计算机工程与应用 2010 46 (8): 92-95 ISSN: 1002-8331 CN: 11-2127/TP

网络、通信、安全

使用新判据的改进型DSR协议

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收稿日期 2008-9-9 修回日期 2008-11-20 网络版发布日期 2010-3-11 接受日期

摘要 传统的无线Mesh网络路由协议都集中于寻找具有最小跳数的路径，但是，这样的路径可能会包含高损耗的链路，从而导致网络吞吐量的大幅度降低。因此，新的路由算法通过进一步考虑链路质量来选择更好的路由。首先，为方便新的路由判据的使用，局部优化了传统的DSR协议为改进的DSR协议。然后，为实现路径链路质量最优与最小跳数之间的均衡，提出一种新的路由判据O-WCETT，将其与WCETT（累计期望传输时间）、HOP（最小跳数）分别应用于改进后的DSR（动态源路由）协议中，采用NS2仿真软件对其性能进行评估。仿真结果表明，在相同的无线传输和网络规模条件下，使用新路由判据O-WCETT的改进型DSR协议使得网络的分组投递率性能更高，端到端平均时延和路由开销都明显减小，并且随着节点移动速度的加快，使用新判据的DSR协议带来的网络性能改善更为显著。

关键词 无线Mesh 动态源路由协议 路由判据 累计期望传输时间 最小跳数

分类号 TN915.04

Improved dynamic source routing protocol using new routing metric

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Abstract

Routing protocols for Wireless Mesh Network have traditionally focused on finding path with minimum hop count.However，such path may include slow or lossy links，leading to poor throughput.A new routing algorithm can select better path by taking the quality of the wireless links into account.Firstly，for the usage of new route metric，this paper puts forward an improved DSR protocol after constrained optimization of traditional DSR protocol.Then，to make balance between the optimization of link quality and the minimum hop count，this paper brings forward a new routing metric named O-WCETT，and applies it into the improved DSR protocol.At last，this paper studies three metrics O-WCETT，WCETT and HOP using the improved DSR-based routing protocol running in NS-2.After comparing these three routing metrics，the conclusion is that the new metric O-WCETT can result in better performance than the WCETT metric and the HOP metric in the identical environment.It makes the network higher packet delivery fraction，smaller average end-to-end delay and fewer route overhead packets.Moreover，the improved DSR protocol using new metric O-WCETT can bring more significant improvement to the network as nodes in the network move faster.

Key words wireless mesh Dynamic Source Routing（DSR） protocol routing metric Weighted Cumulative Expected Transmission Time（WCETT） hop count

DOI: 10.3778/j.issn.1002-8331.2010.08.026

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