An adaptive reliable multicast protocol in ad hoc networks

ABSTRACT

Multicasting is an essential service for ad-hoc wireless networks. In multicast communication, many reliable multicast schemes were studied in order to overcome packet losses in the network. This paper describes our effort to build a Source Tree Reliable Multicast protocol for ad-hoc networks (STRM). STRM provides the delivery of an ordered contiguous sequence of data packets from one sender to many receivers in an ad-hoc network. It is designed to support applications based on bulk data transfer, like files, images and software packages. The core to its support of node mobility, and also what makes the protocol unique, is the dynamic selection of a sub set of 1-hop neighbors from the sender as its Forward Servers (FSs). The key idea behind selecting this sub set 1-hop neighbors is to forward the retransmit lost data packets that needed by some receivers to achieve higher throughput and to receive the ACK packet from receivers to avoid the ACK-implosion problem inherent in any reliable multicast scheme. Finally, simulation results show that the protocol has high delivery ratio and low end-to-end delay comparing with ReMHoc protocol.

Keyword: Ad hoc network; Forward server; Reliable multicast