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CRAL: A Centrality-Based and Energy Efficient Collection Protocol for Low Power and Lossy Networks

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Bruno Pereira Santos ; Luiz Filipe Menezes Vieira ; Marcos Augusto Menezes Vieira   **All Authors**

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Abstract: High throughput and energy are two important constraints of the Wireless Sensor Networks (WSNs). In this paper, we present the Centrality-based Routing Aware for L2Ns (CR... **View more**

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Abstract:
High throughput and energy are two important constraints of the Wireless Sensor Networks (WSNs). In this paper, we present the Centrality-based Routing Aware for L2Ns (CRAL)1-Low Drop and Fast Delivery to mitigate these problems. The routing protocols are centrality-based and employ link quality estimators Expected Transmission Count (ETX) and Expected Transmission Time (ETT) to find best paths in wireless links. The suitable combinations of these techniques lead the algorithms to improve the literature results in delivery rate, energy consumption, and time to delivery data packets. CRAL does this by building routing trees with high throughput and maintains low energy consumption. The simulation results show that CRAL is more reliable, efficient in energy consumption, robust, and favoring data fusion than Centrality Tree (CT) and Shortest Paths Tree (SPT).

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I. Introdução

Eventos em sistemas computacionais são entidades de programação que representam um acontecimento do mundo real ou não [1]. Como exemplo de sistema de processamento de eventos destacam-se as Redes de Sensores Sem Fios (RSSFs), as quais têm por finalidade coletar, analisar e reagir adequadamente aos eventos. As fases de coleta e análise dos eventos apresentam vários desafios como criar rotas, reduzir o tempo de transmissão e agregar dados, entre outros [2], [1]. Na fase de coleta, questões pertinentes são: como criar uma estrutura de roteamento? Quais são os modelos mais apropriados para as características da rede sem fib? Já na fase de análise como aplicar técnicas de fusão de dados, mineração de dados, aprendizado de máquinas dentre outras para que as RSSF sejam eficientes e poupem recursos?

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