

WHITE PAPER

Oracle Database 10g Standard Edition One: Meeting the Needs of Small and Medium-Sized Businesses

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IN THIS WHITE PAPER

Databases have become key in enabling businesses to efficiently manage their data assets and to effectively use information to better understand their businesses. This document considers the question of what is needed for small and medium-sized businesses to successfully implement and maintain database applications, considering limitations of budget, time, and expertise. It considers such issues as ease of installation, ease of use, reliability, and manageability of relational database management systems (RDBMS). It also explores how Oracle has delivered such capabilities with Oracle Database 10g Standard Edition One.

SITUATION OVERVIEW

In a commercial world that is becoming increasingly interdependent from an information technology (IT) perspective, small and medium-sized businesses (SMBs) are finding themselves increasingly dependent on their computer software systems. They no longer look to IT only for basic business operation, but for managing customer, partner, and supplier relationships; for improving business execution in the office and in the field; and for better understanding their businesses. These activities generally involve the use of databases, and the ability to set up, maintain, and use those databases is becoming key to making the most of one's IT investment.

Most small and medium-sized businesses do not have, and cannot afford to have, expert database administrators (DBAs) on staff. They have depended on databases specified by the application software vendors and deployed them on low-cost relational database management systems (RDBMSs). Yet, the growing number of databases in SMB shops, and their increasing dependency on those databases, is creating a situation of unacceptable management complexity. What is required is a RDBMS that is easy to use, reliable, secure, and easy to manage and scale.

Understanding the Needs of Small and Medium-Sized Businesses (SMBs)

What Is a SMB?

Trends and Drivers in the SMB Software Market Segment

Enterprise database management systems (DBMS) vendors have tended to emphasize features such as high availability, scalability, and very large database (VLDB) support in their products. Small and medium-sized businesses, however, are more concerned with usability and cost-effective operation of databases than with these other features. To respond to the needs of SMBs, enterprise DBMS vendors need to respond to these requirements, which drive this market segment:

- ☒ **Ease of use.** Database administrators (DBAs) are in short supply, and getting more expensive all the time. SMBs generally can't afford to keep a staff of DBAs and expect the DBMS to be easy to configure and fairly self-managing, requiring little or no in-house database administration expertise.
- ☒ **Efficiency.** SMBs are cost-sensitive and seek to avoid unnecessary expense in either systems or storage. For this reason, the favored DBMS is the one that requires the least CPU and storage resources to do the job.
- ☒ **Full functionality.** As SMBs integrate with the larger world and as they become more dependent on IT for their operations, they have many of the same needs as other businesses for full SQL support, stored procedures and triggers, transaction support, security, and so on.
- ☒ **Support from leading applications.** Most, if not all, software used in SMB IT environments will be packaged software. The DBMS chosen must be supported by that software. Thus, with the exception of embedded DBMSs (i.e., DBMSs embedded in applications already), SMBs will favor those DBMSs that their chosen or desired application software packages have been developed to use for data management.

Enterprise DBMS vendors see SMBs as increasingly important, as many of them represent the large enterprises of tomorrow. Thus, establishing good service for these customers will ensure the future success of DBMS vendors. As a result, there is an increasing emphasis on providing the kinds of functionality and features, in both product and packaging, to make DBMS products attractive and useful to SMBs.

How Databases Are Used by SMBs

Databases are part of the software infrastructure for SMBs; operating in the background to provide data management services for operational and business intelligence applications, and query and reporting services for users. Unlike large enterprises, most SMBs are not especially interested in customizing or tuning the database for their specific purposes as long as the database, as specified by the software that uses it, will do its job.

The Roles that Databases Perform

Databases for SMBs are generally set up according to the specifications of the packaged software that uses it. Such software includes both operational applications software and analytical (business intelligence) software. The applications may be enterprise resource planning (ERP) or other horizontal applications, or they may be vertical applications, directed at specific industries or areas of business, such as healthcare, dentistry, retail, various retail specializations, etc.

Most SMBs lack much of a database administration staff; in fact, most have no DBAs at all. For this reason, packaged software that uses databases is expected to offer a level of operation that requires no DBA expertise. These applications typically provide specific instructions as to how to set up the database, and perhaps some simple maintenance tasks, but expect the database not to require sophisticated tuning, troubleshooting, or customization.

The DBMS that is most effective in such a setting is one that requires little or no administration — managing itself to a considerable degree and requiring only simple tasks that anyone can perform to handle what cannot be done automatically. It should not be necessary, for instance, for an expert to analyze and develop a strategy for space management or query optimization. If a problem develops with the database, the combination of its internal self-healing operations and its management tools should yield straightforward procedures to address the problem that can be carried out by anyone, without requiring special database administration knowledge.

Operational Requirements of Databases

Any DBMS used in a SMB environment should be expected to offer good performance and reasonable levels of availability without special adjustment or tuning. With the cost of computer hardware dropping, more options becoming available to automate the enterprise, analyze the enterprise, and exploit business opportunity through IT, SMBs are adding computers and network and storage environments at ever increasing levels. This results in more complex IT environments, sometimes involving a requirement that a database server support multiple databases, and creating load balancing and security challenges.

On top of this, the unpredictable workload represented by such things as mobile worker support, access through the Web, and ebusiness access (through EDI, Web services, or other XML-based interactions in support of such business-to-business activities as supply chain management) to applications that present additional challenges to the DBMS and its mission to deliver even performance and reliable operation. Without DBAs, the SMB cannot be expected to tune, adjust, monitor, and correct the database server to meet these challenges; it is a requirement of the DBMS that it be capable of adjusting itself to meet workload demands and complexity challenges.

In addition to these things, increasing ebusiness interaction over the Web has increased the vulnerability of all businesses, including SMBs, to malicious harm either by those seeking to steal money, confidential data, or customer information, or by those simply spreading destructive software (viruses). The database must be protected from both viral attack and unauthorized access, again without requiring special technical expertise to set up such protection.

In summary, the SMB requirements for a DBMS are:

- ☒ Affordability
- ☒ Easy to access data by nontechnical users
- ☒ Self-management to the furthest extent possible
- ☒ Good performance and availability, yet resource stingy
- ☒ Easy to administer and adjust when necessary without special expertise
- ☒ Delivery in a context that makes it a business solution, not just a piece of technology
- ☒ Straightforward yet comprehensive security

ORACLE DATABASE 10g STANDARD EDITION ONE

Overview

In response to the needs of SMBs, Oracle has developed a configuration of Oracle Database 10g Standard Edition that is specifically intended to address the requirements listed above. This is not a subset of the product's RDBMS functionality, or a "dumbed down" version of the product. Rather, it is a configuration that includes all the features of the regular Standard Edition, including features designed specifically to meet the needs of SMBs, but is limited to deployment in server instances of up to two processors. It is called Oracle Database 10g Standard Edition One (SE1). Oracle has designed this configuration to be ideal for SMBs or departmental systems that run their applications on 1-2 processor servers. Oracle Database 10g Standard Edition One is available on all Oracle's supported operating systems, including Windows, Linux, Unix, and Macintosh.

Easy to Install, Easy to Use

SE1 has the same installation features as the other editions of Oracle Database 10g, including easy-to-use installation wizards that allow a person with little or no database expertise to successfully install a well-configured instance of the RDBMS. In addition, the product has many options preset to the most common or factory recommended settings, so that nearly all decisions regarding the setup of the database are eliminated.

Price Tailored to Fit the SMB Budget

SE1 is priced at a level that is dramatically lower than Standard Edition in order to allow small businesses with tight budgets that might otherwise not be able to afford it to realize the benefits of an Oracle database. Has Oracle gone crazy? Are they giving away the farm? By no means. Oracle recognizes that many SMBs run their applications on small servers and has priced SE1 accordingly. Oracle also believes

that many small businesses eventually become big businesses, and as they do, if they choose SE1 as their DBMS, they can continue to scale their business with Oracle database technology.

Oracle recommends SE1 for organizations or lines of business (LOB) supporting between 1–400 users and databases up to around 500GB of data. Current published pricing offers either \$149 per named user (minimum of 5 users) or \$4,995 per CPU (maximum of two CPUs) for unlimited use.

Solutions Driven

Although no one purchases and installs technology just for the heck of it, SMBs are especially driven by the need to install technology only in response to specific business requirements. Oracle understands that technology is only a means to solve a business problem, not an end in itself. For this reason, the company works with numerous independent software vendors (ISV) to deliver their technology as part of application solutions for their customers. Examples of Oracle ISV solutions designed for SMBs include: Best Software, Computhink, Delphic Software, Humanic Design, Khameleon Software, LifeFitness, OpenRange Software, Penta Technologies, Tecsys, Tritech. These ISVs provide a wide range of Oracle-based solutions for all business application requirements, including accounting, content management, customer relationship management, enterprise resource planning, financial services, and many more. Detailed information on all Oracle ISV partner solutions can be found in the solutions catalog on Oracle Partner Network (opn.oracle.com).

Features Specific to Address SMB Needs

As has been previously stated, the features of SE1 are the same as the features of the full Oracle Database 10g Standard Edition; the price difference is governed only by the size limitations described above.

Database Installation

Oracle has dramatically reduced the number of installation steps since version 9i, and Oracle Database 10g may be fairly described as one of the easiest full-function RDBMS products to install. According to Oracle, SE1 typically installs in a matter of minutes requiring only a couple of user-defined input parameters. The product comes with many sensible installation values preset (users can always override these defaults if desired) that formerly had to be set manually. In addition to easy-to-use wizards, the process includes software that analyzes the target system and automatically generates database settings, greatly reducing both the effort and expertise required of the person doing the install.

Database Management

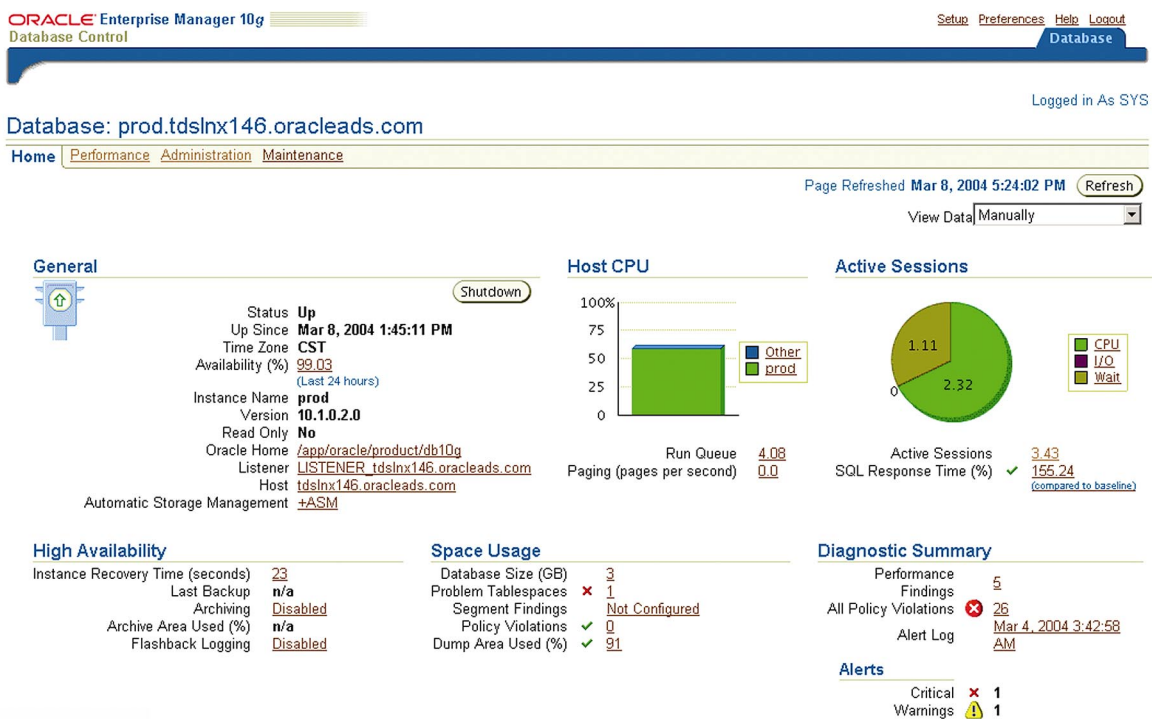
Just as the RDBMS has software that analyzes the system to establish initial settings for the installation, so it also has technology that continues to analyze the system and the database, making sensible adjustments to database settings as dictated by the results of such analysis. Oracle Database 10g can manage its own memory allocations automatically without user intervention; a great benefit in that memory management settings used to represent a tricky activity that, even for experienced

DBAs, tended to be more art than science. If the user chooses to permit Oracle Database 10g to entirely control the disk or disks used for database storage, the Automatic Storage Manager (ASM) feature can handle all aspects of storage management without user intervention.

For those database management activities that require user involvement, Oracle provides an easy-to-understand user interface through the Oracle Enterprise Manager Database Control console, which is a standard feature of SE1.

FIGURE 1

Oracle Enterprise Manager Sample Screen



Source: Oracle, 2005

Application Development

Nontechnical users can use the database to develop Web-based applications and reports. SE1 includes HTML DB, a feature of Oracle Database 10g that enables rapid application development. Oracle has designed this feature so that using only a Web browser, users with little or no programming experience are able to develop and deploy secure, reliable full function applications to the Web. This feature also enables Excel and Access applications to be easily migrated from a set of distributed desktop applications to a centralized set of Web applications running inside the database. Since Oracle Database 10g natively supports Web services, users can also define those services, enabling developers who know how to build Web service request software to straightforwardly access data without SQL. Of course experienced SQL, Java and .Net developers can take full advantage of Oracle Database 10g's support for Java and .Net to develop, migrate, and scale all types of applications.

Self-Study Education

Oracle provides a variety of self-study tutorials in the form of interactive instructional software, available for free to users on CD or online through Oracle Technology Network (otn.oracle.com – Oracle's online forum for developers and DBAs). The tutorials are designed to enable administrators and developers not familiar with Oracle databases to learn quickly the basic and advanced features of 10g. Oracle has made every effort to ensure that non-Oracle administrators can learn easily the basics of Oracle Database 10g installation and management in two-day DBA tutorials. This (and other) tutorials provide straightforward interactive step-by-step instruction, making it very easy for non-Oracle users to learn Oracle Database 10g.

Support From Partners that Understand the Customer's Business

Dell Computer

Dell has created a special factory-installed bundle of hardware and software specifically designed and preconfigured to meet the needs of SMB environments. They are available with either Windows 2003 Standard Edition or Linux (Red Hat Version 3) and feature two Intel processors of up to 3.6GHz in speed, 12GB of RAM, and either up to 876GB of internal storage or up to 16TB of external storage using eight enclosures. These systems are each fully tested to ensure that they have been installed and configured correctly before they are shipped.

Dell also provides customers, in connection with this bundle, a joint escalation team with Oracle offering a single point of contact for comprehensive technical support, should it be needed. Dell reports that their customers have found that the preinstallation saves them the considerable time, effort, cost, and risk that is usually involved in setting up a database server. They have a wide range of service partners, who also appreciate this bundle because it saves them from tying up their projects performing setup tasks that can often result in unexpected surprises and delays.

CHALLENGES/OPPORTUNITIES

Oracle is challenged by a number of vendors vying for a position in selling RDBMS to SMBs. These include both vendors well established in the SMB space and large enterprise RDBMS vendors seeking, like Oracle, to expand into this space, among others. Oracle must demonstrate that they offer a clear path to enterprise database deployment that includes room to grow and support for the business as it evolves. They must show that their products are more integrated, and easier to deploy without depending on professional services. They must also provide easy-to-use functionality that is as easily deployed on Linux as on Windows.

CONCLUSION

Oracle Database 10g Standard Edition One delivers on key requirements for small and medium-sized businesses to successfully develop and deploy database applications. These requirements are met as follows:

- ☒ **Ease of use.** Self-managing features remove the need for special expertise in installing and managing the RDBMS. For those activities that do require human effort, Oracle Enterprise Manager provides an easy to understand user interface for simple, straightforward database administration.
- ☒ **Efficiency.** Oracle's self-managing features, including those in support of memory management and storage management (especially ASM), ensure that SE1 will deliver optimal efficiency even without any manipulation of the database by an expert DBA.
- ☒ **Full functionality.** SE1 is a packaging of the product that is limited only by number of processors. All the functionality of the regular Oracle Database 10g Standard Edition is there and available for use. This not only means that users have a full enterprise RDBMS to start out with, but that migration to the full Standard Edition, should it be required, is not a migration at all; just a license upgrade.
- ☒ **Support from leading applications.** Oracle's RDBMS is probably the most widely supported one of all, with a wide range of applications available in practically every category developed to run on Oracle. Should professional services become available, an appropriate service organization with Oracle expertise should not be hard to find.

SE1 represents an effective response on the part of Oracle to the needs of the small and medium-sized business segment of the RDBMS market. It offers all the capabilities of Oracle Database 10g Standard Edition at a price that enables users to start out small without compromising on technology.

CASE STUDY

PC Medics

PC Medics provides computer services to clients in Camden, South Carolina. In a recent project, they set up a subscription sales system for a magazine using Oracle Database SE1. They found the DBMS extremely easy to install and configure. It took only 15 minutes to set up. The database handles about 20 concurrent users, managing about 30 tables containing a gigabyte of data.

PC Medics had used other DBMSs in prior projects, but compared with those other DBMSs, they found considerably lower personnel costs in managing SE1. They also found SE1 to be much more robust. In the year since the sales system has been in production, it has not been down once.

PC Medics found SE1 to be a good solution for anyone who has a database need on a small to medium sized scale, especially if the Internet is involved. They determined it to be more reliable, easier to set up and get running than any other DBMS they had tried. The database has been running so well using its initial settings, in fact, that they haven't had to use any management tools so far.

They stressed that it is very good to use with Internet applications. They already run a point of sale solution for a major magazine publisher using this instance, and plan to use it as a basis for deploying a number of Web-based solutions for newspaper and magazine subscription management in the near future.

Bernett Research

Bernett Research conducts surveys and focus groups for business and market research projects. Previously, they had been using disparate PC-based project management tools to manage the work, and a variety of end-user DBMSs and tools for data collection and analysis. The effort often involved highly manual, error prone, and inefficient processes of merging data and sending it to a service bureau for bulk report processing. They were losing on an average of 20% of their survey responses by this method, and customers were demanding quicker turn-around on survey results as well as "real time" data feeds of responses, something that had been impossible without a robust database application. After considerable investigation, they decided that Oracle Database best satisfied their needs, but felt they couldn't afford it. With the release of SE1 and its special 2-CPU pricing, they were able to build a solution that fit their budget.

They have deployed three applications so far; one for Internet-based data collection, one for internal project management combined with employee performance measurement integrated with payroll and job costing (the payroll component is still in the testing phase), and one for generating reports for clients. The three databases for these applications run on a single system. Just one of these, the survey data collection application, served an average of 200 concurrent interviewers all day long during the summer of 2004. So far they are managing about 5,000 surveys involving 50,000 survey telephone calls per project and all the payroll processing based on that work, with no merging and no errors. They provide a Web interface enabling clients to

call up survey data on their own, and have a powerful and flexible capability to generate more complex reports on demand.

An example of clear benefit from the new survey data collection application involves a project for a magazine publisher. Before deploying the SE1 solution, Bennett was at risk of losing a project because the publisher, dependent on advertising dollars, wanted real time data so they could track shifting trends in opinions that would affect ad rates. Because they were able to utilize a central server to manage all the sample and quickly deliver the results, they cut data collection and labor costs in half, delivered a satisfactory solution at a reasonable cost using SE1, and saved the client account.

Another example involves the employee performance application. In one office, Bennett was able to use performance metrics to identify "super performers" who exceed expectations in carrying out these projects. These "super performers" are used to help other employees improve their performance. The overall productivity for projects is up by 20% as a result.

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