Dear SAP Customer,

Welcome to our fall edition of the Oracle for SAP Technology Update.

After the product launch of Oracle9i in June at Oracle OpenWorld in Berlin, the Global Technology Center for SAP in Walldorf had an overwhelming feedback from SAP customers about availability and first customer shipments in the SAP environment.

As you know, over the years, the Oracle database releases have consistently set the industry standard. Oracle9i database raises the bar once again. By addressing the common causes of system downtime – system failures, media failures, data corruption and human error, and by eliminating the need for planned downtime, Oracle9i database provides the most complete high availability solution, in the industry today.

Please read more about Oracle9i for SAP, Oracle Real Application Cluster technology and much more in this edition.

The current plan is to have a release combination of Oracle9i and mySAP.com generally available by mid of Q2 calendar year 2002. The availability of RAC for SAP customers may follow some time later. Initially it will be available on Compaq Unix, other platforms may follow. Any news about this topic will be published immediately on our website, WWW.ORACLE.COM.

Oracle is committed to the future releases of SAP, and supports SAP customers with the highest quality technology and services. Oracle helps to ensure successful integration for its customers. For the SAP customers on Informix, Oracle has developed a special migration program, called ORACLE SAFE SWITCH, which enhances the migration from Informix smoothly and safely to an Oracle database with attractive terms and conditions. The Oracle approach is to provide safe, reliable, and scalable database software that minimizes IT costs throughout the life cycle of an application.

For more information don’t hesitate to contact us, E-mail: saponoracle_de@oracle.com

Sincerely

Gerhard Kuppler
Director Corporate SAP Account
Oracle Corporation

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AMR Consulting report reveals Oracle delivers best operational value for SAP Customers


According to AMR Consulting’s recent report, “Large SAP Database Servers: Predicting Server TCO in an eBusiness World,” Oracle Corp., the largest provider of software for e-business, delivers the highest levels of operational value for e-businesses running SAP implementations. AMR reports that when matched with the Hewlett-Packard Company HP Superdome server, the Oracle database outperforms IBM Universal DB2 on the IBM eServer pSeries across all measures.

cont. page 2
Oracle Support - Services for SAP Customers

Oracle offers extensive SAP R/3 services for SAP customers. Oracle Support for SAP was created to meet the needs of SAP-focused customer support. The team consists of highly skilled and experienced Oracle DBA's who are trained and certified in SAP R/3 basis administration.

Our commitment and focus on SAP R/3 allows us to offer you a complete set of value-added premium services to assist you in all areas of Oracle and SAP R/3.

Tuning and Performance Optimization
Our core database background combined with extensive knowledge of SAP allows us to offer credible tuning solutions for SAP customers.

System Healthchecks
The “Systems Healthcheck” formalizes and documents the tuning status of your production SAP instance for optimizing the system for production readiness.

Backup and Recovery and Hot Standby Solutions
Oracle Services offers to setup, implement, and verify the backup strategy. We can also assist in the implementation and testing of a hot standby solution.

Migrations (Heterogeneous System Copy)
Oracle is prepared to assist you in the process with certified basis administrators who are also certified by SAP as migration experts.

Migrations (Database)
We have extensive experience in performing database upgrades and can provide assistance in planning, preparing and performing the upgrade at your site.

Workshops (On-site)
A one-week session provides a detailed explanation of the Oracle database and how the SAP R/3 software interacts with the database. It is intended for experienced people who are the DBA's and basis administrators of an R/3 system.

General SAP R/3 DBA Support
We give you the leading edge Oracle Premium Services in concert with SAP has over eleven years of experience delivering R/3 solutions based on the Oracle database. Please contact:
saponoracle_de@oracle.com

From page 1
While traditional total cost of ownership (TCO) calculations consider only measures of direct, indirect, and personnel costs, AMR’s definition of TCO compared the Oracle database on HP Superdome servers and the IBM Universal DB2 database on IBM pSeries against five criteria: processor availability; processor capacity growth; processor capacity on demand; storage system availability/extension; and database extension. Representing the results on a scale of “eBusiness Operational Value,” AMR scored the Oracle database running on the HP platform at the highest possible scores in each category – results not available for the IBM platform.

“Oracle’s maturity on the SAP platform as well as its reputation for security, reliability and scalability has made it among the most widely used among SAP customers,” said Jim Heaton, president, AMR Consulting.

“By comparison, the IBM pSeries/Universal DB2 solution has comparatively few production implementations.”

As the foundation to determine TCO, AMR’s operational value scale examines variables critical to support 100 percent e-business application availability. To that end, AMR highlighted numerous advantages of the Oracle database, such as Oracle’s provision for IT staff to either manually create or auto-extend files on new or existing storage devices without impacting performance. Conversely, IBM Universal DB2 administrators have no control over rebalancing the database, placing a heavy burden on the system as a result. Also according to the AMR report, IBM Universal DB2 requires a system restart to increase processor capacity whereas the Oracle database automatically completes this action without restarting the database. By limiting server downtime, the Oracle database delivers e-business efficiencies, which translate into lower overall ownership costs.


“This strong relationship, combined with HP Superdome’s leading-edge technology that ensures the highest levels of availability and scalability, delivers true business values that other vendor’s can’t match.”

“AMR Consulting’s measurement of eBusiness Operational Value provides an insightful glimpse into the TCO benefits of the Oracle database running on HP servers relative to IBM database server implementations,” said Chuck Rozwat, Oracle Executive Vice President of Server Technologies.

“Business must conduct careful evaluations on total cost of ownership associated with the ability to maintain a consistent presence on the Internet. When considering all the necessary variables, it’s no wonder that an overwhelming majority of all current SAP installations run on the Oracle database and with Oracle9i Database, Oracle introduces the SMARTEST technology for management - even more reason for SAP customers to choose Oracle.”

Dear Oracle Customer:

As an ongoing commitment to our joint customers, Oracle Corporation and SAP AG have extended the companies’ long-standing reseller and customer support agreements that will provide enhanced access to Oracle technology and improved service and support. All existing joint customers worldwide will have access to Oracle8i database options within the scope of the SAP applications. These options include features for customers implementing e-business infrastructures:

- Oracle8i Enterprise Edition
  - InterMedia
  - Parallel Server
  - Partitioning
  - Advanced Security
  - SQL*Plus
- Standard Management Pack
- DBA Management Pack
- Change Management Pack
- Diagnostics Management Pack
- Tuning Management Pack
- Management Pack for SAP R/3
- Oracle Lite Mobile Option

All SAP customers that previously sublicensed the Oracle database from SAP can sublicense the new options through SAP. Please contact your SAP Account Manager for the terms and conditions.

Oracle provides the same program upgrade free of charge to directly Oracle licensed and supported SAP customers that are using an Oracle database to run the SAP applications. The Advanced Security, Parallel Server and Oracle Lite Mobile options might be supported in future SAP releases. Oracle licenses available through SAP are specifically for use with SAP applications.

Under the extended support agreements, Oracle and SAP will provide better service and faster resolution to joint Oracle/SAP customers through ease of use, global coverage, and a dedicated support team. In addition, Oracle will now be able to support joint Oracle – SAP customers. Oracle and SAP have each established an escalation manager to handle urgent customer problems.

We are committed to the success of our mutual customers. Because of a large shared customer base, both companies continue to commit significant resources to drive long-term technical innovation, including an on-site Oracle development team in Walldorf, Germany. Since 1988, SAP has used Oracle as a Tier 1 development database, on which SAP develops, ports, and migrates its products to function optimally with Oracle’s database technologies.

Best regards,

Oracle Corporation

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Oracle for SAP Global Technology Center
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The Oracle Adapter for SAP R/3 provides a high-level integration framework for customers who need to connect Java applications with the SAP R/3 product.

Need for Integration

The internet changes everything – from the way businesses serve their customers to the way they work with suppliers and service providers. No company can scrap its entire IT infrastructure and build a new e-business environment from scratch. Existing Enterprise Resource Planning (ERP) applications need to coexist with innovative new supply chains, business intelligence or customer service applications. Integration with SAP R/3 as a major ERP application plays a key role for a company to become an e-business. Bringing together the Oracle Internet platform technology and the Java Adapter for SAP R/3 provides a standard, robust, and scalable integration environment for existing SAP R/3 customers to build a successful e-business enterprise.

Multiple Interfaces of SAP R/3

SAP R/3 provides a variety of approaches to interface with external systems. The Oracle Adapter for SAP R/3 uses the most powerful, widely used SAP R/3 standard, and SAP recommended intermediate technologies Business Application Programming Interfaces (BAPIs) and Intermediate Documents (IDocs).

BAPIs are business level interfaces to business objects. All SAP R/3 applications are organized into business components (e.g., Human Resources, Sales and Distribution) which consist of business objects (e.g., Employee, Sales Order). SAP guarantees the stability of the interface specification for the BAPIs. Communication in a loosely coupled environment of systems is provided through the Application Link Enabling (ALE) technology of SAP R/3. Data is exchanged by means of IDocs, which is a SAP-defined data format for asynchronous messaging.

The common protocol underlying both BAPIs and exchange of IDocs is the Remote Function Call (RFC) communication protocol of SAP R/3. The Oracle Adapter for SAP R/3 may be used both as RFC client and a RFC server to SAP R/3. As RFC client the adapter calls ABAP/4 function modules in the SAP R/3 system, as RFC server the adapter provides functionality which may be called from within the SAP R/3 system.

KEY FEATURES

Java Product with Standard SAP R/3 Integration Technology

- J Java RFC Interface
  Connection handling to SAP R/3
  R/3 parameter handling
  R/3 internal table handling
  Transparent data conversion between Java types and SAP R/3 types
  Automatic type coercion
- BAPI and Function Module access
  Access to SAP R/3 business objects and their methods
- Synchronous and asynchronous BAPI support
- ABAP/4 function module invocation
- Automatic creation of a function module signature from R/3
- IDoc Processing
  CA-ALE and CA-AMS certified by SAP
  outbound and inbound IDoc processing
  Standard, customer-extended, and customer-defined IDoc support
  Rich set of metadata access methods handled
- Oracle® Advanced Queuing (AQ/JMS) support
- SAP R/3 Table Access
  Access to SAP R/3 pool, clustered, and transparent tables
  Interface to read table metadata
- Automatic type coercion
- BAPI and Function Module access
- Synchronous and asynchronous BAPI support
- ABAP/4 function module invocation
- Automatic creation of a function module signature from R/3
- IDoc Processing
  CA-ALE and CA-AMS certified by SAP
  outbound and inbound IDoc processing
  Standard, customer-extended, and customer-defined IDoc support
- SAP R/3 Table Access
  Access to SAP R/3 pool, clustered, and transparent tables
  Interface to read table metadata
- • Standalone RMI Server
  Standalone RMI server may be used as a proxy to SAP R/3
  Allows to run applications without using native RFC library (100% pure Java)

Related Products and Services

The Oracle Adapter for SAP R/3 is currently available in the following SAP R/3 integration solutions of Oracle:
- • Oracle Application InterConnect for SAP R/3
  • Internet Procurement InterConnect for SAP R/3
  • Oracle Warehouse Integrator for SAP R/3

Fast Metadata Access and Efficient Modeling

- Browsing Capabilities
  SAP R/3 application hierarchy retrieval
  Business Object Repository browsing capabilities
  IDoc type browsing capabilities by SAP R/3 application hierarchy
- Local Repositories
  Repositories for function modules, BAPIs, IDoc types
  Client-side metadata repository and cache for offline modeling
  Client-side metadata repository in Oracle database with SQL access
- BuildRepository Utility
  Creates SAP R/3 metadata repository in Oracle database

Reliable Messaging

- Guaranteed Message Delivery through
  TRFC
  TID handling
  Transactional invocation of function modules
  Exactly-once semantics messaging

SAP R/3 Configuration Support

- Transactional XMI-driven SAP R/3
  Configurator (not included in standard adapter)
  Automatic ALE configuration
  Undo and redo of single and/or multiple configuration steps

- • Oracle Application InterConnect for SAP R/3
  • Internet Procurement InterConnect for SAP R/3
  • Oracle Warehouse Integrator for SAP R/3

Platform Availability

The Oracle Adapter for SAP R/3 is currently available for Microsoft Windows 98, Windows NT, Windows 2000, AIX, Linux, Solaris, HP-UX and Tru64 Unix.

- Requirements
  Java Development Kit 1.1.8 and higher
- Supported SAP R/3 releases
  R/2 Release 5.0 and higher
  R/3 Release 3.1H and higher
Best Performance in High-End Environments:
PRIMEPOWER® 2000

ATO 2-tier
(Assemble-To-Order)

34,260 assembly orders/h

128 CPU Sparc64 560 MHz, 128 GB RAM
SAP R/3 4.6B, Solaris 8, Oracle 8.1.7

No.1

This benchmark fully comply with SAP Standard Application Benchmark Council’s issued benchmark regulations and have been audited and certified by SAP.
For further information: http://www.sap.com/benchmark

as of 09/28/2001

Information and contact: http://www.fujitsu-siemens.com/sap, mailto: ccsap@fujitsu-siemens.com
Eastman Chemical Company’s products are found in many of the items we use daily—from toothbrushes to charge cards. The company is the world’s largest producer of polyester plastics for packaging; a leading supplier of raw materials used in coatings, specialty and basic chemicals, and plastics. Eastman is also the world’s largest producer of PET (polyethylene terephthalate) plastics, used in packaging such as beverage bottles.

Eastman’s chemicals perform everyday miracles, like preventing garden hoses from cracking, keeping food fresh, and ensuring that medical equipment stays safe. Other Eastman chemicals are used in electrical, paving, agricultural, textile, shipping, photographic items as well as toys and sports equipment. Hundreds of Eastman’s specialty products are key ingredients in paints, coatings, and printing inks.

Making the Decision

Eastman, which was founded in 1920 to supply photographic chemicals for Eastman Kodak Company, became an independent publicly traded company in January 1934. Its success and growth have gone hand-in-hand with being the first in the industry to offer customers faster, more efficient ways to do business through e-commerce.

The company’s e-commerce operations started in 1994 with the implementation of SAP R/2 enterprise resource planning applications running on IBM DB2 on OS/390, and the development of a stand-alone data warehouse environment, running on Oracle.

When pleased with its e-commerce operation, when the time came to upgrade to SAP R/3, Eastman’s IT team was concerned about the expense required to increase the capacity of the database server.

“Eastman had been a successful DB2 customer, yet we had a responsibility to investigate to see if we could find less expensive, better solutions,” says Jerry Hale, Director Global Business Systems. “Things had changed since our initial installations, when good-high-end UNIX servers that could handle the load weren’t available.”

Eastman’s team narrowed its choices down to Oracle. Hale says the selection was based on better cost, performance, capacity potential, availability, recoverability, flexibility, scalability, and being the best environment for running SAP.

“We looked at SAP’s customer base,” he recalls. “Regardless of IBM’s and SAP’s strategic alliance, 71% of all SAP customers run on Oracle.

A Smooth Migration

Once the decision was made to migrate to Oracle, Eastman’s IT team developed a SAP-approved project plan with consultants from the Oracle SAP Global Technology Center.

In total, approximately 200 GB of data in 5 databases was migrated in a series of three operations starting with a test database and ending with the production database, which at that time supported the Latin American business.

George Miles, who headed the systems team that oversaw the operation, describes it. “I don’t know how things could have gone better. We were 12 hours ahead of our projected time. The outage started Friday afternoon at five, and we completed everything, including application checkout, by Saturday morning. By Saturday noon, users were back on, and I was home in bed. Our consultant got an earlier flight and left town.”

Miles adds that it was actually difficult for the applications team to conduct the QA because the only change they could detect was that the system ran faster.

Eastman says the first thing they noticed was that performance turned out to be both noticeably and measurably better. Eastman’s records show that before the migration their SAP R/3 system on a given day supported 177 users processing 400,000 dialog transactions with a database response time of 550 milliseconds. After migrating to Oracle8i and moving the North American business from SAP R/2 to SAP R/3, Eastman has clocked 2,000 users completing 1,198,202 dialog transactions with a database response time of 320 milliseconds.

The improved performance drew instant positive feedback from users—something the Eastman IT team admits happens all too rarely in that line of work.

“At each point of the migration,” says Miles, “we got comments from end-users about the increased speed. After the first financial close, our financial analysts double-checked to make sure everything actually ran, because they couldn’t believe it ran that fast.”

In between the first and last migrations, Eastman asked the Oracle SAP Global Technology Center to return for a health check.

“We had been advised by other IBM and SAP customers that serious performance problems followed major implementations—problems that may take two or three weeks to work out,” says Miles. “We had the consultant scheduled for the whole week. We sent him home after two days because he said he couldn’t find anything wrong.”

Reaping the Rewards

Both Hale and Miles concur that switching to Oracle has enhanced the infrastructure for Eastman’s e-commerce operations. “And with the large amounts of data that we’ve added since migrating, we are convinced that had we stayed on our previous systems there would have been a major spike showing lower response time,” Miles says. “I believe the reason we didn’t see that was because of the Oracle-SAP integration, the way that we had set our system up with the guidance of the Oracle SAP Global Technology Center folks, and Oracle technology.”

Hale says he is pleased with how responsive and available Oracle has made Eastman’s e-business infrastructure. “With Oracle, we have an overall cost structure that is far more advantageous than what we had before we migrated. We are able to manage the corporate system with minimal staff. The total environment has improved along with third-party software costs. And we are now in a much better position to handle splitting the information technology when we become two companies. Our data warehouse environment is more responsive, helping us to make better decisions. All of our e-business capabilities are now faster, less expensive and every bit as reliable for less money.”

Business Profile

Eastman Chemical Company is the world’s largest supplier of polyester plastics for packaging; a leading supplier of coatings raw materials, specialty and basic chemicals and plastics. The company is one of the top 10 global suppliers of custom-manufactured fine chemicals for pharmaceuticals, agricultural chemicals and other markets. Eastman Chemical is based in Kingsport, Tennessee with plants in Asia, Europe, and Latin America. It has thousands of customers around the world, and in 2000, sales totaled $3.3 billion. In early 2002, the company will become two - a specialty chemicals and plastics company known as Eastman Company, and Voriginal Company, which produces polyethylene terephthalate plastics, acetate fibers, and polyethylene products. Solution Snapshot: Primary use.

Provides the underlying technology that supports integrating and continually adding functionality to Eastman’s e-business infrastructure.
Oracle –

**Buffer Cache Size Advice Mechanism**

The new technology of Oracle9i ensures customers a safe, reliable and scalable implementation of the SAP Business Information Warehouse 3.0 system. Here are some examples of Oracle9i technologies:

**Partitioning (list partitioning)**

Oracle Partitioning delivers significant improvements in the manageability, availability, and query performance of large tables and indexes. Partitioning is a key technology for data warehousing, where large tables are commonplace. Oracle9i's partitioning capabilities have been enhanced in Oracle9 with the addition of a new partitioning scheme, list partitioning. List partitioning gives data warehouse administrators precise control over which data belongs in each partition. For each partition, the data warehouse administrator can specify a list of possible values for the partitioning key of the rows in that partition. Each partition in a list partitioning scheme corresponds to a list of discrete values.

**Automatic memory management**

Memory management is another area which has been given significant attention in Oracle9i. Traditionally, administrators have needed to shut down the instance in order to grow or shrink System Global Area (SGA) components. Oracle9i introduces a dynamic memory management feature which allows for dynamically resizing the buffer cache and shared pool. It also includes a buffer cache size advice mechanism that predicts the performance of running with different size for the buffer cache.

**System management undo**

Oracle9i databases are capable of managing their own undo (rollback) segments. Administrators will no longer need to carefully plan and tune the number and sizes of rollback segments. Oracle9i also allows administrators to allocate their undo space in a single undo tablespace with the database taking care of issues such as undo block contention, consistent read retention, and space utilization.

**Working Memory Management**

Oracle9i provides transparent management of working memory for SQL execution by self-tuning the initialization runtime parameters that control allocation of private memory. Prior to release 9i the maximum size of these working areas was controlled using the SORT_AREA_SIZE, HASH_AREA_SIZE, BITMAP_MERGE_AREA_SIZE and CREATE_BITMAP_AREA_SIZE parameters. Setting these parameters in a SAP BW installation is difficult as the workload of each BW user is different and private memory requirements for execution of different queries varies a lot. With release 9i, sizing of working memory areas becomes automatic.

**Database Size:**

- Production SAP R/3 database - 350G B
- Data Warehousing database - 320G B

**Number of users:**

- Production SAP R/3 system - 17,000
- Data Warehouse - 15,000

**Benefits**

- Enhanced the infrastructure for its e-commerce operations
- Better cost, performance, capacity potential, availability, recoverability, flexibility & scalability
- Better environment for running SAP

Within the next months Oracle/SAP customers will see support for important Oracle features in SAP’s products. This will happen in 3 steps:

- **SAP R/3 6.10** will be based on Oracle8i, Release 3 (8.1.7). This release will provide support for locally-managed tablespaces and index organized tables (IOTs), reduces the number of tablespace required for a default installation from 27 to 5, and dramatically improves the maintenance of optimizer statistics using SAPDBA. R/3 6.10 will be available in Q3/4 CY 2001.

- **SAP R/3 6.20** will be shipped together with Oracle9i, Release 1 (9.0.1). This includes support for Oracle9i’s automatic memory management, undo tablespaces and online table reorganization. R/3 6.20 is due in May 2002.

- **Real Application Cluster (RAC)** is an additional and separate option of Oracle9i. This means, that RAC support depends on Oracle9i support and can only be certified sometime after Oracle9i is generally available.

Please note, that the features mentioned are available for all SAP products and modules. The availability depends on support by the R/3 kernel and SAPDBA. Consequently the reference to R/3 versions in the previous statements does not mean, that the features are available to R/3 only. Support for these features by an R/3 kernel imply their availability in all products and modules which are based on this specific kernel (e.g. BW 3.0 will be based on R/3 kernel 6.10).

The following sections describe the new Oracle features and their benefits for SAP customers in more detail.

**SAP R/3 6.10 and Oracle8i**

**Use of locally-managed tablespaces and reduction of tablespace number**

Tablespaces are containers for segments (tables, indexes, etc.), which in turn consist of one or more extents (groups of blocks allocated at the same time). Traditional or dictionary-managed tablespaces use data dictionary tables to log allocations and deallocations of extents. Locally-managed tablespaces use bitmaps instead of dictionary tables. Each datfile contains a bitmap that keeps track of the free or used status of blocks in that particular datfile.

Locally-managed tablespaces have the following advantages over dictionary-managed tablespaces:

- For a dictionary-managed tablespace Oracle updates the appropriate tables whenever an extent is allocated or freed for re-use. For this purpose Oracle uses SQL statements and stores rollback information. Bitmap maintenance requires significantly less overhead and is much faster. This means that locally-managed tablespaces will turn out to be an enormous benefit especially for BW users, because BW creates and drops tables frequently to store intermediate results.

- Dictionary-managed tablespaces need storage rules which determine the size of a new extent that needs to be created. Traditionally, storage rules for SAP systems were provided by SAP and, among other things, included the nasty limitation of extents that can be created (MAXEXTENTS). Using locally-managed tablespaces, no storage rule is needed anymore. The size of extents within a locally-managed tablespace is either the same for all extents or determined by the system, which considers the growth rate of the table data. The latter strategy is used for SAP systems. This means, that, starting with version 6.10, administrators do not have to care for storage rules, nor is there any need for reorganization because of “MAXEXTENTS reached”. In short, storage administration will become much easier.
NEW YORK CITY - September 25, 2001 - Today Sun revealed world record performance with the two-tier SAP®-Standard Sales and Distribution (SD) Application benchmark running on the newly announced Sun Fire™ 15K server in combination with Sun StorEdge™ T3 arrays, supporting 4,100 SAP-SD benchmark users with an average dialog response time of 1.88 seconds and 414,000 order line items per hour.

The SAP-Standard SD Application benchmark is a two-tier OLTP test that is indicative of full business workloads of an order line item including creating the order, creating delivery notes, displaying the order, posting a goods issue notice, listing orders and creating an invoice, and demonstrates the ability to run both the application and database software on a single system.

The Sun Fire 15K server shows that two-tier workloads can be consolidated on a single server thus meeting the increasing demand for server consolidation to address server sprawl, simplify operations, and lower total cost of ownership. The Sun Fire 15K supports up to 18 Dynamic System Domains, 106 UltraSPARC™ III CPUs with over half a terabyte of memory.

The SAP R/3® release 4.6C Standard SD Application benchmark was achieved on a 76-way Sun Fire 15K server with 288 GB of memory, running the Solaris® 8 Operating Environment and Oracle®8i. This benchmark fully complies with SAP Benchmark Council's issued benchmark regulations and has been audited and certified by SAP. For more information on this benchmark see http://www.sap.com/benchmark.

Never demonstrated on any other system, the Sun Fire 15K server used two of the MaxCPU boards, which allows CPUs to populate IO slots. SAP-SD represents the critical tasks performed in real-world e-business environments. Results proved unprecedented server consolidation capability, memory and scalability through the Sun Fire 15K system. The Sun Fire 15K system will heighten functionality for users of critical e-business solutions including CRM, SCM, PLM and BI.
is safe, reliable and scalable.

Other related tests
The Sun Fire 15K allowed Oracle9i to set a new precedent by using more memory than any single system available. As demonstrated, more than a half a trillion bytes of database may be held in memory, paving the way to significant increases in performance. Additionally, in a Data Warehousing database test showing system versatility, the Sun Fire 15K system demonstrated that it can effectively use all of the CPUs in a system, by delivering a 71 times speedup on 72 CPUs using Oracle9i.

About Sun Microsystems, Inc.
Since its inception in 1982, a singular vision-The Network Is The Computer™-has propelled Sun Microsystems, Inc. (Nasdaq: SUNW), to its position as a leading provider of industrial-strength hardware, software and services that power the Internet and allow companies worldwide to take their businesses to the nth. With $18.3 billion in annual revenues, Sun can be found in more than 170 countries and on the World Wide Web at http://sun.com.

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Latest SAP® Standard Application Benchmark Results
Confirm Speed and Performance of the Oracle Database

REDWOOD SHORES, Calif. Oct. 8, 2001 — Oracle Corp. (NASDAQ: ORCL) today announced two new leading SAP® Standard Application Benchmark results for the Oracle® Database. Building on a long history of outstanding performance, these recent results demonstrate the speed and processing power of the Oracle Database. Oracle’s latest release, Oracle9i Database with Real Application Clusters, provides virtually limitless scalability and availability for all packaged applications. The following results further demonstrate the fast performance results that numerous systems vendors have achieved with the Oracle Database.

- SAP Assemble-to-Order (ATO) Benchmark - The two-tier SAP ATO Standard Application Benchmark ran against the Oracle Database on the newly announced HP RP8400 16 processor server and produced 7,000 processed assembly orders per hour.1

- SAP Sales and Distribution (SD) Benchmark - The two-tier SAP SD Standard Application Benchmark ran against the Oracle Database on the newly announced Sun Fire™ 15K Server and achieved a new world-record result of 4,100 SD benchmark users with an average dialog response time of 1.88 seconds and 414,000 processed order line items per hour.2

"When hardware vendors want to demonstrate the superior performance of their systems, they choose the Oracle database," said Chuck Rozwat, executive vice president of Server Technologies at Oracle Corporation. "The Oracle Database is designed to run applications faster, more reliably than any database the world has ever seen."

These benchmarks fully comply with the SAP Benchmark Council’s issued benchmark regulations and have been audited and certified by SAP. [1] SAP ATO (Assemble-to-Order) two-tier: Certification Number: 2001034, Oracle 8.1.7, HP Server RP8400, 16-way SMP, PA-RISC 8700 750 MHz, 2.25 MB cache, 32 GB main memory, HP-UX 11i. [2] SAP SD two-tier Standard Application Benchmark results Sun Fire 15K Server, 76-way SMP, UltraSPARC 900 MHz, 288 GB memory, Solaris 8 OE, Oracle 8.1.7, Certification # 2001035. IBM eServer iSeries 400 Model 840, 24-way SMP, PowerPC 600 MHz, 96 GB memory, OS/400 V5R1, DB2 UDB for iSeries V5R1M0, Certification #2001023.

For more information, please visit http://www.sap.com/benchmark

Oracle Enterprise Manager for SAP

Oracle Enterprise Manager for SAP R/3 and mySAP.com is making SAP environments much easier to manage. Administrators will now be able to monitor different SAP platforms, SAP databases and SAP applications from one single point of administration. All this results in lower administrative costs and increased administrator productivity. Oracle Enterprise Manager for SAP allows for comprehensive monitoring and collection of data from multiple systems, extending its reach to provide graphical monitoring of SAP application servers. It includes features for optimum monitoring and deployment of SAP across application servers, including collection and management of data relating to system performance and immediate notification of potential problems through an advanced event system. Three out of four SAP customers are running their applications on an Oracle database.

In a 24x7 business economy their systems require highest availability with today’s technology. As the leading provider of non-proprietary mission-critical data management solutions, Oracle is committed to help SAP customers meet the challenge of 99.95% availability, and will continue to expand its system management offerings to allow these customers to take advantage of the latest advances in mission critical computing.

SAP’s continuing strategy of closer SAP integration with Oracle technology will enable mySAP.com users to benefit from Oracle’s groundbreaking Internet computing technologies. With Oracle as strategic technology provider, SAP customers can be sure that their systems will remain highly available, scalable and manageable no matter which computing environment they opt for.

PLEASE SEE PAGE 16 HOW TO GET ORACLE ENTERPRISE MANAGER FOR SAP.

More information: www.oracle.com/take_control
UNFURL YOUR WINGS

The transition from your existing SAP R/3 solution to mySAP.com opens up a world of new dimensions for your business. HP's expertise and proven methodologies ensure a smooth and fast transition.

SAP is the world's leading provider of e-business software solutions. HP is the leading provider of comprehensive services and robust infrastructures for one-stop e-business solutions.

www.sap.hp.com/public
A related improvement is the reduction of tablespaces required for a default R/3 or mySAP.com installation. With version 6.10, SAP has reduced their minimum requirements to the Oracle minimum requirements, i.e., 5 tablespaces instead of 27. Customers who want to benefit from special storage features of their operating system and/or hardware (e.g., striping algorithms) will particularly appreciate this simplification. Moreover, the reduction of the tablespaces combined with the more efficient storage management of locally-managed tablespaces will lead to a significant reduction of the disk space required for the database files.

Improved statistics maintenance
Oracle's cost based optimizer (CBO) needs statistics about the size of tables and indexes, the number of records in the tables, the selectivity of index values, etc. To gather these statistics, Oracle initially provided the SQL command ANALYZE and the PL/SQL package DBMS_STATS. The main advantage of DBMS_STATS is, that it can work in parallel whereas ANALYZE always uses only one processor. So it is obvious that the switch from ANALYZE to DBMS_STATS, which will happen with version 6.10, will significantly reduce the time needed for statistics gathering.

With version 6.10, SAP also introduces support for the table attribute MONITORING, which advises Oracle to collect modification statistics on this table automatically. These statistics are estimates of the number of rows affected by DML statements over a particular period of time. They are available for use by the optimizer or for analysis by the user.

Support for index-organized tables (IOTs)
Tables are used to store data. Indexes are used to accelerate the retrieval of a single record or a small set of records from big tables. Indexes contain the data of the column(s) identified during index creation - e.g., the primary key column(s) and Row IDs (pointers to the corresponding records in the table). So, if you create an index, you basically store a part of the data twice. This "wastage of disk space" pays off nicely, if the indexed columns make up a small part of the original record, but the more columns are indexed, the more inefficient it looks. This is why Oracle came up with index-organized tables (IOTs) in Oracle8. IOTs combine table data and search tree within one single segment.

A striking example is ACCTCR, a table which is used by the module ATO. ACCTCR consists of 9 columns, the first 7 of which make up the primary key (represented by the index ACCTCR-O). 7 of 9 columns mean that, by using separate data and index segments, basically the data is stored twice and that this table looks like a good candidate for conversion to an IOT. Tests performed by the Oracle/SAP Global Technology Center, Walldorf, proved that in this case an IOT offers the following advantages:

- Better performance: Not only was the performance of SELECT operations improved, also data manipulations (in this case INSERTs) needed 25% less time to complete. Due to the fact that the first 4 columns contain either always the same value or a very limited set of values, the IOT option COMPRESS could be used which resulted in 40% less time compared to the implementation in separate table and index segments.

- Less disk space: ACCTCR implemented as IOT without COMPRESS consumed 40-50%, implemented as IOT with COMPRESS consumed only 25-30% of the disk space needed for separate table and index segments. Needless to say, that in many cases disk space savings will translate into memory savings.

IOTs as such are transparent to the application, which means that theoretically it should be possible to use IOTs with R/3 versions before 6.10. However, the statements required for administrative tasks like reorganization differ from traditional (or heap-organized) and index-organized tables. SAPDBA 6.10 is aware of these differences, so IOTs are fully supported with version 6.10.

SAP R/3 6.20 and Oracle9i

Automatic memory management
Oracle9i introduces a dynamic memory management feature which allows for re-sizing of the buffer cache and shared pool dynamically. It also provides administrators with advisories to help them size the SGA for optimal database performance.

Furthermore, Oracle9i provides for transparent management of working memory for SQL execution by self tuning the initialization runtime parameters, controlling allocation of private memory. This feature helps customers to reduce the time and effort required to tune memory parameters for individual work loads.

undo tablespaces
Oracle9i databases are capable of managing their own undo (Rollback) segments - administrators will no longer need to carefully plan and tune the number and sizes of rollback segments or bother about how to strategically assign transactions to a particular rollback segment. Oracle9i also allows administrators to allocate their undo space in a single undo tablespace with the database taking care of issues such as undo block contention, consistent read retention and space utilization.

Online table reorganization
Oracle9i contains a new online reorganization and redefinition architecture that allows much more powerful reorganization capabilities. Administrators can now perform a variety of online operations to table definitions, including online reorganization of conventional tables.

In this new architecture the contents of the table are copied into a new table. While the contents are copied, the updates to the original table are tracked by the database. After the copy is completed, the updates are applied to the new table.

Once the updates are applied, indexes can be created on the new table. After the indexes are created, any additional updates are applied and the result table replaces the original table. The table is only locked in exclusive mode at the beginning of the operation while the dictionary data is updated.

Using this new architecture, any physical attribute of the table can be changed online. The table can be moved to a new location, the table can be partitioned, the table can be converted from one organization (e.g. heap) to another (e.g. index-organized).

Real Application Cluster (RAC)
When using RAC, two or more Oracle instances, running on two or more different servers, are connected to the same database. This approach can be used for different purposes:

- High availability: If one HW-node crashes, users can be reconnected to the (or: an) other instance immediately, because the server as well as the instance are already up and running and do not need reboot/startup.

- Workload distribution: As all instances are up and running and accessible at the same time, users (in this case: the application server connections) can be distributed over the available servers. This can be implemented in two different ways:

  - Multiple instances, multiple applications: SAP has announced the new Multiple Components on One Database (MCOD) strategy. MCOD provides the option to consolidate multiple databases required for an mySAP.com system (R/3, CRM, etc.) into one single database in order to ensure easier administration (e.g. backup). RAC is the ideal complement to SAP's approach, because it means, that customers do not need one "giant" database server to handle the workload but can set up different instances on different servers, configured according to the needs of the individual products or components. This setup is a no-brainer for RAC, because the different instances access different parts of the data, which means that no contention can occur.

  - Multiple instances, one application: The situation looks completely different, if customers want to use RAC to distribute a high number of users of the same application (e.g. R/3) over multiple instances. In this case the different instances want to access more or less the same data, contention can occur and RAC needs to handle it. To make this happen, RAC uses a technology called Cache Fusion.

Oracle9i Cache Fusion directly ships data blocks from one node's cache to another node's cache in contention situations. Because this technology eliminates the latencies associated with disk based cache coordination, applications can now scale effectively without having to be cluster aware. This means that for the first time a cluster can be treated as a truly scalable single system.
Real Application Clusters - Customer & Partner

“Real Application Clusters in Oracle9i Database provides out-of-the-box, near-linear scaling transparency, compatibility with packaged applications with no required redesign, and the ability to quickly add nodes and disk as needed.”

Fujitsu Siemens Computers

“In our testing, Real Applications Clusters proved that they provided increased scalability, availability and performance - without changing our applications at all. . . . We were able to use our same installation procedures with virtually no modifications.”

Bruce Burns, Vice President of Technology, NDS Systems

“Real Application Clusters provides a way to scale an application through the addition of additional database instances, which provide more processing power and network resources to the increasing number of GUI and WEB clients.”

Schlumberger Sema

“With Real Application Clusters, we were able to cut the response time for complex queries in half - without any change to the Cognos software!”

Patrick O’Leary, Vice President, Strategic Alliances, Cognis Inc.

“Switching from a single machine to Real Application Clusters was easier than upgrading from the last maintenance release!”

Virgil Fernandez, CTO, Tomax Corporation

In addition to the companies whose comments are shown above, there are many other companies who have endorsed Real Application Clusters -

Axiom
Advanced Book Exchange
Anis Corporation
ArisDigital
British Telecom
Cetea Automation
CIM-Logic
Collaxa
COMARCH SA
Compaq

Freeing the Enterprise’s data and making it readily accessible is an essential step in building a decision support environment that will prove flexible to an Enterprise’s long term requirements. In one strategic move, ERP data can be opened up for integration with other data sources to form a single version of the truth which can be accessed by a wide range of decision support tools.

See the bigger picture with Oracle
Forward-thinking organisations stand to gain substantially from strategically assessing their data warehousing and decision support options. By taking the time to consider future as well as current business needs, a comprehensive decision support strategy can be formulated to accommodate all of them. This is the very essence of Oracle’s “think big, start small” philosophy which is geared towards delivering quick benefits within a framework that will deliver all, not just some, of the business’ decision support requirements.

Opportunities to improve many aspects of an organisation’s access to information can be identified from current information systems and actions determined to quickly leverage more from an existing investment. In this context Oracle can help you to enjoy a low-cost, fast return on investment. Based on this foundation, Oracle can help your organisation to develop an Enterprise-wide Business Intelligence solution.

Solutions will use Oracle9i, acknowledged as the database technology of choice for scalable, available BI projects, with built in integrated capabilities for cleaning, loading, mining and managing data (including OLAP). And Oracle9i Application Server, with built in reporting, ad-hoc query/analysis using Oracle Discoverer, web site personalisation and site usage analysis.

Take the first step
Is data warehousing right for us? What are the implications? What are our options? Oracle have helped many of our customers who have implemented SAP to unlock the true potential of their systems using BI solutions. Solutions include “out-of-the-box” analytical applications, such as Sales Analyzer, Financial Analyzer, Activity Based Management and Balanced Scorecard. In addition, custom built solutions, for example Purchasing Intelligence a comprehensive solution for analyzing the performance of the procure-to-pay business flow in an e-business. Typically, solutions will draw on data from sources in all aspects of the business, internal and external, SAP or non-SAP. So these solutions will have to integrate with many diverse data sources which might include, for example, SAP R/3, SAP Business Information Warehouse, Oracle applications, other vendors’ applications, external geographic and demographic data providers, or billing systems.

If your instincts tell you that your organisation is missing an opportunity with decision support systems, but you’re not sure where or how, Oracle can help align your business with market demands, using IT as the enabler. cont. page 15
High availability of the entire SAP R/3 System is second only to maximum performance in the list of SAP R/3 customers' demands - regardless of the hardware and operating system used. As the central node of the SAP R/3 System's three-tier architecture, the database server plays an important role for high availability and fail-safe operations. If no measures are taken to deal with it, a failure of the database server can mean a failure of the entire SAP R/3 System, making this "single point of failure" particularly sensitive.

Oracle Fail Safe provides an excellent solution to this problem. Layered over Microsoft Cluster Server (MSCS) for Windows, Oracle Fail Safe is a key component for implementing a highly available fail-safe Oracle database server for SAP R/3. Oracle Fail Safe is a standard component of every Oracle license for the SAP R/3 System.

Fail Safe Oracle Database Server for SAP R/3

The foundation for setting up a fail-safe database server system based on Windows clusters is two or more servers that are configured as nodes of a cluster, through the Microsoft Cluster Server concept. Each of the nodes possesses its own, dual-ported disk subsystem, to which each node has exclusive access during normal operations.

An Oracle Fail Safe SAP R/3 configuration defines one of the cluster nodes as the production system, to which all the SAP R/3 application servers are connected. Another node of the cluster serves as the fail-safe node, but can also perform any other tasks in the meantime. In case of failure of the production database server system, Oracle Fail Safe services immediately switch all necessary resources from the production node to the fail-safe node, and restart the Oracle instance there.

The SAP R/3 application servers automatically establish a new database connection (automatic reconnect) to the Oracle instance on the fail-safe node, without requiring intervention by the end user or database administrator. They are reactivated almost immediately.

Oracle Fail Safe and Oracle Standby Database

A further step in high availability is provided by a remote Oracle Standby Database, the ideal complement to the local Oracle Fail Safe environment. While the Fail Safe solution solves local database server problems, an Oracle Standby Database protects against complete destruction due to fire, earthquake, or similar catastrophes. In this process, a complete copy of the production database is kept synchronously in a remote location, through a constant recovery operation. In case of a catastrophe, the Oracle Standby Database can help you resume operations in just a few hours.

Oracle Fail Safe is included in every Oracle database license for SAP R/3 on Windows NT and Windows 2000 and is supported from R/3 Release 3.1.G and later.

Provided the hardware and software requirements are met, existing SAP R/3 on Oracle production systems can also use Oracle Fail Safe for Windows. Installation of Oracle Fail Safe is extremely simple, and can easily be performed by experienced Oracle DBAs.

For expanded concepts in the areas of high availability and fail-safe operations, the experts at Oracle Services for SAP are at your service.

The SAP Special Interest Group (SIG) mission is to provide a forum for open discussion, education and networking to meet the challenges of implementing,
This is the fourth iteration of our survey on issues that surround Oracle and SAP installations. Using the 5 point scale provided, please rate each item on the following list with respect to its overall importance within your organization. Use the numbers between 1 and 5 as many times as you like. The anchors for the scale appear below. The results will be made available to the membership of the IOUG Oracle on SAP Special Interest Group.

1 = not important at all; 2 = slightly important, 3 = moderately important, 4 = very important, 5 = extremely important)

**Importance**

<table>
<thead>
<tr>
<th>Issue</th>
<th>Importance</th>
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<tbody>
<tr>
<td>Gathering and using Oracle metrics to analyze capacity and troubleshoot problems</td>
<td>4</td>
</tr>
<tr>
<td>Really understanding how Oracle and SAP work together</td>
<td>4</td>
</tr>
<tr>
<td>Archiving to and/or interfacing with data warehouses</td>
<td>4</td>
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<tr>
<td>Developing a strategy to handle database reorganizations</td>
<td>4</td>
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<tr>
<td>Integration of Oracle Enterprise Manager with SAPDBA and other SAP utilities</td>
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<tr>
<td>Integration tools which assist getting SAP data into Oracle data warehouses</td>
<td>4</td>
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<td>Impact on ERP/DB as Internet solutions proliferate in the business environment</td>
<td>5</td>
</tr>
<tr>
<td>Deciding on a data warehousing strategy and making it work</td>
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<tr>
<td>Planning and predicting growth of the database to assure no down time</td>
<td>5</td>
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<tr>
<td>Identifying performance bottlenecks in the database</td>
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<tr>
<td>Backing up the system offline in a 24/7 environment</td>
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</tr>
<tr>
<td>Retaining trained staff over time</td>
<td>5</td>
</tr>
<tr>
<td>Restructuring the tablespaces when transporting tablespaces between instances</td>
<td>5</td>
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</tbody>
</table>

Of all the issues presented here, which would IOUGA-SAP Special Interest Group be able to help most?
Database - SAP R/3 Release Matrix

SAP R/3 Version 3.1I, 4.0B, 4.5B and 4.6B-D:

8.0.6 32-bit: Intel NT, IBM AIX, HP-UX, Reliant Unix, Solaris
8.0.6 64-bit: Compaq Tru64, IBM AIX, HP-UX
8.1.6 32-bit: Intel NT, Windows2000, Linux, IBM AIX, HP-UX, Reliant Unix, Solaris
8.1.6 64-bit: Compaq Tru64, IBM AIX, HP-UX, Solaris
8.1.7 32-bit: Intel NT, Windows2000, IBM AIX, HP-UX, Reliant Unix, Solaris
8.1.7 64-bit: Compaq Tru64, IBM AIX, HP-UX, Solaris

SAP R/3 Enterprise 6.20 (planned)

Oracle9i 32bit: Windows2000, Intel Linux
Oracle9i 64bit: Compaq Tru64, HP-UX, IBM AIX, Solaris, (SUN und Fujitsu-Siemens)

SAP Business Warehouse 1.2B:

8.0.6 32-bit: Intel NT, IBM AIX, HP-UX, Reliant Unix, Solaris
8.0.6 64-bit: Compaq Tru64, IBM AIX, HP-UX
8.1.6 32-bit: Intel NT, Windows2000, IBM AIX, HP-UX, Reliant Unix, Solaris
8.1.6 64-bit: Compaq Tru64, HP-UX, Solaris
8.1.7 32-bit: Intel NT, Windows2000, IBM AIX, Reliant Unix, Solaris
8.1.7 64-bit: Compaq Tru64, IBM AIX, HP-UX, Solaris

Business Warehouse 2.0B:

8.1.6 32-bit: Intel NT, Windows2000, Linux, IBM AIX, HP-UX, Solaris
8.1.6 64-bit: Compaq Tru64, HP-UX, Solaris
8.1.7 32-bit: Intel NT, Windows2000, Linux, IBM AIX, Solaris
8.1.7 64-bit: Compaq Tru64, IBM AIX, HP-UX, Solaris

Business Warehouse BW 3.0 (planned):

8.1.7 32bit: Windows2000, Intel Linux
8.1.7 64bit: Compaq Tru64, HP-UX, IBM AIX, Solaris (SUN und Fujitsu-Siemens)

How to get your Oracle Enterprise Manager for SAP?

• Oracle Enterprise Manager is licensed through Oracle for all SAP customers who have acquired the Oracle license from SAP. Shipping and support will be handled by SAP. Please contact SAP Software Factory in St. Leon-Rot.

• Customers who have acquired their Oracle db license for SAP from Oracle
  • before Nov. 30, 1999 should contact saponoracle_de@oracle.com for a free copy of Oracle Enterprise Manager for SAP. Support is included under the terms of their already acquired license.

  • after Nov. 30, 1999 please contact your Oracle sales rep or contact saponoracle_de@oracle.com

Maintenance expiration dates for the various SAP R/3 Releases

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