

Comparative and study



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mysql

Introduction

MySQL is an open source relational database management system (RDBMS) backed by Oracle and based on the Structured Query Language (SQL). MySQL works on virtually all platforms, including Linux, UNIX, and Windows. Although it can be used in a wide range of applications, MySQL is most often associated with web applications and online publishing.

Characteristic

MySQL allows you to store and access data through multiple storage engines, including InnoDB, CSV, and NDB. MySQL is also capable of replicating data and partitioning tables to improve performance and durability. MySQL is written in C and C++ and is accessible and available on more than 20 platforms, including Mac, Windows, Linux, and Unix. For security, MySQL uses an encrypted password and access privilege system that allows host-based verification.

MySQL clients can connect to MySQL Server using various protocols, including TCP/IP sockets on any platform. Drizzle, a lightweight open source database management system under development based on MySQL 6.

Brands that use it

Google	Facebook
Spotify	Wikipedia
Netflix	Twitter
pinterest	Youtube
Uber	slack
air bnb	
amazon	

Redis

Introduction

Redis is a fast and open source in-memory key value data structure store. Redis comes with a set of versatile in-memory data structures that allow you to easily create a variety of custom applications. It is the most popular key value store today. Thanks to its speed and ease of use, Redis is a popular choice for web, mobile, gaming, ad tech, and IoT applications that require best-in-class performance.

Characteristic

Incredibly fast performance

All Redis data resides in server memory, unlike most database systems, which store data on SSDs.

By eliminating the need to access disks, in-memory databases like Redis avoid delays and access data with simpler algorithms that require fewer CPU instructions.

Typical operations take less than a millisecond to execute.

data structures in memory

Redis allows users to store keys corresponding to different types of data.

The fundamental data type is a string, which consists of textual or binary data and has a maximum size of 512 MB.

Redis also supports lists of strings in the order they were added, unordered string sets, ordered sets ordered by score, hashes that store a list of fields, and HyperLogLogs that count the unique items in the dataset.

With Redis, virtually any type of data can be stored in memory.

Versatility and ease of use

Redis integrates several easy and fast tools and operations, including Pub/Sub, to publish channel messages, which are sent to subscribers, which is ideal for chatting and sending messages; TTL keys, which indicate a certain time after which they are deleted, which is useful for filling databases with data; atomic counters, to ensure that conditions do not create inconsistent results; and Lua, a lightweight yet powerful scripting language.

Replication and persistence

Redis uses a master-slave architecture and supports asynchronous replication where data is replicated to slave servers.

This improves read performance and recovery in case the primary server fails.

To ensure durability, Redis supports creating a unique, append-only file for each data change on disk as it occurs.

Both methods make it easy to quickly recover your Redis in the event of a failure.

elastic search

Introduction

Elasticsearch is a RESTful search and analytics engine capable of handling a growing number of use cases.

As the heart of the Elastic Stack, it centralizes your data for blazing-fast search, refined relevance, and powerful analytics that scale easily.

Characteristic

- Management and operations.
 - Scalability and resiliency:
 - Elasticsearch operates in a distributed environment designed from the ground up for ongoing peace of mind.
 - Security:
 - They give the right access to the right people. IT, operations, and application teams rely on them to manage well-intentioned users and keep malicious actors out.
 - Clients:
 - Elasticsearch allows you to work with data in the way that is most comfortable for you.
 - Integration:
 - As an open source, language-neutral application, it's easy to extend Elasticsearch's functionality with plugins and integrations.
 - Administration:
 - Elasticsearch includes a variety of APIs and management tools that allow full control over data, users, cluster operations, and more.
 - Alerts:
 - The alerting features of the Elastic Stack give you the full power of the Elasticsearch search language to identify changes in your data that are of interest to you.
 - Rest API:
 - Elasticsearch provides a comprehensive and powerful REST API that you can use to interact with your cluster.
 - Deployment:

- Public cloud, private cloud, or something in between; we make it easy for you to run and manage Elasticsearch.

- Ingest and enrich.

- Intake:

- One of the alerting features of the Elastic Stack gives you the full power of the Elasticsearch search language to identify changes in your data that are of interest to you.

- Data enrichment:

- Elasticsearch has a variety of analyzers, tokenizers, filters and enrichment options, Elasticsearch turns raw data into valuable information.

- Data storage.

- Flexibility:

- The Elastic Stack is a powerful solution that can be applied to almost any use case. And while it is best known for its advanced search capabilities, its flexible design makes it a tool for many different needs, including measurement storage. and temporal analysis and geospatial analysis.

- Search and Analyze:

- Full Text Search:

- Elasticsearch uses a structure called a reverse index designed for very fast full-text searches. A reverse index consists of a list of all the unique words that occur in any document, and for each word, a list of the documents it contains.

- Analytics:

- An inverted index allows searches to query search terms quickly, but sorting and aggregations require a different data access pattern. Instead of searching for the term and finding documents, they should be able to search for the document and find the terms it has in a field.

- Machine learning:

- Elastic's machine learning features automatically model the behavior of your Elasticsearch data in real time to identify problems faster, optimize root cause analysis, and reduce false positives.

Brands that use it

Audi	Adobe	Walmart	lenovo	Kroger
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SQLite

Introduction

It is a free software tool that allows you to store information on devices in a simple, effective, powerful, fast way and on equipment with few hardware capabilities, such as a PDA or a mobile phone. In addition, it is an open source platform so it can be used in professional projects without having to pay a license.

Characteristic

Here are some of the main features of SQLite:

- The entire database is in a single file.
- It can work entirely in memory, which makes it very fast.
- Has a footprint of less than 230KB.
- It is completely self-contained (no external dependencies).
- It has access libraries for many programming languages.
- Supports text in UTF-8 and UTF-16 formats, as well as 64-bit numeric data.

- Supports SQL user-defined functions (UDFs).
- The source code is in the public domain and is very well documented.

Brands that use it

- Adobe Photoshop Elements
- MozillaFirefox
- openoffice.org
- Skype
- Opera
- The New Yorker
- XBMC (XBox Media Center)

PostgreSQL (*PostgreSQL*)

It is a Relational Database Management System (*RDBMS*) free and open source (*Open Source*) that emphasizes SQL extensibility and compliance. This program seems the best choice in the case of large and complex projects with high volume data operations, which require high speed, reliability and scalability in both reading and writing data.

Comparative

<i>DBMS</i>	Guy	Operating system	License	Language
mysql	RDBMS	canonically, FreeBSD, Linux, macOS, Solaris and Windows	GNU GPL v2 and proprietary	c and C++
Redis	key-value database	unix-like	BSD 3-clause	C
elasticsearch	Search and index	Linux, Mac OS and Windows	dual-licensed Elastic license and Server Side public license	Java
SQLite	RDBMS	Android, BSD, iOS, Linux, macOS, Solaris, VxWorks and Windows	publicdomain	C
PostgreSQL	RDBMS	FreeBSD, Linux, macOS, OpenBSD and Windows	PostgreSQL license	C

webgraphy

- <https://www.postgresql.org/>
- <https://avantgeo.com/sqlite-database-for-mobility/>
- <https://www.sqlite.org/index.html>
- <https://aws.amazon.com/es/elasticache/what-is-redis/>
- <https://www.elastic.co/es/elasticsearch/>
- <https://blog.nubecollectiva.com/what-is-mysql-and-other-details/>
- <https://www.mysql.com>
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