

Delivering Embedded Database Solutions for Small and Medium-sized Businesses

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Introduction

Line of business applications are the life blood of many small and medium-sized organizations. Many are bought to solve specific tactical problems but others may become an intrinsic part of business operations.

Many smaller organizations do not have the resources to support the extensive IT expertise that may be required to configure and manage such solutions on an on-going basis. In fact, many software vendors and developers strive to reduce the overall cost of ownership for such solutions and emphasize this benefit as a key differentiator.

Critical to almost any business application is a database used to store and manage data. Over the past few years relational databases have become more complex as the major vendors build more features in an attempt to make their products attractive to buyers. While this additional functionality helps fulfill the complex data-processing requirements of many companies in the world of enterprise computing, even scaled-down versions of these enterprise solutions are often too complex for small and medium-sized businesses (SMBs). The typical SMB is often better served when applications are designed with their specific requirements in mind – such as the need for a robust, safe and sensible data storage capability that is very easy to use.

One approach that addresses the need to reduce complexity in database environments is to leverage the capabilities of embedded database products. These products provide a black box database repository that, once installed, process data with minimal or no on-going database intervention.

The attraction of this is tremendous for those operating with limited technical resources. In addition, developers building solutions for resale are equipped with a database they can integrate into their business solution using programming interfaces that can be tailored for the individual needs of the end user.

This paper will explore the role of embedded databases from Pervasive Software for small and medium-sized businesses and the benefits of using a Database Management System (DBMS) built just for this role.

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Benefits of an Embedded Database Solution

Small and medium-sized businesses typically do not have the budget for a large and specialized IT staff. When your IT department consists of a small team of one to five people, you must count on everyone to take on multiple roles and it becomes impossible to have one person devote many hours each week for database maintenance.

At the same time, small businesses have many opportunities through the use of technology such as e-commerce, web services, and telecommunications to participate in the global marketplace and compete with much larger organizations. Leveraging this technology enables smaller and emerging growth businesses to look and act like much larger enterprises when interacting with customers and partners, which in turn leads to an increase in data management requirements.

One of the key challenges for medium-sized businesses is to find ways to simplify and streamline their use of technology so as to reap the benefits without spending more than they can afford.

These companies need a robust and reliable data repository – one that will provide a fast transaction engine to enable the high performance of their transaction oriented business applications. By leveraging a line of business application with an embedded database, many small and medium-sized businesses are able to take advantage of this capability with considerably lower license costs than for a mainstream relational database.

The cost and ease of maintenance of an embedded database solution are also very attractive to third-party developers. They often focus their expertise around a particular business problem associated with a vertical market, and as such they may want to focus their efforts on building rich application functionality rather than programming a database engine.

Without the overhead of many of the mainstream databases, third-party developers are able to build functionally rich solutions with a much smaller installation footprint, lower end-user cost and lower on-going maintenance as the database will be self-managing.

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Buying an Embedded Database Solution

When buying a solution that uses an embedded database product potential customers need to be reassured in a number of areas:

- Is the supplier reliable and robust with a long track record?
- Are embedded databases the core business for this supplier?
- Does the product have a safe and secure future?
- Is the database robust, reliable and have good performance?
- What is the product roadmap?
- What are my on-going costs of maintaining this embedded database?

By addressing each of these in turn, a potential customer can build up a picture of the technology being offered and the business behind it.

Businesses normally adopt solutions that fulfill a business need. The technology used to build a solution should be irrelevant to the business, but if a busy IT department is expected to support or maintain yet another new technology then there may be significant barriers to its adoption.

Embedded technologies can provide organizations with an “install and forget” solution to a business requirement. This removes the need for the IT staff to train on products they may be unfamiliar with. Over time, the use of an embedded database should keep the long term costs of product ownership lower.

Investing in a line of business solution can be a difficult task as the business needs to be assured that the solution delivers all that is promised and will not become a burden to the supporting infrastructure. The best embedded database products have been engineered to require little if any database administration in normal use.

Pervasive Software

The Pervasive Software business approach is to enable third-party developers, ISVs and OEMs to have access to the Pervasive Software embedded database engine as part of their solution set. The September 2007 release of Pervasive

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PSQL Summit v10 includes features designed to improve the flexibility and speed of developing embedded database solutions using Pervasive technology. Some of these key features include:

- A new 64-bit version of the Pervasive database
- Delivering a Microsoft Vista compliant product
- Using approved Microsoft setup and installer routines
- Updated Vista “look and feel”
- Integration into the Windows Server 2008 via the Microsoft Windows Server Early Access Program
- XIO driver designed for optimal I/O
- SQL functionality and syntax support

The database includes transactional and relational management tools and technologies designed to ensure the integrity and safety of the database.

Pervasive Embedded Solution or a Conventional Database?

As discussed above, many small and mid-sized companies focus primarily on how a software application will meet its business requirements and are less concerned about the technology used to build the solution. However, in some instances the company may have a technical team that needs further technical insight into the make up of the proposed system, and will often question the use of an embedded database versus a conventional relational database.

An embedded database addresses a different type of solution requirement to that provided by a conventional relational database management system (RDBMS) which comes with a whole host of data integrity, backup and management tools. The Pervasive solution provides a useful compromise. The database includes transactional and relational management tools and technologies designed to ensure the integrity and safety of the database. In addition, however, the database is configured so it may be deployed in a remote “install and forget” environment. This approach offers flexibility when performance and relational requirements are required.

Contrast this with traditional relational database vendors whose products are typically designed for the enterprise customers. When the typical RDBMS is engineered for use as a small business “compact” database, it is often to effectively scale down many of the underlying database characteristics. The result is that many small and mid-sized business users of a traditional RDBMS

find the level of technical expertise required to manage these databases is more than they had bargained for.

Companies that choose business applications with Pervasive's embedded database technology typically observe the following benefits:

- Lower or minimal on-going management of the database
- Optimized or fast access to data
- Scalable to grow as their needs demand

The Pervasive Software Route to Market

Pervasive Software is a supplier of embedded database technologies to third-party software developers. Pervasive Software works with the developer community to understand end-use customer requirements for a database product. The focus of the company is to ensure that developers, ISVs and OEM partners have the tools and interfaces they need, while still extending the data for end users who require access to the data for business intelligence and analytics.

The majority of Pervasive's business is derived from over 200 OEM partners. Each partner creates line of business solutions using the Pervasive database engine to manage data. One OEM partner can develop one line of business application that can be deployed across hundreds of sites, especially when dealing with distributed customers such as retailers or restaurant owners. Embedded databases have a pivotal role in these solutions as software running in a point-of-sale must be robust, reliable and secure.

The use of the Pervasive database is often invisible to the end user, and in most cases the end user is not bothered about the specific technology being employed – all they want is a solution to a business need.

Where an end-use customer is more technically adept, facilities can be provided by OEMs for these customers to access the data directly inside the Pervasive database. This allows Pervasive customers to extend the role of the solution in the business as data can be imported and exported as required using common interfaces built on .NET, ODBC and Java. Further flexibility can also

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be provided in the form of Pervasive database management tools for those organizations with a DBA capability and a desire to be involved with the data management side of the solution.

This is a significant benefit of the Pervasive solution – end-use customers can have as much or as little access to the database engine as they feel necessary, providing a blended approach to data management. The example below describes the value of the Pervasive embedded database to a typical Independent Service Provider (ISV).

C-Logic Case Example

C-Logic is a supplier of accounting and invoicing software. Based in Belgium, the company has many years of experience in developing accounting software for all types of businesses including small organizations that do not have a dedicated IT department capable of supporting complex software applications. The company has successfully leveraged the Pervasive embedded database to develop software used by over 5000 clients.

Serge Nelissen, managing director of C-Logic, said, “Our customers want an accounting/invoicing package and that’s it. They don’t want to deal with a database and many customers don’t even know what a database is. So imagine what would happen if they needed to manage the database!”

The company has been using Pervasive/Btrieve technology since 1985. Although they have reviewed alternative database products they found that the costs and administration requirements were too high for their clients. With the Pervasive PSQL Solution they have produced a “zero admin” database solution that typically supports a 200 MB client database which grows by 500 MB per year.

Backups are made as straightforward as possible – the customer is told to simply “zip up” the directory and copy the file somewhere safe. “In order to minimize disk space usage, we sometimes advise customers to rebuild the database files, so index pages are better balanced, but that’s all,” said Serge. “If the network is running fine, then there is no problem with PSQL,” he added.

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Conclusion

Embedded databases have a significant part to play in the development of line of business applications for small to medium-sized businesses. Companies such as C-Logic are able to leverage Pervasive's technology to provide its customers with a concise and easy to use solution to the often complex problem of managing data securely and robustly. End-use customers benefit because they are able to optimize access to the data they need without the complexities or expense of managing a conventional relational database.

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