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NoSQL databases
for big data

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1 Abstract

Many challenges encountered while dealing with particular specific applications, such as the storing of very large datasets, have led to the development of NoSQL solutions. Traditional RDMS, on the other hand, ensure data integrity and transaction consistency. However, this comes at the expense of a tight storage architecture and difficult management. Data consistency and integrity are necessary in many circumstances, such as financial applications, however they are not always required. The purpose of this paper is to provide a detailed picture of NoSQL's evolution and mechanics, as well as the benefits and drawbacks of the most popular NoSQL data models and frameworks. To that end, a detailed comparison of SQL and NoSQL databases is offered first. Scalability, performance, consistency, security, analytical capabilities, and fault-tolerance techniques are all explored. Second, the four major types of NoSQL databases: key-value stores, document databases, column-oriented databases, and graph databases are defined and compared. Third, we compare the key technical solutions for each NoSQL data model.