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Patent Search

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Abstract:

The present invention provides a system and method for the seamless integration of Internet of Things (IoT) devices with 5G networks, addressing the challenges of connectivity, data management, and security. The system includes an IoT gateway for device management and data aggregation, a 5G core network interface for connectivity and data routing, an edge computing layer for local data processing and real-time analytics, and a network slicing module for optimizing virtual networks based on application needs. Additionally, the invention features a robust security framework incorporating end-to-end encryption, secure device authentication, and real-time anomaly detection. This integrated approach ensures efficient, reliable, and secure operation of IoT applications within the 5G ecosystem, enabling advanced functionalities and improved performance across various industries. Accompanied Drawing [FIGS. 1-2]

Complete Specification

Description:[001] The present invention pertains to the field of telecommunications, specifically focusing on the integration of Internet of Things (IoT) devices with next-generation 5G networks. The invention addresses the challenges associated with connecting a vast number of IoT devices to a network infrastructure that is capable of supporting high data rates, low latency, and massive device connectivity, all of which are essential for the efficient functioning of IoT applications.

[002] As IoT continues to expand across various industries, from smart homes and cities to industrial automation and healthcare, the demand for a robust and scalable network infrastructure has become increasingly critical. Traditional network technologies, such as 4G LTE, struggle to meet the growing demands of IoT due to limitations in bandwidth, latency, and device management capabilities. The advent of 5G technology, with its enhanced features and capabilities, presents an opportunity to overcome these limitations and enable the widespread deployment of IoT applications.

[003] This invention, therefore, lies at the intersection of IoT and 5G technologies, providing a comprehensive solution that leverages the strengths of 5G networks to enhance the connectivity, performance, and security of IoT devices. By integrating IoT with 5G, the invention aims to support a wide range of applications that require reliable, real-time data exchange, thereby enabling the development of smarter, more efficient systems across various domains.

BACKGROUND OF THE INVENTION

[004] The Internet of Things (IoT) has emerged as a transformative technology, enabling the connection of billions of devices to the internet, allowing them to communicate, exchange data, and perform tasks autonomously. These devices range from simple sensors and actuators to complex systems like smart appliances, industrial machines, and autonomous vehicles. IoT has the potential to revolutionize industries such as healthcare, manufacturing, agriculture, transportation, and energy by enhancing efficiency, reducing costs, and enabling new business models.

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