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Han, Ingu; Rim, Kee-Wook; Lee, Jung-Hyun

BSART (Broadcasting with selected acknowledgements and repeat transmissions) for reliable and low-cost broadcasting in the mobile ad-hoc network.

Lee, Sunggu (ed.) et al., Software technologies for embedded and ubiquitous systems. 7th IFIP WG 10.2 international workshop, SEUS 2009, Newport Beach, CA, USA, November 16–18, 2009. Proceedings. Berlin: Springer (ISBN 978-3-642-10264-6/pbk). Lecture Notes in Computer Science 5860, 103-113 (2009).

Summary: In this paper, we suggest enhanced broadcasting method, named 'BSART (Broadcasting with Selected Acknowledgement and Repeat Transmissions)' which reduces broadcast storm and ACK implosion on the mobile adhoc network with switched beam antenna elements that can enable bidirectional communication. To reduce broadcast storm, we uses DPDP (Directional Partial Dominant Pruning) method, too. To control ACK implosion problem rising on reliable transmission based on ACK, in case of the number of nodes that required message reception is more than throughput, each nodes retransmit messages constant times without ACK which considering message transmission success probability through related antenna elements (R-method). Otherwise, the number of message reception nodes is less than throughput, each node verify message reception with ACK with these antenna elements (A-method). In this paper, we suggest mixed R-/A-method. This method not only can control the number of message transmitting nodes, can manage the number of ACK for each antenna elements. By simulations, we proved that our method provides higher transmission rate than legacy system, reduces broadcast messages and ACKs.

Keywords: selected broadcasting; mobile ad-hoc network; node selection
doi:10.1007/978-3-642-10265-3_10