Discipline

Difference between PostgreSQL & MySQL

CS5002

Activity-18

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❖ Problem Statement:

Please Compare the Postgres SQL DB with MySQL DB with couple use cases.

❖ Solution:

Parameter	MYSQL	PostgreSQL
Open Source	The MySQL project has made its source code available under the terms of the GNU General Public License.	PostgreSQL is released under the PostgreSQL license which is free Open-Source license. This is similar to the BSD & MIT licenses.
Acid compliance	MySQL is ACID compliant only when it is used with InnoDB and NDB Cluster Storage engines.	PostgreSQL is complete ACID compliant.
SQL compliant	MySQL is partially SQL compliant. For example, it does not support check constraint.	PostgreSQL is largely SQL compliant.
Community Support	It has a large community of contributors who Focus mainly on maintaining existing features with new features emerging occasionally.	Active community constantly improves is existing features while its innovative community strives to ensure it remains the most advanced database. New cutting-edge features and security enhancements regularly released.
Performance	It is mostly used for web-based projects that need a database for straightforward data transactions.	It is highly used in large systems where to read and write speeds are important

Best suited	MySQL performs well in OLAP & OLTP systems when only read speeds are needed.	PostgreSQL performs well when executing complex queries.
Support for JSON	MySQL has a JSON data type support but does not support any other NoSQL feature.	Support JSON and other NoSQL features like native XML support. It also allows indexing JSON data for faster access.
Support for materialized views	Supports temporary tables but does not offer materialized views.	Supports materialized views and temporary tables.
Ecosystem	MySQL has a dynamic ecosystem with variants like MariaDB, Percona, Galera, etc.	Postgres has had limited high-end options. However, it is changing with new features introduced in the latest version.
Default values	The default values can be overwritten at the session level and the statement level	The default values can be changed at the system level only
B-tree Indexes	Two or more B-tree indexes can be used when it is appropriate.	B-tree indexes merged at runtime to evaluate are dynamically converted predicates.
Object statistics	Fairly good object statistics	Very good object statistics
Prominent Companies using the product	Airbnb, Uber, Twitter	Netflix, Instagram, Groupon

❖ Disadvantages of using MySQL

1. Transactions related to system catalog are not ACID compliant.

2. Some time A server crash can corrupt the system catalog.

3. No pluggable authentication module preventing centrally managed account.

4. No support for roles so it is difficult in maintaining privileges for many users.

5. Stored procedures are not cacheable.

6. Tables used for the procedure or trigger are always pre-locked.

❖ Disadvantages of using PostgreSQL:

1. The current external solutions require a high learning curve.

2. No upgrade facility for major releases.

3. The data need to be exported or replicated to the new version.

4. Double storage is needed during the upgrade process indexes cannot be used to directly return the results of a query.

5. Query execution plans are not cached.

6. Bulk loading operations may become CPU bound.

❖ What is Better?

After comparing both we can say that MySQL has done a great job of improving itself to keep relevant, but on the other side for PostgreSQL, you don't need any licensing. It also offers table inheritance, rules systems, custom data types, and database events. So, it certainly edges above MySQL.

❖ Conclusion:

MYSQL is a popular and widely used DBMS system. It is an RDBMS (Relational Database Management System) and works primarily on the relational database model. It makes database administration easier and more flexible.

Postgre is an object-relational database management system (ORDBMS). It was developed at the Computer Science Department in the University of California. Postgres pioneered many concepts. MySQL is a community-driven DBMS system. PostgreSQL has an active community that is accelerating its development.