



# *Ten reasons for choosing IBM DB2 Universal Database for SAP R/3*

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*A technical white paper explaining the benefits of using IBM DB2 Universal Database with SAP solutions*

This paper will evaluate the technical features that differentiate IBM DB2® Universal Database™ as the database repository for SAP R/3® environments, compared with other database management systems used to run SAP solutions. The paper focuses on the following platforms: IBM AIX®, Sun® Solaris® operating environment and Microsoft® Windows NT®. As of this writing, DB2 Universal Database for SAP R/3 is supported on Linux, Windows NT, AIX and Sun Solaris operating environment, as well as IBM AS/400® and IBM OS/390®.

## **Performance leadership: DB2 cost-based optimizer**

Providing end users fast response time is a key success factor influencing end-user acceptance of an enterprise resource planning (ERP) solution. The underlying database can significantly contribute in achieving this. The SAP architecture leverages the database it runs on, exclusively using dynamic SQL statements. A cost-based optimizer is an important performance feature in such an environment. IBM has more than a decade of experience building cost-based optimizers. While IBM released its first cost-based optimizer for SAP with Version 2 of SAP R/3, other vendors introduced their cost-based optimizers as recently as Version 4 of SAP R/3, when SAP made cost-based optimizers a prerequisite for SAP R/3 implementations. Such groundbreaking technology is not new to IBM. Today IBM holds more than 20 times as many patents for information technology (IT) as its nearest competitors combined.

Customers developing their own applications on SAP R/3 using SAP's internal ABAP programming language can further benefit from the DB2 cost-based optimizer because it eliminates the need to provide optimizer hints in the code. This means that an application developer can focus on coding a business process instead of having to deal with details of how the data is actually represented in the database.

In a recent SAP SD benchmark, with certified 3028 sales and distribution users on a Windows NT 4-way system, DB2 performed 23 percent better than the next competitor—proof of its superiority as the database of choice for SAP R/3 solutions.

## **Friendly upgrade policy**

Each version of DB2 Universal Database is certified by SAP for a wide range of SAP R/3 releases. DB2 Universal Database Version 5, for example, can be used for SAP R/3 Releases 3.0 and up to Release 4.5. When scheduling upgrades, this helps decouple the time-critical SAP application upgrade from the upgrade of the database

## DB2 Universal Database for SAP R/3

holding the application's data. This allows more flexible upgrade scheduling for the IT department. With each new version of DB2 Universal Database, you can benefit from the latest in database technology to best exploit your SAP R/3 system.

### **DB2 Universal Database for SAP Business Information Warehouse**

Many of the world's largest data warehouses—consolidating several terabytes of data—run on DB2 Universal Database and have won top honors in the annual Very Large Data Base (VLDB) Survey.<sup>1</sup>

DB2 Universal Database Enterprise Extended Edition allows the distribution of decision support queries on several independent machines (nodes), using a shared-nothing architecture. Beginning with SAP Business Information Warehouse (SAP BW) Version 2.0, SAP customers will have the option to exploit the scalability of DB2 Universal Database Enterprise Extended Edition to implement their SAP BW. Since two separate databases are used for SAP R/3 and SAP BW installations, customers whose SAP R/3 applications use Oracle can still take advantage of DB2 for their SAP BW solution. DB2 Universal Database is the only database for SAP BW that leverages the power of symmetric multiprocessors (SMP) and massively parallel processing (MPP) systems.

### **EXPLAIN interface**

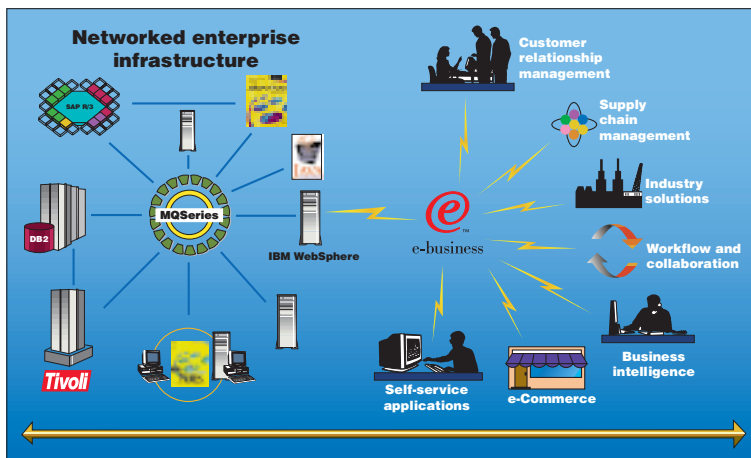
SAP's SQL trace facility contains an interface to DB2 EXPLAIN, which offers detailed information about the way R/3 SQL statements are processed by DB2 Universal Database through the SAP graphical user interface. For R/3, all SQL statements sent to the database engine can be traced and the access path to data explored. Operation and set-up of the advanced DB2 cost-based optimizer is transparent to users, providing users and developers a quick and easy way to execute optimized, high-performance queries.

### **Easy interface for database administration**

With DB2 Control Center, DB2 offers a single point of control for all DB2 databases in the enterprise, regardless of the platform they run on—from Windows NT to OS/390. Using the graphical user interface of DB2 Control Center, the database administrator can manage multiple databases.

For SAP R/3, DB2 Control Center offers valuable SAP-specific extensions such as log file and backup management and password change, while other actions that are not applicable in an SAP environment (such as alter table) are disabled. DB2 Control Center has minimal bandwidth requirements and can be effectively operated over modem lines from remote locations. DB2 Universal Database Version 6.1 will offer a version of DB2 Control Center based on Java™ technology, providing total independence from the underlying platform.

Besides DB2 Control Center, DB2 Universal Database is fully integrated with the SAP Computing Center Management System (CCMS). This means that DB2 can be administered using SAP tools, including SAP DBA Planning Calendar for scheduling backups, log file archiving and reorganization.



*IBM solutions extend the reach of SAP R/3.*

### Security

An easy-to-use extension to DB2 Control Center enables easy changes to passwords that are used to create the connection between the database and application server, thus enhancing security. The password itself is safely stored in an encrypted file.

### Backup and recovery

DB2 supports many types of backup and recovery features, including online, offline or point-in-time roll-forward recovery. In addition, for very large databases with small backup windows, individual tablespaces can be backed up independently. Backups can also be done in parallel on several devices. A Tivoli™ Storage Manager Interface (previously Tivoli ADSTAR® Distributed Storage Manager) with IBM's enterprise backup solution is included at no additional charge.

### Easy administration of database space

DB2 data is stored in tablespaces that, in turn, comprise containers. As SAP R/3 tables grow, containers can be added on the fly without disrupting the production R/3 system. If new space is made available, DB2 will rebalance the data between containers in the background, enabling optimal parallelism in device access. Besides assuring that enough free space is available for the database to grow, there is no other activity for the administrator regarding space management. As DB2 uses uniform extends there is no maximum extent problem for individual tables.

Data is repeatedly inserted and deleted from the database, and over time is stored more randomly. This is true for all relational databases. From time to time, administrators need to reorganize tables to achieve optimal performance. With DB2 Universal Database, table reorganization can be accomplished online under transaction control. Thus, the database and SAP R/3 system remain online. In case of a power failure, reorganization can be restarted without losing data integrity.

Outsourcing shops that operate multiple databases, including DB2 Universal Database, will find that DB2 requires less administration effort. Moreover, DB2 administration is quicker and easier to learn because it is less complex.

## High availability

DB2 Universal Database provides the ability to perform online reorgs, supporting 24-hour operations. Ensuring further availability, DB2 Universal Database provides support for AIX HACMP clustering and Microsoft cluster server on Windows NT. DB2 will support shadow databases for disaster tolerance beginning with SAP R/3 Version 4.6 and Version 6.1.

## Comprehensive solution, round-the-clock support

IBM offers a wide range of complementary solutions for SAP R/3 implementations. These include Tivoli management framework, IBM MQSeries® Workflow, IBM Intelligent Miner™, IBM WebSphere® Application Server and more.

SAP and IBM provide worldwide support for DB2 Universal Database, complementing the support offered to all customers through SAP Online Service System (OSS), 24 hours a day, 7 days a week. In addition, SAP offers a Web-based hotline for SAP-related DB2 inquiries.

## Summary

### **DB2 Universal Database for SAP R/3 provides unmatched scalability**

- Available on all IBM hardware platforms, Intel-based PC Servers and Sun Solaris operating environment.

### **DB2 Universal Database offers state-of-the-art database technology**

- The first to offer a cost-based optimizer for SAP
- Online reorg—SAP R/3 active during DB2 table reorganization
- Backup/recovery with integrated Tivoli Storage Manager.

### **DB2 Control Center simplifies database administration**

- Central point of control
- Multiuser and multiplatform administration for SAP R/3
- Java support with DB2 Universal Database Version 6.

### **DB2 Universal Database for SAP R/3 offers worldwide customer support**

- SAP 24-hours-a-day, 7-days-a-week OSS support, worldwide
- SAP-IBM 20-hours-a-day, 7-days-a-week worldwide DB2 technical support
- Joint SAP, IBM DB2 Universal Database education.

### **DB2 Universal Database enables significant cost-saving**

- 20 percent lower SAP license fee (Basis/Workflow) for DB2 Universal Database is reflected in SAP maintenance fee (17 percent of total R/3 software costs per year)
- DB2 Universal Database is delivered as a full DB2 license, including DB2 Control Center, Tivoli Storage Manager Interface and DB2 Connect™.

## For more information, please contact your

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<sup>1</sup>IBM customers have won in multiple categories in the annual Very Large Data Base (VLDB) Survey conducted by the Winter Corporation, Waltham, Massachusetts, USA.



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