Edge Computing for Internet of Things

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Abstract. This paper investigates the role of edge computing in enhancing the efficiency of Internet of Things (IoT) ecosystems. By processing data closer to the source, edge computing reduces latency and bandwidth usage, enabling real-time data analysis and decision-making. The study addresses the architectural frameworks necessary for implementing edge computing solutions and evaluates their performance in various IoT applications, from smart cities to healthcare systems. The findings demonstrate that edge computing is pivotal in managing the massive data streams generated by IoT devices, offering a scalable and efficient alternative to traditional cloud-based solutions.

Keywords: internet, edge, iot, computing, efficiency

Introduction: The proliferation of Internet of Things (IoT) devices has led to an exponential increase in data generation, posing significant challenges for data processing and management. Traditional cloud computing infrastructures are becoming inadequate due to high latency, bandwidth constraints, and privacy concerns. In response, edge computing emerges as a promising solution by bringing computation and data storage closer to the data source. This paper explores the transformative impact of edge computing on IoT ecosystems, emphasizing its potential to enhance processing efficiency and reduce latency. We provide a comprehensive analysis of current edge computing frameworks, highlighting case studies across various sectors, including healthcare, agriculture, and urban development.

References

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