络传输开销。

关键词：机会网络，转发控制，偏好顺序，连通变化

Forwarding control algorithm for opportunistic networks data gathering

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Abstract:

For the network topology dynamically changes and no existence of a stable path between the source node and sink node for most of the time due to nodal mobility, low density, etc. in the opportunity networks, a forwarding control scheme based on the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) for opportunistic networks data gathering (DGT) was proposed. Integrating nodal remaining energy, distance between the sensor node and sink node and connectivity change of the sensor node, DGT selected the next hop relay node by the result of the TOPSIS evaluation. The simulation results show that, in ensuring lower transmission delay and higher transmission success rate, DGT reduced the network load and the energy consumption in the process of data transmission.

Keywords: opportunistic networks，forwarding control，order preference，connectivity change

投稿时间：**2011-06-22**

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