基于自适应时间调整的机会网络可靠休眠调度算法

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摘 要: 针对现有采用周期性唤醒机制的机会网络休眠算法中节点进入休眠状态会导致消息发送或接收中断,从而降低数据传送成功率的问题,提出了一种更可靠的基于自适应时间调整的休眠调度算法—RSATA(Reliable sleep Scheduling base on Adaptive Time Adjustment). RSATA 结合 RSSI 测距机制和消息跨层通告机制,通过分析节点接触过程滤除节点不能够发送数据的相遇机会,然后对唤醒时间和休眠时间进行动态调整,避免消息收发被休眠中断. 仿真结果显示:与 AWS 算法和 ETAWS 算法相比,RSATA 算法不仅提高了消息投递率,而且降低了消息发送次数、发送中断率和节点能耗.

关键词: 机会网络;算法;休眠调度;可靠;时间调整
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A Reliable Sleep Scheduling Algorithm for Opportunistic Networks Based on Adaptive Time Adjustment

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Abstract: To solve this problem that the nodes send or receive a message is interrupted when enter a sleep state which reduces the data delivery success rate in existing sleep algorithms based on the periodic wake mechanism for opportunistic networks, a more Reliable sleep Scheduling algorithm base on Adaptive Time Adjustment (RSATA) is proposed. Combining RSSI ranging mechanism and message cross-layer notification mechanism, RSATA analyzes the contact process between the nodes to exclude the encounter chance node can not send data and then dynamically adjusts the wake time and sleep time. So RSATA algorithm avoids message sending and receiving interrupted by sleep. Simulation results show that, compared with AWS algorithm and ETAWS algorithm, RSATA algorithm not only improves the message delivery rate, but also reduces the number of messages sent, sending interrupt rate and nodes' energy consumption.

Key words: opportunistic network; algorithm; sleep scheduling; reliable; time adjustment

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