An Energy-Efficient Model of Integrating Telehealth IoT Devices with Fog and Cloud Computing-Based Platform

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Abstract : The rapid growth of telehealth Internet of Things (IoT) devices has raised concerns about energy consumption and efficient data processing. This paper introduces an energy-efficient model that integrates telehealth IoT devices with a fog and cloud computing-based platform, offering a sustainable and robust solution to overcome these challenges. Our model employs fog computing as a localized data processing layer while leveraging cloud computing for resource-intensive tasks, significantly reducing energy consumption. We incorporate adaptive energy-saving strategies. Simulation analysis validates our approach's effectiveness in enhancing energy efficiency for telehealth IoT systems integrated with localized fog nodes and both private and public cloud infrastructures. Future research will focus on further optimization of the energy-saving model, exploring additional functional enhancements, and assessing its broader applicability in other healthcare and industry sectors.

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