Abstract

In this paper, we consider the problem of reliable communication, the packet-loss prevention and packet-loss recreation recovery techniques are widely used and have many practical challenges. Hence, we propose a Reliable Adaptive Replication Routing (RARR) Algorithm, here the packet loss replication is accomplished in several hops and End-to-End (E2E) reliability is improved compared to conventional single E2E paths. RARR algorithm is comprised of a link capacity estimator, random disseminator and a replicator. The protocol employs an adaptive neighbor knowledge scheme which differentiates the density of nodes in the deployed scenario and hence reduces the overheads compared to the existing Proliferation Routing scheme. Simulation results demonstrate the effectiveness of this scheme and show that the proposed protocol is a feasible solution to increase the service quality (i.e., E2E transmission success rate, energy efficiency) compared with the well-known routing techniques. The proposed protocol is scalable and practical, and it dynamically adapts to the network topology.
Reliable Adaptive Replication Routing for Wireless Sensor Networks

- S. Chachulski, M. Jennings, S. Katti, and D. Katabi, "Trading Structure for

Index Terms

Computer Science
Networks

Keywords
Reliability
Packet Reception Ratio (PRR)
End-to-End success rate
Energy Efficiency
Node Density
Service Quality
Wireless Sensor Networks (WSNs)