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Preferring SQLite Over SQL Server for Standalone Applications

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Abstract: *The paper represents the preferring of SQLite over SQL server based database. SQL server is Microsoft product used to manage and store information. Technically SQLserver is a Relational Database Management System. SQLite is a self-contained, high reliable embedded full featured public domain SQL database engine. SQLite is most used database engine in the world. SQLite is file based database developed by Dwayne Richard Hipp.*

Client/server SQL database engines strive to implement a shared repository of enterprise data. They emphasis scalability, concurrency, centralization and control.

SQLite strives to provide local data storage for individual application and devices. SQLite emphasis economy, efficiency, reliability, independence and simplicity.

1. INTRODUCTION:

In recent years many database products appear on the market such as IBM DB2,Oracle,Sybase,SQL server and so on. However all these databases are restricted by capacity and power consumption of system and cant meet the requirements of the users. The traditional database is much slow and ties up too much computer memory in systems while embedded databases like SQLite shows excellent performance in related fields. Embedded databases have become a hot research field. SQLite has attracted strongly majority of the developers for its advantages such as lightweight, easy to port, speed and so on for standalone applications over SQL servers.

2. SQL SERVER:

SQL stands for structured query language. SQL is used to communicate with a database. It is standard language for relational database.

MS SQL server is relational database management system developed by Microsoft. This product is built for basic function of storing and retrieving data as required by other applications. It can either run on computer or on another across a network.

a)Usage of SQL server:

To create database

To maintain database

To analyse the data through SQL server analysis services(ssas).

To generate reports through SQL server integration services(ssis).

b)SQL server components:

SQL server works in client-server architecture hence it supports two types of components-

- Workstation components: They are installed in every device /SQLserver operation machine. These are just interfaces to interact with server components eg SSMS,SSCM,Profiler,BIDS etc.
- Server components:They are installed in centralised server .These are services eg SQL server,SQL server agent,SSIS,SQL browser etc.

3.SQLITE:

SQLite is an in process library that implements a self contained,serverless,zero configuration, transactional database engine. The code for SQLite is in public domain and is thus free for use for any purpose, commercial or private. SQLite is most widely deployed database in the with more applications than we can count including several high profile projects.

a)Why SQLite:

SQLite is an embedded SQL database engine. Lite in SQLite means its light in terms of setup, database administration and required resource .SQLite does not have a separate server process. SQLite is file based. SQLite is integrated with application that accesses the database. The applications interact with SQLite database read and write directly from database files stored on disk. SQLite is self-contained means it require minimal support from operating

system or external library. This makes SQLite suitable for any environment especially in embedded devices like iphones,andriod phones,game consoles etc. As SQLite is serverless we dont need to install SQLite before using it. There is no server process that needs to be configured started and stopped. SQLite is light weighted. It is compact library with all features enabled, the library size can less than 500kb,depending on target platform and compiler optimization settings. SQLite can also made to run in minimal stack space(4kb) and very little heap (100 kb) making SQLite a popular database engine choice on memory constrained gadgets. SQL server requires minimum of 512 MB of RAM also some versions require more. SQLite file format is cross platform. A database file written on one machine can be copied to and used on a different machine with different architecture,32 bit or 64 bit no matter. All use same file format.

SQLite is a library that implements SQL engine inside our own application. This means that while database is persistent inside a file, all querying infrastructure is deployed along with the code and stopped when code finishes running. The database can be created very easily making it easy to have multiple database for testing and without the need to bother the system administrator. SQLite has bindings for almost all popular languages and also in command line interface which is handy for testing an debugging. The data is stored on single file which can be deployed with our application without needing to install any servers. Obviously it is not replacement for Oracles solutions but it can speed up a lot of standalone applications which need to work querying data and don't have access to one.

b)Deployment:

SQLite is used by literally millions of applications with literally billions and billions of deployments, few better known users of SQLite are Adobe which uses SQLite as application file format for their photoshop lightroom product, Airbus confirms SQLite is being used in flight software, Apple uses SQLite in many of native applications such as iphones,ipods etc, Boosch uses SQLite in multimedia systems install on GM,Nissan,Suzuki automobiles.

4. CONCLUSION:

When used properly database like SQLite can speedup software in standalone applications make data access very easy and allow manipulation of large objectified in related data collections with simple queries instead of writing long and slow algorithms which process all data when we only need one item. For these reasons SQLite is preferred over SQL server in standalone applications. SQLite will be more widely used in embedded field such as remote control, intelligent mobile terminal, mobile devices etc.

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