

网络、通信、安全

## 考虑分群结构稳定性的自组网无中心分群算法

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收稿日期 2009-1-21 修回日期 2009-6-25 网络版发布日期 2010-1-7 接受日期

**摘要** 为了降低路由维护开销, 使无中心分群结构很好地适用于大规模自组网, 最首要的任务是使分群结构尽量稳定。现有无中心分群算法尚未考虑上述问题, 因此, 提出一种考虑分群结构稳定性的无中心分群算法及群维护策略。该算法基于移动预测思想, 综合考虑群内结构稳定性、群间结构稳定性和分群结构优化。对算法的性能和复杂度分别进行了分析, 仿真结果表明: 该算法比现有算法更有利于分群结构的稳定, 降低了分群维护开销, 进而降低路由维护开销。

**关键词** [自组网](#) [分群算法](#) [无中心分群算法](#) [移动预测](#) [稳定性](#)

**分类号** [TP393](#)

## Centerless clustering algorithm for ad hoc networks considering on cluster structure's stability

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### Abstract

To reduce routing maintenance overheads and further make the centerless cluster structure adapted to large MANETs nicely, the first important task is to stabilize the cluster structure as much as possible. The current centerless clustering algorithms haven't considered the issue mentioned above. Therefore, a centerless clustering algorithm considering cluster structure's stability is proposed, and cluster maintenance scheme is proposed too. Based on mobility prediction idea, the algorithm gives a comprehensive consideration on intracluster structure's stability, intercluster structure's stability and cluster structure's optimization. The performance and complexity of the algorithm are analyzed separately. The simulation results show that: The algorithm is more favorable to cluster structure's stability than a current algorithm, and it reduces the cluster maintenance overheads, which will reduce the routing maintenance overheads.

**Key words** [ad hoc networks](#) [clustering algorithm](#) [centerless clustering algorithm](#) [mobility prediction](#) [stability](#)

DOI: 10.3778/j.issn.1002-8331.2010.01.022

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