

Optimizing Telehealth Internet of Things Integration: A Sustainable Approach through Fog and Cloud Computing Platforms for Energy Efficiency

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Abstract : The swift proliferation of telehealth Internet of Things (IoT) devices has sparked concerns regarding energy consumption and the need for streamlined data processing. This paper presents an energy-efficient model that integrates telehealth IoT devices into a platform based on fog and cloud computing. This integrated system provides a sustainable and robust solution to address the challenges. Our model strategically utilizes fog computing as a localized data processing layer and leverages cloud computing for resource-intensive tasks, resulting in a significant reduction in overall energy consumption. The incorporation of adaptive energy-saving strategies further enhances the efficiency of our approach. Simulation analysis validates the effectiveness of our model in improving energy efficiency for telehealth IoT systems, particularly when integrated with localized fog nodes and both private and public cloud infrastructures. Subsequent research endeavors will concentrate on refining the energy-saving model, exploring additional functional enhancements, and assessing its broader applicability across various healthcare and industry sectors.

Keywords : energy-efficient, fog computing, IoT, telehealth

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