SMART REACH
(S/W CREATORS & TRAINERS)
Ph: 9585554590, 9585554599
Email: support@salemsmartreach.com
URL: www.salemsmartreach.com

Throughput Optimization in Wireless Networks Under Stability and Packet Loss Constraints

Abstract:

The problem of throughput optimization in decentralized wireless networks with spatial randomness under queue stability and packet loss constraints is investigated in this paper. Two key performance measures are analyzed, namely the effective link throughput and the network spatial throughput. Specifically, the tuple of medium access probability, coding rate, and maximum number of retransmissions that maximize each throughput metric is analytically derived for a class of Poisson networks, in which packets arrive at the transmitters following a geometrical distribution. Necessary conditions so that the effective link throughput and the network spatial throughput are stable and achievable under bounded packet loss are determined, as well as upper bounds for both cases by considering the unconstrained optimization problem. Our results show in which system configuration stable achievable throughput can be obtained as a function of the network density and the arrival rate. They also evince conditions for which the per-link throughput-maximizing operating points coincide or not with the aggregate network throughput-maximizing operating regime.

450/526, Trichy Main Road, Near Sri Sakthi Kaliamman Temple, Dadhagapatti Gate, Salem-636 006, Tamil Nadu, India.