

KEY FEATURES AND BENEFITS

THE INDUSTRY'S ONLY SOLUTION FOR CAPTURING REAL PRODUCTION DATABASE WORKLOAD AND REPLAYING IT ON A TEST SYSTEM

KEY FEATURES

- SQL Performance Analyzer
- Database Replay
- Consolidated Database Replay
- Workload scale-up and custom workload creation support
- Workload Intelligence
- Integration with Oracle's Test Data Management Data Masking functionality and Application Testing Suite

KEY BENEFITS

- Increased business productivity through automation and zero-scripting
- Increased business uptime by proactively identifying and remediating potential issues
- Enables business agility through significantly reduced risk and costs
- Highest quality production-scale secure testing solution

ORACLE REAL APPLICATION TESTING

Oracle Real Application Testing offers an extremely cost-effective and easy-to-use change assurance solution that enables businesses to fully assess the outcome of a system change in a test environment, take any corrective action if necessary, and then to introduce the change safely to production systems, minimizing the undesirable impact on them. Real Application Testing offers two key unique features, Database Replay and SQL Performance Analyzer (SPA). These two together provide customers a comprehensive and flexible testing solution that significantly mitigates business risk, reduces testing costs and future-proofs their database infrastructure.

SQL Performance Analyzer

SPA provides fine-grain assessment of an environment change on SQL execution plans and statistics by running the SQL statements in isolation and serial manner in before-change and after-change environments. SPA functionality is well integrated with existing SQL Tuning Set (STS), SQL Tuning Advisor, and SQL Plan Management functionality. As a result, SPA completely automates and simplifies the manual and time consuming process of assessing the impact of a change on even extremely large SQL workloads (thousands of SQL statements) and automating the remediation of any SQL regressions as a result of the system change. Figure 1 below illustrates a typical SPA Report.

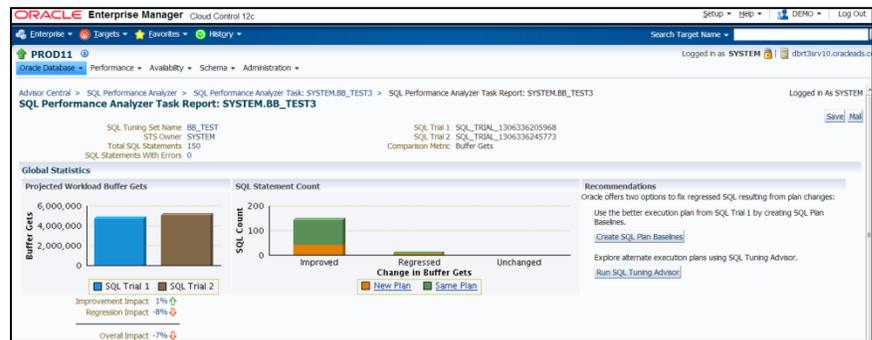


Figure 1: SQL Performance Analyzer Report

Examples of usage for SPA include:

- Database upgrade, patches, and initialization parameter changes
- Configuration changes to the operating system, hardware, or database
- Schema changes such as adding new indexes, partitioning or materialized views
- Validating optimizer statistics refresh or SQL tuning actions (such as creating SQL profiles)
- Comparing SQL performance between two different systems
- Exadata simulation for DW/DSS workloads
- Database consolidation to a single or Container Database

RELATED PRODUCTS

Real Application Testing delivers maximum benefits when used with the following Oracle products

- Oracle Diagnostics Pack
- Oracle Tuning Pack
- Oracle Test Data Management Pack
- Oracle Database Lifecycle Management Pack
- Oracle Application Replay Pack
- Oracle Application Testing Suite

Database Replay

Database Replay workload capture is performed at the database server level and therefore can be used to assess the impact of any system change or use case in the database tier level such as:

- Database upgrades, patches, parameter, schema changes
- Configuration changes such as conversion from a single instance to RAC, ASM
- Storage, network, interconnect changes, Operating system and hardware migrations (including to Exadata)
- Database consolidation to a single or Container Database
- Workload stress testing, capacity planning, and scale-up testing

Database Replay workflow consists of the following three phases that are described below:

i. Workload Capture

When workload capture is enabled, all external client requests directed to the Oracle server are stored into compact “capture” files on the database host file system while incurring negligible overhead. These files contain all relevant information about the call needed for replay such as SQL text, bind values, wall clock time, SCN, etc. The workload that has been captured on Oracle Database Release 9.2.0.8.0 and higher can be replayed on Oracle Database Release 11g and higher.

ii. Workload Replay

Before performing workload replay, the test system has the intended system change applied and database restored to the point in time before the capture. Once replay is initiated, a special client program called the “replay client” replays the workload from the processed files. It submits calls to the database with the exact same timing and concurrency as in the capture system and puts the exact same load on the system as seen in the production environment.

iii. Analysis and Reporting

Extensive reports that encompass both high-level summary and detailed drill-down information in terms of errors, performance and data divergence are provided to help understand how the replay fared in comparison to capture or other replays. Basic performance comparison reports between replay and capture or other replays are provided and for advanced analysis AWR, ASH, and Replay Compare Period reports are available.

Consolidated Database Replay

One can validate a chosen database consolidation strategy using Consolidated Database Replay and minimize its associated risk. Consolidated Database Replay supports simultaneous replay of workloads captured from one or multiple systems. These captured workloads can be from any database release or operating system on which workload capture is supported. Some typical use cases for Consolidated Database Replay include:

- Schema consolidation into a single database
- Database consolidation using Oracle Pluggable Databases
- Testing impact of enabling Resource Manager in a consolidated environment

Figure 2 below illustrates Oracle Enterprise Manager 12c, Database Replay Summary Page for a successfully completed consolidated replay.

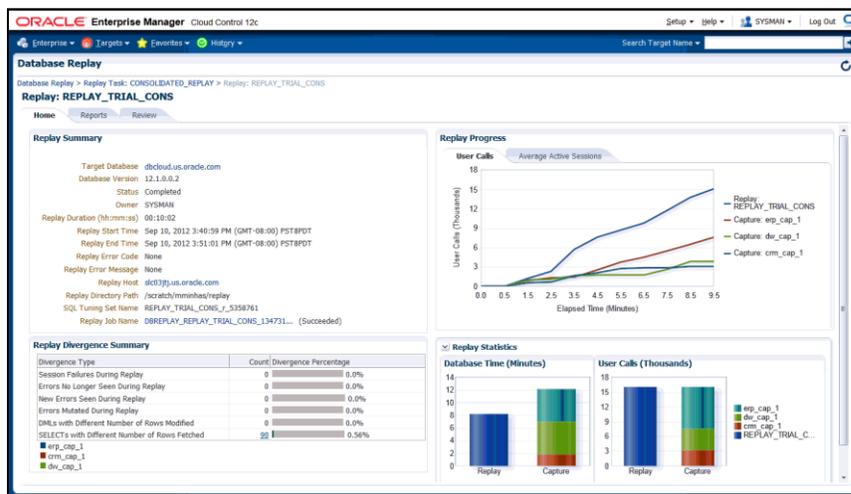


Figure 2: Consolidated Database Replay Summary Page

Database Replay Workload Scale-up

Database Replay supports workload stress testing, capacity planning, scale-up testing using any of the three methods namely, Time Shifting, Workload Folding, and Schema Remapping. Time Shifting workload scale-up is useful to conduct system stress testing by adding workloads to an existing workload capture, scheduling them to align their peak activity or as intended, and replaying them concurrently. Workload folding method consists of slicing an existing captured workload into two subsets by specifying a point in time within the captured duration. Then one can double the workload by folding the workload along this specified point-in-time. This is done by submitting simultaneous replays (consolidated replay) of the created subset workloads on the target database. This consolidated database replay effectively allows one to double the current workload without the need to use scripting or supplying binds. Workload Folding scale-up method is suitable for applications where individual transactions are mostly independent of each other. Schema Remapping workload scale-up method enables you to perform scale-up testing by remapping database schemas. This method is useful in cases when you are deploying multiple instances of the same application such as a multi-tenant application, or adding a new geographical area to an existing application.

Workload Intelligence

Workload Intelligence enables you to better visualize a captured workload by exploring template patterns and their corresponding SQL statements. For each pattern, you can view important statistics, such as the number of executions of a given pattern and the database time consumed by the pattern during its execution. Some typical use cases for Workload Intelligence are Workload modeling and profiling.

Real Application Testing and Oracle Enterprise Manager Integration

Oracle Enterprise Manager significantly enhances the value of Real Application Testing by supporting end-to-end Database Replay automation, transportation of STSs between databases, and Consolidated Database Replay.

Real Application Testing and Oracle Application Testing Suite Load Testing Accelerator Integration

Oracle Application Testing Suite Load Testing Accelerator for Oracle Database is integrated with Database Replay to enable testing with real production workloads. Users can create database test scripts in Application Testing Suite manually or automatically generate them by importing the Database Replay workload capture files. These scripts can then be run in

Oracle Load Testing with hundreds or thousands of concurrent virtual users to scale up workload and analyze database performance.

Real Application Testing and Oracle Data Masking Pack Integration

Real Application Testing and Oracle Data Masking Pack functionality integration provides users with the ability to perform secure testing in accordance to data privacy regulations in situations where data in production needs to be shared by non-production users due to organizational or business requirements.

Licensing

Real Application Testing features are accessible through Oracle Enterprise Manager, and command-line APIs provided with Oracle Database software. The use of these and other features described in the product licensing documentation requires licensing of the Oracle Real Application Testing option regardless of the access mechanism.

Contact Us

For more information about Real Application Testing, visit oracle.com or call +1.800.ORACLE1 to speak to an Oracle representative.



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