

SQLBase: When Database Transparency is Paramount

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Abstract

It is important that solution providers extend Database Transparency to their deployment model. This extension will result in a more competitive product, particularly through the use of SQLBase.

What is Database Transparency?

The most common definition of "Database Transparency" is usually targeted toward the encapsulation of data access for a developer or system integrator to hide/shield the complexities of interaction with a particular data store or multiple data stores. However, this definition can be extended to apply to application deployment and particularly to embedded databases, because the definition holds true except that it is the application user or users that are being shielded from the complexity of a Database Management System by a solution provider. Most business applications definitely shield users from the complexities of the SQL language, with nifty user interfaces presenting data in list, tabular, or tree form. But often neglected is the packaging and installation of the DBMS components.

Why is Database Transparency Important?

There are three primary reasons that make Database Transparency important:

1. Ease of Installation

In most circumstances, the individual installing a particular application has some domain knowledge of the application they are installing, however they are likely to have little or no domain knowledge of any DBMS or a specific DBMS (nor should it be required), thus it is the responsibility of the solution provider to make the installation process as simple as possible with minimal choices or prompts. If a solution provider neglects this step, then they are unnecessarily complicating the requirements for installation.

2. Ease of Use (Enhanced User Experience)

It is expected that an application user either has or will gain the experience necessary to perform their required duties with a particular software package. However configuration and maintenance of a DBMS needn't be one of them.

3. Security

In some circumstances, Database Transparency is of extreme importance because any exposure of the underlying system can be considered a security risk. In particular where applications are tied to financial data, medical records, or any other sensitive personal data, it is important to minimize exposure to security threats. Keeping the DBMS Transparent from the user, and only allow data access through acceptable pre-defined application interfaces prevents malicious or inadvertent intrusions.

**Database
Transparency
includes
shielding
application users
from the
complexity of a
DBMS**

Problems and Pitfalls of Embedding a Database

There are several classes of problems that occur with an ineffectively implemented embedded solution. Some problems are caused by the DBMS vendor and others are caused by the solution provider, but all can be avoided.

Here is a classification of the most areas that are likely to encounter problems:

➤ **Hardware and Software Requirements**

The Hardware and Software Requirements of a particular application are primarily dictated by the features the application contains. However, the solution provider must be acutely aware of the requirements of the embedded DBMS. If the requirements are too high (memory, hard-disk, operating system), then the solution provider is either assuming this additional cost burden or passing it on to the customer. Either way, this increase in price results in a lower profit margin or an increased consumer price, both of which reduce the competitiveness & profitability of the solution. Choosing a DBMS that functions on a wide range of operating systems with minimal requirements for memory and disk space, often results in a more inexpensive solution for the customer.

➤ **Durability & Reliability**

In a server environment a DBA is unlikely to pull the power plug on his server or force an ungraceful exit of an application or a DBMS. Additionally it is likely that there will be an Uninterruptible Power Supplies (UPS) utilized to prevent crashes as the result of power failures. However in an embedded deployment, it is likely to be frequent that a user will turn the power off, terminate an application, or experience a power failure. Thus, the solution provider must ensure that this situation doesn't negatively affect the long-term performance of their application and choose a DBMS that is resistant to long-term damage.

➤ **System Integrity**

If a solution provider has experienced any type of success than it is likely they have encountered a scenario where components they are utilizing are also being utilized by other applications from different solution providers. This in itself isn't a problem except under the condition where both solutions require a different version of the common component. Additionally likely is the circumstance where multiple solution providers are embedding the same brand of DBMS (or even worse, the same brand of DBMS but different version.) The later scenario (also known as "DLL Hell") is particularly prone to problems as the result of duplicate configuration files, dynamic link libraries (or shared objects), and the DBMS Server itself. The solution provider must protect their application from these types of problems and choose a DBMS that can also protect itself or provides mechanisms that the solution provider can utilize to provide protection.

Hardware/Software Requirements, Durability/Reliability, System Integrity, & Licensing/Cost are important factors when choosing a DBMS to embed

**GUPTA's
SQLBase is the
gold standard
in embedded,
zero-
administration
SQL
databases.**

**“Freedom of
Choice” with
Windows or
Linux
deployments.**

**SQLBase EDP
provides
“cookbook” for
developers
and flexible
licensing for
solution
providers**

Introducing SQLBase

With over one million servers installed worldwide, SQLBase is the premier embedded database. SQLBase is a true relational database that is transparent to the end-user because of its zero/low administrative requirements and unmatched reliability. For the healthcare and financial industries, it offers a high level of security by providing encryption on the local machine and in communications over the wire.

Developers love SQLBase because it seamlessly integrates into their applications. SQLBase provides flexibility by offering a wide variety of connectivity options including OLE DB, ODBC, JDBC, .NET Data Provider, Linux CAPI, Linux ODBC, & Linux PHP.

GUPTA's SQLBase is the gold standard in embedded, zero-administration SQL databases. SQLBase is ideal for desktop, workgroup and Internet applications in DBA-less environments. With SQLBase, companies can manage data far from the corporate data center with administration-free operation and low resource requirements.

SQLBase also provides “Freedom of Choice” by supporting Windows and Linux deployments.

Why Embed SQLBase?

Embedded installations offer solution providers greater control of the complete installation process and provide greater simplicity to end users, especially those with little or no IT staff. This type of installation also allows end-users, VARs, Independent Software Vendors (ISVs), and consultants without specific database or SQLBase knowledge to more easily complete a full successful application installation. Embedding will generally require some additional work to integrate the application installation with all or part of a SQLBase product installation, but it opens the opportunity for greater customer satisfaction, increased revenues, and lowered support costs. Because of this SQLBase has provided greatly improved support for solution providers to embed the database in their application installations. GUPTA wants to guarantee each solution provider that has chosen SQLBase a clear road to success.

SQLBase Embedded Deployment Pack (EDP)

The SQLBase Embedded Deployment Pack (EDP) gives developers the components and documentation needed to integrate a SQLBase Database Server or a SQLBase Desktop Engine (a single-user Database Server) and SQLBase Client Components with their application installation. This “cookbook” approach allows specific customizations to be easily added to a new or existing install package.

The SQLBase EDP contains a flexible license that allows solution providers to utilize as many or as few deployments as they require.

Database Transparency with SQLBase

SQLBase satisfies the requirements of transparency with minimal impact on the solution provider.

**SQLBase offers:
Ease of Installation,
Ease of Use,
and High Security**

- **Ease of Installation**
By itself, the SQLBase installation is simple and succinct requiring little or no configuration. But for circumstances, where additional configuration or automated installs are required, the SQLBase EDP can be used to tailor the software installation to suit any specific need.
- **Ease of Use (Enhanced User Experience)**
SQLBase offers the ability to run in a graphical mode or a silent/hidden mode. This allows the solution provider to truly embed the database such the user has no knowledge of its existence. Thus, the solution provider can control the exact "look and feel" of the end user's experience.
- **Security**
SQLBase has many security features to offer in addition to traditional database authority security. SQLBase prevents "brute force" and "denial of service" attacks as well as allows file encryption that requires no additional programming by the solution provider.

How SQLBase Solves the Problems of Embedding a Database

SQLBase's Minimal Hardware and Software allow solution providers to reduce costs

- **Hardware and Software Requirements**
A minimal SQLBase installation requires very little hardware in that merely eight MB of memory and ten MB of disk are sufficient.

Also SQLBase supports all available Microsoft operating systems (including WindowsNT, Windows2000, WindowsXP, & Windows Server2003) and most current Linux/Intel distributions (including Red Hat Enterprise Linux v3 (WS, AS, & ES), Red Hat Desktop, SUSE LINUX Server v8 & v9 (Standard & Enterprise), SUSE LINUX Desktop v1, & SUSE LINUX 9.1.)

As such, embedding SQLBase allows solution providers to reap higher profit or beat competition with more attractive pricing.

- **Durability & Reliability**
SQLBase's write-ahead logging allows it to self-recover from hardware failures, power failures, and even user failures quickly and with no effort required. Even more important is its ability to return to a consistent state by applying committed transactions and rollback in transit transactions. Its rugged-ness and reliability have been "battle tested" on millions of installations for nearly 20 years.
- **System Integrity**
SQLBase preserves system integrity by providing features to allow a SQLBase Servers and Clients to run in total isolation and independence of other applications, components, or deployments. This unique feature allows solution providers worry-free deployment in that they needn't be concerned with

SQLBase has been Proven Durable & Reliable by millions of installations for nearly 20 years

affecting existing applications and confidence that any future installed product will not cause their installation "DLL Hell."

Technical advantages of embedding SQLBase

Installing complex software has grown increasingly difficult over the last few years with the popularity of new operating systems and with the dramatic increase in frequency of operating system patches by vendors. Configuration and registration of file components can take up a large amount of time and code for developers that could otherwise be better spent elsewhere. But this complexity and overhead needn't extend to your embedded database.

SQLBase's unique "Isolation" feature allows solution providers to customize the name and location of SQLBase configuration files and explicitly control the location of Server or Client dependencies. This feature is implemented primarily with a few easily automated configuration file entries. The SQLBase EDP's "cookbook" approach also dramatically reduces the complexity of designing and implementing an installer.

Business advantages of embedding SQLBase

There are many advantages on the business side to add to the case for adopting an embedded installation business model with SQLBase.

Embedding the SQLBase Database Engine in the application provides solution providers the control of which version of the database their customers use, resulting in manageable configurations, lowered support costs, increased customer satisfaction and thus loyalty. Support organizations can easily master supporting these configurations, due to the simpler strategy of supporting only the latest release, and thus profit by lowering support expenditures. Embedded installations will also benefit from easier analysis and testing of the combined installation and solution, which should result in eradication of more issues and make installation easier for customers.

The solution provider also has control of when, where, and what RDBMS products are shipped to the customer. Furthermore, they can assure customers that their installations will never go incomplete for lack of availability of product or incompatible versions or platforms. Availability of product, fulfillment of the RDBMS, and deployment licensing are all in their control. Finally, by embedding the database installations into the application, solution providers ensure that customers only have to deal with one source for everything they need to run their application.

Solution providers may also be able to increase overall revenues and profits significantly by raising the price of their software product since it is a complete solution. This can be accomplished in several ways depending on the market, but the fact remains that increased value is inherent in embedded installation software products. Several of GUPTA's existing partners, especially OEM partners, have benefited from this for years. One solution with easy deployment fulfills the needs of most customers looking for software products in all verticals that the provider caters to.

**Solution
Providers can
increase
revenues by
reducing cost
with SQLBase**

Lastly, by embedding the database and offering standard versions that run on stand-alone or peer networked PCs with SQLBase Desktop and Server Engine, solution providers may ensure that their customers are getting the correct database version and platform for their needs while increasing revenues and profits.

Added Advantages

- Customer convenience and simplified shipping logistics and costs help solidify customer relationships.
- Embedded installations allow solution providers to work a flexible margin allowing easier price point management. They can make from 10% to 20% margin on the cost of the database while matching the street price and up to 30% margin over MSRP.
- SQLBase offers fixed cost deployment licensing which aids in helping bring in new and upgrade revenues. Tying the latest revision of the database to the application through embedding and including the cost of the engine in the total solution cost guarantees the solution provider gets the revenue and profit from the database upgrade as well as the application upgrade.
- Ease of deployment of your software products can result in more long-term opportunities. It also maximizes the efficiency of installers and consultants on where they make their largest margins, which is customization and training, not the installation and tuning of the database.

Conclusions

Solution providers have the opportunity to become more competitive and profitable by embedding a DBMS within their application in a transparent way. GUPTA's SQLBase is ideally suited for embedded deployment with its technical features and flexible packaging that can further a solution provider's competitiveness.

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