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WHITE PAPER

Choosing a Big Function RDBMS for a Small Budget Enterprise: A Look at SAP Sybase ASE

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IDC OPINION

Database management needs don't necessarily scale according to budget size. Medium-sized enterprises with modest means often have data management requirements as prickly as those of their larger, richer counterparts. Doing more with less means finding a relational database management system (RDBMS) that can deliver big-time database capabilities at an affordable level of cost. Such an RDBMS needs all the following attributes:

- Sensible prices for licensing and maintenance
- Low administration database functionality
- Features and options that are easy to understand and use
- Database server operations that are stingy on CPU, memory, and storage resources

SAP Sybase ASE is an example of such an RDBMS.

IN THIS WHITE PAPER

This white paper examines the factors that go into an RDBMS that is affordable to a business with a modest budget yet still delivers robust enterprise database functionality. It shows how staffing is a major factor in such calculations, especially for smaller enterprises that are resource constrained. The paper then considers how SAP Sybase ASE addresses these factors and offers supporting evidence in the form of the results of a recent total cost of ownership (TCO) study of 12 sites that was conducted by IDC and commissioned by SAP.

SITUATION OVERVIEW

While the Big Data movement has made people more aware of the rising importance of rapidly growing collections of data in the enterprise, many businesses, especially in the small and medium-sized enterprise (SME) space, are struggling to deal with their own growing data load and complexity issues within strictly constrained budget and staff size limits. Some have adopted the RDBMS technology originally recommended by an application software provider or a software service provider years ago and are now finding that the costs associated with that technology are escalating out of control.

Some RDBMS products offer excellent performance and scalability, but as the database grows, they demand not only more and more storage but, more critically, more and more CPUs, forcing the user to buy servers with more processors, which, in turn, drives up the cost of RDBMS software licenses and their associated maintenance fees. In addition, as the database grows and becomes more complex, its administration becomes more difficult, requiring a larger database administrator (DBA) staff with more specialized training to support it. While a certain amount of this dynamic is present with any RDBMS, some products are more efficient in resource use and require less administration than others, without sacrificing performance.

Requirements of the Smaller Budget Enterprise

For entities with smaller budgets for database management, including SMEs, line-of-business (LOB) units, departments, field offices, and the like, curbing rising costs as databases grow in size and complexity is a critical issue. They need an RDBMS that is designed to keep the costs of a growing database under control as much as possible. In recent research, IDC has found that such enterprises can save over 20% in operational costs by choosing an RDBMS that offers efficiency and requires little administration. Their requirements are detailed in the following sections.

Full Function OLTP RDBMS

Of course, any entity with serious data management needs requires a full function, robust, scalable, secure, and fully recoverable RDBMS that can offer 5-9s of availability. It should be able to handle large and growing databases and support enterprise-class applications, queries, reports, etc. Smaller enterprises still often have tough performance requirements, especially in the area of online transaction processing (OLTP) for enterprise resource planning (ERP) systems. Such systems require an RDBMS that can provide high degrees of concurrent access as well as high transaction throughput. Examples of businesses that have big requirements in this area are as follows:

- Discrete manufacturing, which must manage both large foreign distributor networks and complex supply chains
- Healthcare, including hospitals and clinics that face mounting costs, tighter margins, and tougher regulations and yet must still provide quality care and process patient records quickly and reliably
- Public utilities, which are under pressure to provide more services, including more timely billing using smart metering and better outage detection and correction
- State, county, and municipal governments, whose record-keeping requirements become ever more complex and voluminous even as budgets shrink

Resource Stingy

The small budget enterprise cannot afford to constantly add more storage to the system, and constant increases in processor requirements can be especially problematic because they express themselves not only in the one-time acquisition cost of the hardware but also in the increased cost of software licenses and the

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recurring cost of higher maintenance fees. An RDBMS for the small budget enterprise must have features that can ensure the most storage-efficient and processor-efficient forms of database request processing in order to control these costs.

It is often the case that database operations are inefficient because the database is not properly tuned. Complex administration tasks and arcane settings can create a situation in which a staff that does not have sufficient product expertise is simply not capable of fully tuning the database server to its maximum capacity. The result is that the small budget enterprise throws hardware at the problem, unnecessarily wasting tens or even hundreds of thousands of dollars. A database that is easy to tune, and one that has self-tuning as well as easy-to-use data compression features, can help the enterprise avoid this situation.

Low Administration

In study after study over the years, IDC has found that the most significant persistent cost of database management in the datacenter is that of the time that staff spend managing the database, tuning it, and performing myriad routine tasks to optimize its use of disk space. Thus, controlling DBA time is a key issue for any enterprise, but especially for one of limited means.

Datacenter Operations

For a small budget entity, the RDBMS must be easy to understand and administer, with a number of self-management features and powerful, easy-to-use tools that do not require extensive training. Its design should limit the number of times that data reallocation across disk volumes, rebuilding of indexes, and reorganization of stored data need to be done.

Field Operations

Many enterprises, especially small budget entities, need to put databases in remote locations where DBAs cannot be present. In such cases, the databases must be largely self-managing and offer remote administration capabilities to enable DBAs to maximize their effectiveness.

Effective Support Services

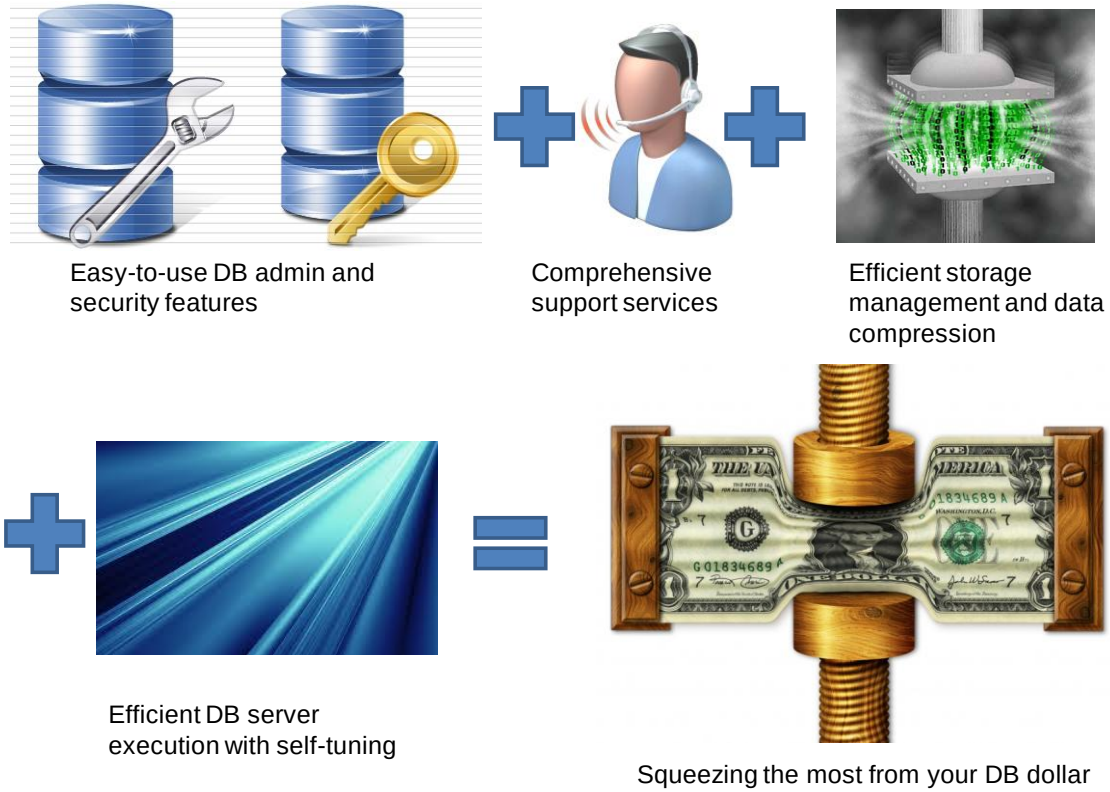
How much time does the technical staff spend waiting for the vendor's support services? How well does the support team enable the technical team to not only solve problems as they arise but also make better use of the product overall? A solid support offering is a key requirement for any RDBMS user, especially a small budget entity whose staff may not be as technically adept as the IT department of a large enterprise.

How the Costs Stack Up

Putting these requirements together, we get a complete picture of what an RDBMS needs to have in order to fully meet the needs of a small budget entity. These elements are illustrated in Figure 1.

FIGURE 1

How the RDBMS Elements Add Up



Source: IDC, 2012

The Application-Database Connection

Of course, the RDBMS should be compatible with, or even certified for, the application that it supports. Better yet is an RDBMS that is optimized for the application. The ideal situation is one in which the RDBMS and application are provided by the same vendor. This not only assures the user of ongoing complementary development of both application and RDBMS but also simplifies the support situation by providing "one throat to choke" in case a problem arises.

Technology Scalability

It is also important to note that many SMEs, if they are successful, will become large enterprises in time. Those that commit to an RDBMS that fits their needs when they are small but fails to scale up to fulfill their needs when they are large often find themselves constrained by their IT, requiring painful upgrades and migrations to more

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robust technology. A key requirement for any SME that has ambitions of future growth is that the technology that serves the needs of the business today will continue to do so into the future as the enterprise grows.

A Look at SAP Sybase ASE

A History of Innovation

Features That Ensure Cost Containment

SAP Sybase ASE contains a number of features that help control costs by making the system a stingy user of hardware resources, making it easy to optimize operations with a minimum of staff time, and providing maintenance that is augmented by a direct connection to Sybase support. Relevant features include:

- Well-proven high-volume transaction throughput such as that required by today's demanding ERP systems, backed by over 25 years of experience serving the needs of OLTP customers
- Management features that automate most of the functions that DBAs used to perform manually
- Self-management capabilities that enable the database to tune itself without requiring intervention from the staff to deal with many common issues
- Data compression throughout that drastically reduces the storage footprint of the database while simultaneously speeding up its operation (because there is less raw data to manage)
- Storage of large object blocks (LOBs) in rows rather than as separate objects requiring special storage, thus enabling optimized storage and retrieval
- Deferred materialization, which prevents empty tables from consuming any storage
- In-place execution of operations, rather than using temporary storage for such functions, saving disk space and avoiding storage overprovisioning
- Utility that can deliver diagnostic data directly to Sybase support, enabling far more efficient support and reducing the requirement for local DBA expertise
- Abstract policy objects that allow security to be defined and managed at a group (such as role or department) level rather than at the level of the individual user, greatly reducing DBA security management time
- Explicit support for structures required by SAP's applications

It is also useful to note that SAP Sybase ASE is used by enterprises of all sizes, from small to very large.

SAP Sybase ASE and SAP Business All-in-One

SAP Sybase ASE not only is certified for but also has been optimized for SAP Business All-in-One. Resulting benefits include:

- Coordinated support of SAP Business All-in-One and SAP Sybase ASE, eliminating the "blame game" between vendors

- Coordinated releases, simplifying configuration management between application and RDBMS release levels
- A single vendor relationship covering both products, simplifying contract management
- A uniform path to the future, ensuring a straightforward means of including the power of HANA in the use of SAP Business All-in-One when it becomes available without the transitional difficulties that arise when a third party is involved

Results of a Recent TCO Study of 12 Sybase Sites

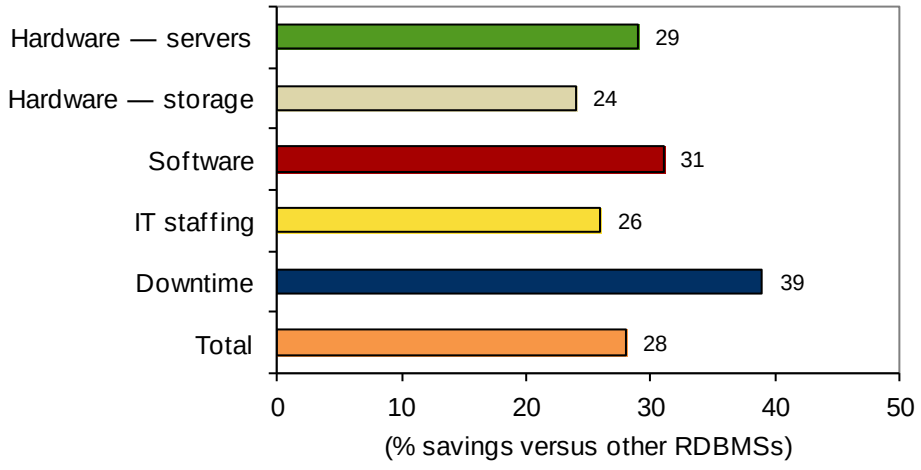
In the fall of 2011, IDC conducted in-depth interviews with 12 organizations to develop insights into the true costs associated with deploying SAP Sybase ASE compared with the costs of deploying other RDBMS products. The following key cost factors associated with a database over a five-year period were examined:

- Hardware — servers and storage
- Software license
- IT staffing — database administration, server support, help desk support, and training
- Downtime — lost productivity

On average, companies in the study estimated the total cost for SAP Sybase ASE to be 28% less than the total cost of other systems they had deployed, saving them about $129,000 per 100 users over the five years (see Figure 2).

FIGURE 2

SAP Sybase ASE Five-Year Savings per 100 Users



Five-year savings per 100 users = $128,580

Source: IDC, October 2011

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FUTURE OUTLOOK

The database world is in the midst of a period of radical transformation. IDC believes that by the end of the decade, the predominant form of database management will be memory based rather than disk based. Choosing an RDBMS technology today will determine which approach an enterprise will follow as database technology progresses for the foreseeable future. All the leading RDBMS vendors have strategies for memory-based RDBMS, but they are not all well aligned with the needs of small budget enterprises. Of course, no enterprise with pressing needs can wait for this technology, so it is important to choose an RDBMS from a vendor that has a clear strategy for implementing a memory-based database and that will take users there without painful migrations or transformations.

CHALLENGES/OPPORTUNITIES

SAP is not the only vendor seeking to address the needs of the SME, LOB, or departmental IT organization. Some vendors are pursuing an appliance strategy, which simplifies installation but limits the ability to attune the system to the precise needs of the enterprise. Others are using packaging and discount approaches, often designed to drive the user to higher-priced options. SAP will need to be aware of these competitors as well as the evolving needs of its customers.

CONCLUSION

SME, LOB, and departmental IT organizations have special needs and constraints that are difficult for RDBMS vendors to address because they include requirements for performance, flexibility, and reliability and the need to maintain a low cost of operation. SAP Sybase ASE meets these requirements and provides a clear path to future in-memory technology. The savvy IT manager for an enterprise with a constrained budget should consider the following in evaluating any such technology:

- A key — often overlooked — component of the ongoing cost of operating an enterprise database is the cost of staff time, especially in the form of large numbers of expensive, highly trained DBAs to manage the database.
- A system that features a self-management capability reduces the time and expertise required of the DBA in performing often routine and minute, but time-consuming database tuning tasks. It can also ensure optimal performance with minimal effort, enabling the enterprise to get the most from its servers without incurring the cost of frequent upgrades, which result in rising hardware and recurring software costs.
- Having a small budget does not mean that the user should not expect the same level of database reliability, availability, and recoverability as the large enterprise.

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