Abstract

Routing protocol is a challenging issue in ad hoc networks. It has been studied thoroughly these years. However, most routing protocols in ad hoc network do not consider the problem of load balance. In this paper, we present an effective scheme to balance the load in ad hoc network. Ad-hoc on demand multipath distance vector (AOMDV) selects a path with a lower hop count and discards routes with higher hop count. The new scheme can be applied in most on-demand routing protocols. It is implemented in the process of route request. When route request (RREQ) messages are flooded to acquire routes, only the qualified nodes, which have a potential to serve as intermediate forwarding nodes, will respond to these messages, so that the established path will not be very congested, and the traffic will be distributed evenly in the network. In this scheme, a threshold value, which is used to judge if the intermediate node is overloaded, is variable and changing along with the nodes’ interface queue occupancy around the backward path. Therefore, we call it an adaptive load-balancing approach. We apply this scheme in Ad-hoc On-demand Multipath Distance Vector (AOMDV) and simulation results show that the network load is balanced on the whole, and the performance of routing overhead and
average end-to-end delay is also improved.

Reference

- An adaptive load-balancing approach for ad hoc networks by Y.H.Yuan,Chen Hui-min, Jia, School of Communication & Information Engineering, Shanghai university
Index Terms

Computer Science

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Key words

Routing Protocol

AODV

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load balancing

Queue Length