

## **REAL TIME DATA PROCESSING WITH AZURE EVENT HUB AND STREAMING ANALYTICS**

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### **ABSTRACT**

*In the era of big data, real-time data processing has emerged as a critical capability for businesses seeking to derive immediate insights and drive informed decision-making. This paper explores the integration of Azure Event Hub and Azure Stream Analytics as a robust framework for real-time data processing. Azure Event Hub serves as a scalable data ingestion service, enabling organizations to seamlessly collect large volumes of streaming data from diverse sources, including IoT devices and applications. Coupled with Azure Stream Analytics, it empowers users to analyze this data on-the-fly, applying complex event processing and real-time analytics to generate actionable insights.*

*The study highlights the architecture and operational workflow of this integrated solution, emphasizing its ability to handle high throughput while ensuring low latency. By leveraging these Azure services, businesses can respond swiftly to changing conditions, improve operational efficiency, and enhance customer experiences. Additionally, the paper discusses practical use cases across various industries, illustrating how organizations can harness real-time analytics for predictive maintenance, fraud detection, and personalized marketing.*

*The findings underscore the transformative potential of Azure Event Hub and Streaming Analytics in enabling businesses to transition from batch processing to real-time data insights, ultimately fostering a more agile and responsive organizational culture. This research contributes to the ongoing discourse on cloud-based solutions for data processing, paving the way for further innovations in real-time analytics.*

**KEYWORDS:** *Real-Time Data Processing, Azure Event Hub, Azure Stream Analytics, Big Data, Data Ingestion, Streaming Data, Complex Event Processing, Predictive Analytics, Operational Efficiency, Cloud-Based Solutions.*

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