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Overview of Communication Mechanisms Adopted in Modern Systems

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Abstract—In modern software systems, efficient communication is essential for ensuring scalability, maintainability, and performance. The aim of this article is to review key communication mechanisms used in modern systems. A multi-stage selection process was conducted to identify the most relevant scientific articles, summarize research findings, and determine which methods perform best in specific contexts. The search was carried out using selected electronic databases of scientific publications. Research indicates that REST is widely used and performs well, GraphQL is effective for retrieving large datasets, and gRPC enables fast data transfers. Additionally, Kafka, MQTT, and AMQP are the most suitable protocols for handling messaging in high-load distributed systems. The study emphasizes that choosing the right communication method is crucial and should consider specific system requirements such as data volume, speed, security, and the type of operations involved.
Index Terms—REST, SOAP, GraphQL, gRPC, AMQP, MQTT, Kafka, comparative overview

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