

# SRAD: A Novel Approach to Seamless Routing for Wireless Ad Hoc Networks

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**Abstract**— In this paper, a novel multiroute approach called seamless routing for wireless ad hoc networks (SRAD) is proposed. The SRAD approach establishes two disjoint routes between each connection pair in the network. As a result, a full wireless mesh network is established among the mobile nodes. Consequently, the destination node receives two redundant frame copies from each sent frame, each one via a disjoint route. The destination node consumes the fastest copy that reaches it and then deletes the subsequent copy delivered via the second route. Eventually, each node achieves a zero-recovery time in the event that one of these established routes fails because it will be able to receive any lost frame copies via the other route without interruption. In the SRAD approach, route choice depends on selecting the lowest BER values for the discovered routes between each node pair. These routes are also disjoint to provide seamless redundancy. This selection strategy has the advantage of reducing the number of received error-frames—which, consequently, reduces the retransmission process—therefore, the received frames have a high quality unlike in other approaches.

**Keywords**— wireless communication, bit error rate, ad hoc networks, SRAD, Ethernet



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