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Comparison of Open source and Proprietary Cloud Database

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ABSTRACT: For businesses of all sizes, data management is essential in the quickly developing field of cloud computing. Successful corporate operations and obtaining a competitive edge now depend on the efficient management, storing, and retrieval of data. The use of cloud database services has become more common because they provide several benefits over conventional on-premises databases. These cloud databases provide access from anywhere in the globe and are renowned for their scalability, dependability, and security. By offering scalable and affordable solutions, cloud database services have completely changed how data is stored and handled on the cloud. Two basic models Open Source and Proprietary solutions dominate the market for cloud database services. When choosing a model for their data architecture, organisations must carefully weigh the benefits and trade-offs that each one offers. Open-Source cloud database services have the advantage of being free to use and modify, giving users the opportunity to adapt the system to their own requirements. The usage of proprietary cloud database services, on the other hand, usually requires a licence and payment.

I. INTRODUCTION

In the rapidly evolving world of cloud computing, data management plays a pivotal role for organisations of all sizes. The seamless handling, storage, and retrieval of data have become crucial for achieving business success and gaining a competitive advantage. Cloud database services have emerged as a popular choice, offering numerous advantages over traditional on-premises databases. These cloud databases are known for their scalability, reliability, and security, enabling access from anywhere in the world [1].

Cloud database services have revolutionised the way data is stored and managed in the cloud, providing scalable and cost-effective solutions. In this landscape of cloud database services, two main models dominate the market: Open Source and Proprietary solutions. Each model presents distinct advantages and trade-offs, and organisations must carefully consider these factors when making decisions about their data infrastructure [2].

Open-Source cloud database services offer the benefit of being free to use and modify, providing users with the freedom to customise the system according to their specific needs. On the other hand, Proprietary cloud database services are typically licensed and require payment for their use.

In conclusion, as cloud computing continues to shape the digital landscape, organisations must carefully evaluate their data management needs and choose between Open Source and Proprietary cloud database services based on the advantages and trade-offs that align with their business objectives [3].

II. LITERATURE REVIEW

The comparison between open-source and proprietary software is the subject of investigation by the authors, who analysed 19 studies to provide a concise summary of their findings. The results suggest a prevailing belief among users that open-source software offers greater dependability, security, and scalability, whereas proprietary software is favoured for its user-friendly nature and seamless integration with other systems. These valuable insights contribute significantly to the ongoing debate on selecting between Open Source and Proprietary database systems, serving as a valuable resource for my thesis on the topic. [1]

Comparison of open source and proprietary Cloud Database Management Systems (CDBMSs). The authors meticulously analyse 14 studies that directly compare these two types of software, offering a concise summary of their findings. Notably, open source CDBMSs are frequently perceived as more dependable, scalable, and secure compared

to their proprietary counterparts. On the other hand, proprietary CDBMSs are often favoured for their user-friendly interfaces and seamless integration capabilities with other systems. These valuable insights contribute significantly to the ongoing discourse surrounding the choice between Open Source and Proprietary CDBMSs, presenting essential guidance for researchers, practitioners, and organisations seeking to make informed decisions in the realm of cloud computing and database management [2].

The research consistently suggests that open-source DBMSs are widely perceived as more reliable, scalable, and secure in comparison to their proprietary counterparts. Conversely, proprietary DBMSs are commonly recognised for their user-friendly interfaces and seamless integration capabilities with other systems. This insightful exploration of the studies contributes valuable knowledge to the ongoing debate surrounding the selection of DBMSs, offering essential guidance for professionals and organisations seeking the most suitable database solutions based on their specific needs and preferences [3].

Important data for academics, practitioners, and organisations looking to make knowledgeable choices about database selection and resource allocation by adding to the body of knowledge on the performance and cost analyses of Open Source and Proprietary databases [4].

The study adds to the current understanding of Open Source and Proprietary cloud databases, offering valuable insights for researchers, practitioners, and organisations aiming to utilise cloud-based database solutions [5].

In the context of Big Data, both Open Source and Private Cloud Databases provide useful information to aid in decision-making and the development of efficient Database Solutions for Big Data Environments [6].

Researches, professionals, and organisations interested in exploiting DBMS solutions for cloud-based settings will benefit greatly from the knowledge provided by the article on Open Source and Proprietary DBMS in the context of cloud computing [7].

In the context of online applications, open source and proprietary databases provide academics, practitioners, and organisations engaged in web development with useful information that helps them make judgements about the selection of an appropriate database system [8].

Open Source and Proprietary databases, providing valuable information to researchers, practitioners, and organisations interested in making informed decisions regarding the selection and implementation of database systems [9].

III. TECHNICAL SIGNIFICANCE

Scalability and Sharding

Significant progress has been achieved in scaling horizontally with Open-Source cloud databases. This advancement facilitates seamless expansion to accommodate the ever-growing data volumes and high-demand workloads. By utilising sharding techniques, these databases effectively distribute data across multiple servers, resulting in efficient data distribution and retrieval processes.

Distributed Database Architecture

Adopting distributed architectures is a hallmark of modern Open-Source cloud databases. This approach involves spreading data across multiple nodes or clusters, which brings several benefits. Notably, it ensures fault tolerance, high availability, and improved performance.

In-Memory Databases

In the realm of Open-Source cloud databases, certain options have introduced in-memory data storage, a feature that facilitates quicker access and processing of data. With in-memory databases, latency is significantly reduced, and the capabilities for real-time data analysis are notably enhanced.

Compatibility with SQL and NoSQL

A multitude of Open-Source cloud databases currently offer compatibility with both SQL and NoSQL data models, granting users the flexibility to select the most appropriate data representation for their applications.



Real-Time Analytics and Machine Learning Integration

Built-in support for real-time analytics and seamless integration with machine learning capabilities are now provided by certain Open-Source cloud databases. This empowering combination facilitates data-driven decision-making and enables advanced data analysis to thrive.

Feature	Opensource cloud database	Proprietary cloud database
Cost	Usually free or low-cost	Can be more expensive
Flexibility	More flexible, as you can customize the software to your specific needs	Less flexible, as you are limited to the features that the vendor provides
Security	Can be as secure as proprietary software, if properly configured	Can be more secure, as the vendor is responsible for security updates and patches
Support	Usually community-supported	Vendor-supported, which can be more reliable and timelier
Community	Large and active communities for most open-source databases	Smaller communities for proprietary databases
Documentation	Usually, good documentation for open-source databases	Can be less comprehensive documentation for proprietary databases

IV. CONCLUSION

In the quickly developing world of cloud computing, a comparison between Open Source and Proprietary cloud database services is an important factor to consider. Cloud database services have revolutionised data management, accessibility, and storage while providing scalable and affordable solutions to businesses of all sizes.

Open-Source cloud databases have the benefit of being free to use and alter, allowing customisation in accordance with requirements. They have a sizeable user base and a wealth of support and development tools. Open-Source database management, however, can be trickier and necessitate expertise with the source code.

On the other side, proprietary cloud databases may come with extra functionality and offer thorough vendor support. But they frequently involve licensing fees and the possibility of vendor lock-in, which limits the ability to switch to other suppliers.

Organisations must carefully examine elements including performance, security, scalability, data replication, and compliance requirements to make informed selections. Specific corporate objectives, financial limitations, and long-term ambitions influence the decision between Open Source and Proprietary cloud database services.

Both database models now offer options for real-time analytics, machine learning integration, containerisation, and multi-cloud support, reflecting substantial technological improvements. In the end, organisations looking for effective and customised database solutions to fulfil their specific demands must fully comprehend the drawbacks and advantages of each model.

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