Jatin Vaghela Publishes New Research Paper on NoSQL Database Performance in Big Data Analytics

NJ, UNITED STATES, October 22, 2024 /EINPresswire.com/ -- Data Warehousing Consultant and Database Administrator Jatin Vaghela has published a [seminal research paper](#) titled "A Comparative Study of NoSQL Database Performance in Big Data Analytics" in the International Journal of Open Publication and Exploration (Vol. 5 No. 2, July-December 2017). This thorough study offers a detailed comparison of the top NoSQL databases, providing insightful information for businesses negotiating the challenges of big data analytics and administration.

Goal of the Study
1. Performance Evaluation: Evaluation of important performance indicators like fault tolerance, scalability, query response time, and read and write throughput.
2. Regulated Experimental Setting: Constructing a simulation of actual situations to guarantee an impartial and equitable comparison.
3. Analytical Tool Integration: Analyzing how simple it is to integrate with well-known Big Data analytics frameworks such as Apache Spark and Hadoop.
4. Data Structures Handling: Examining how well each database can handle the many and intricate data structures that come with big data.

Key Findings
1. MongoDB: Demonstrated strong performance in handling unstructured data with high write throughput but showed limitations in complex query response times under heavy workloads.
2. Cassandra: Excelled in scalability and fault tolerance, making it ideal for distributed systems requiring high availability.

3. Couchbase: Offered a balanced performance with high read and write throughput suitable for low-latency environments but required resource optimization under heavy loads.
4. Redis: Provided exceptional query response times due to its in-memory data structure but faced challenges in scaling with extremely large datasets.

Implications for Organizations
Vaghela's research equips enterprises, data architects, and developers with empirical data to make informed decisions when selecting a NoSQL database tailored to their specific Big Data analytics needs.

By understanding each database's strengths and limitations in different scenarios, organizations can:
1. Optimize Data Management Strategies: Selecting the best database solution will increase the effectiveness of analytics pipelines.
2. Enhance Performance and Scalability: Take care of the performance snags and scalability issues that come with big data situations.
3. Promote Smooth Integration: Make use of Big Data framework compatibility to extract valuable insights from huge datasets.

The full study can be accessed at https://ijope.com/index.php/home/article/view/110.

About Jatin Vaghela
Database management systems and Big Data analytics are the areas of expertise for renowned researcher Jatin Vaghela. With a wealth of knowledge in data management and optimization, Vaghela's work focuses on solving important problems in the technology sector and helps create scalable and effective solutions for businesses all over the world.

Learn more about Jatin Vaghela at https://www.linkedin.com/in/jatin-vaghela-l7299/.

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