An Efficient Active Load-Balancing Approach with Power Consideration for Mobile Ad Hoc Networks

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ABSTRACT

Ad hoc wireless networks are organized by a collection of wireless devices. In this network, each mobile can move arbitrarily and communication with others. The most important characteristic of ad hoc networks is the communication among mobile host can be accomplished via the interchanging messages for nearby mobile hosts, without the need for any existing network infrastructure or administration. Thus, the ad hoc networks are especially important and useful in the region without base station supporting, such as in conferences, battle-field, and disaster area. Due to the mobility, the limitations of the resources such as powers become an important topic. The issues related to power consumption include the network survivability, the data error rate, and the performance. DSR（Dynamic Source Routing） is a well-known routing protocol for mobile ad hoc networks. According to the philosophy of DSR, the routing path will not change during data transmission until a link failure occurs. This characteristic is against network survivability. To extend the network survivability and reliability transmission, we propose an efficient active load-balancing approach, which is named ALB_ESDSR （Active Load-Balance Enhanced DSR）, with power consideration for mobile ad hoc networks. The simulation results show that ALB_ESDSR yield significant improvements in terms of throughput, load-balancing, and power consumption.

Keywords : DSR, ad hoc wireless networks, power, load-balancing, routing protocol

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