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# Why Upgrade to Oracle Database 11g?

## Executive Overview

Oracle has made great strides in improving the database upgrade process over the past several releases. The development effort required to upgrade, test, and verify an application has been greatly reduced. Upgrading to Oracle Database 11g is faster, easier, and much less risky than ever before.

Of course, just because it is easier to upgrade is not justification to do so. There has to be compelling business reasons to consider upgrading a database. Return on Investment (ROI) is the major criteria. However, determining the costs and benefits of upgrading is difficult because they are both tangible and intangible. Tangible costs such as hardware and licensing must be compared with intangible costs such as lower support costs and more productivity for developers and database administrators.

The purpose of this paper is to discuss the key value propositions of Database 11g that can help improve a business's bottom line. This will help a business determine if the value propositions and benefits are greater than the cost of upgrading.

## Lifetime Support Policy

The cost to maintain an older version of an Oracle database must be taken into consideration when making a decision to upgrade to Oracle Database 11g. Here is a summary of Oracle's database support policy for Oracle Database 9.2, 10.1, and 10.2 releases:

- Oracle announced the desupport of Oracle Database Release 9.2 as of July 2007. For customers who are on Database Release 9.2, free Extended Support ended July 2008. Although Extended Support goes through July 2010, a fee will apply starting August 2008.
- For customers who are on Database Release 10.1, Premier Support ended January 2009. For customers on Database Release 10.2, Premier Support ends July 2010.
- For more information, please go to: <http://www.oracle.com/support>

## Key Value Propositions of Oracle Database 11g

In upgrading a database, the business value created by new features is often the primary justification for an upgrade. Here are some of Oracle Database 11g enhancements and the value that they can bring to an organization.

### New Change Assurance Capabilities

The pressure for businesses to move faster and manage change is a constant. System changes such as hardware/software upgrades and patch applications are essential for businesses to maintain a competitive edge. All businesses must deal with them. Even though these changes are designed to have a positive impact on the infrastructure, they can lead to unexpected and undesirable behavior. As a result, businesses spend significant time and effort evaluating system changes in test environments to assess their full impact before introducing them in their production systems. However, despite extensive testing, many problems are only detected on production deployment, resulting in unplanned downtime and loss of revenue.

Oracle Real Application Testing combines a workload capture and replay feature with a SQL performance analyzer to help test changes against real-life workloads, with the ability to fine-tune these workloads before putting them into production. Testing time is reduced and testing accuracy is improved, resulting in lower production deployment risk and decreased business costs. System changes can be evaluated with a high degree of confidence and corrective action can be taken before business users are negatively impacted by the change.

## Reduced Storage Needs

Although the cost of data storage has been declining on a per unit basis, the huge growth in the amount of data that needs to be retained online makes storage one of the biggest elements in IT budgets. In addition, application scalability and performance must continue to meet the demands of the business – even as data volumes continue to grow. Oracle Advanced Compression helps organizations cope with these challenges.

Oracle Advanced Compression offers a comprehensive set of compression capabilities. Enabling compression for all data types significantly reduces database storage for structured, unstructured, and backup data. While storage costs are an obvious tangible benefit of compression, the innovative Advanced Compression technologies are designed to reduce resource requirements and costs for all components of an IT infrastructure, including memory, backup media and network bandwidth.

An organization can see up to three times or higher reduction in storage costs. These savings also extend to test, development, backup and disaster recovery environments further magnifying the cost savings. Memory efficiency is enhanced as data in memory is in a compressed format. This allows more data to be stored in memory and reduces the number of I/Os, which may improve performance.

## Stronger Data Security

Businesses need to address regulatory compliance requirements by protecting sensitive data on the network, on backup media, or within the database from unauthorized disclosure.

Oracle Advanced Security provides an easy-to-deploy and comprehensive solution for protecting all communication to and from an Oracle Database, providing both native network encryption and SSL based encryption.

Oracle Database Vault controls the who, when, and where of data and applications that can be accessed – protecting a business against the most common security threat: malicious internal users. It achieves this by controlling access to application and database data, even by highly privileged users.

## Faster Performance

Oracle Database 11g introduces many performance breakthroughs. New server and client-side result caching has improved the performance of often-repeated statements by 25% or more. New native compilers for PL/SQL and Java have drastically improved performance, up to 2 times faster for PL/SQL and 11 times faster for Java. Oracle Real Application Clusters (Oracle RAC) performance has been improved for certain classes of workloads.

More performance enhancements have been added in other areas as well: Oracle Streams is up to 2 times faster, and optimizer statistics gathering is both faster and more accurate. Finally,

noticeable speedup will be apparent in many business intelligence applications with the use of new partitioning methods and materialized views.

### Greater Availability

Every IT organization is faced with the challenge of improving quality of service while at the same time reducing cost and complexity. One method to achieve consistent high performance is to offload ancillary work to a replica of the production database.

Oracle Active Data Guard enables customers to use their standby database to improve performance in their production environments as well as provide protection from system failures and site-wide disasters. Oracle Data Guard uniquely enables simultaneous read and recovery of a single standby database. A standby database is now available for real-time reporting, backup, testing and online upgrades to production databases. By offloading workloads from production to a standby system, Oracle Data Guard helps enhance the performance of production systems and provides a more cost-effective disaster recovery solution.

### Enhanced Database Management Capabilities

Managing a database requires valuable administrative resources. Oracle continues to improve administrator productivity by introducing new management automation capabilities in Oracle Database 11g, thereby saving operational costs.

### Automatic Performance Diagnostics and Monitoring

Diagnosing a slowly performing system is a time consuming task. A number of third party tuning tools are available today but most of them simply provide a graphical display of raw database statistics, leaving users to determine the root cause on their own by drilling through large amounts of raw data. This can be complex and tedious work.

Oracle Diagnostics Pack 11g is a self-diagnostic solution that enables Oracle Database 11g to automatically diagnose its performance problems, thereby liberating administrators from this difficult and arduous task.

### Application Tuning

Application tuning is a critically important area. Database administrators and application developers spend a considerable amount of time performing this important function. A poorly tuned business application can potentially affect not just a few users but an entire business operation. For this reason companies invest significant resources to ensure smooth running of applications vital for their businesses.

Oracle Tuning Pack 11g offers a cost effective solution that automates application and SQL tuning and eliminates the need for manual tuning. System performance and reliability are enhanced and management costs are significantly lowered.

## Simplified Database Upgrade Process

Over the last several database releases, many improvements have been made to the upgrade process, making it easier to successfully upgrade to new releases of Oracle software.

One of the most significant enhancements is the Database Upgrade Assistant (DBUA). The DBUA automates the various steps in an upgrade to a new release or patchset. It provides a graphical user interface to perform an upgrade, monitor its progress, and review the status of the upgraded database. It can upgrade a Single Instance database, a Real Application Clusters database, or an Automatic Storage Management instance (ASM).

Other improvements include better and more streamlined documentation and new on-line sites that have frequently updated upgrade information.

Before planning the upgrade process, the following documents and web sites should be reviewed:

- Oracle Database Upgrade Guide 11g Release 1 (11.1)
- B28300-01
- The Oracle 11g Upgrade Companion (Metalink Note 601807.1) helps with upgrading an Oracle database from Oracle9i Release 2 or Database 10g to Oracle Database 11g. The guide is not an automated tool but provides guidance for pre-upgrade, upgrade, and post-upgrade steps. It is constantly being updated and makes it easier to find upgrade information without sifting through multiple pieces of documentation, Metalink notes, and white papers.
- The Upgrade web site on OTN:  
<http://www.oracle.com/technology/products/database/oracle11g/upgrade/>

## Conclusion

The key value propositions of Oracle Database 11g and the faster and smooth upgrade process make it compelling for businesses to consider upgrading older Oracle databases. Upgrading provides businesses with access to new functionality and ensures that an Oracle database is fully supported by Oracle.



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