



PERFORMANCE EVALUATION OF EFFICIENT AND RELIABLE ROUTING PROTOCOL ALGORITHM

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Abstract- Fixed-power wireless sensor networks are prevalent and cost-effective. However, they face mote failures, RF interference from environmental noise and energy constraints. Routing protocols for such networks must overcome these problems to achieve reliability, energy efficiency and scalability in message delivery. Achievement of these requirements, however, poses conflicting demands. In this work, we propose an efficient and reliable routing protocol (EAR) that achieves reliable and scalable performance with minimal compromise of energy efficiency. The routing design of EAR is based on four parameters expected path length and a weighted combination of distance traversed, energy levels and link transmission success history, to dynamically determine and maintain the best routes. Simulation experiments of EAR with four existing protocols demonstrate that a design based on a combination of routing parameters exhibits collectively better performance than protocols based on just hop-count and energy or those using flooding.

Index terms: Efficient And Reliable routing protocol (EAR), Route Request (RREQ), Route Reply (RREP) packet, Network Animator(NAM).