White Paper

Oracle E-Business Suite Performance on Cisco Unified Computing System

Oracle E-Business Suite Standard Benchmark Overview

Executive Summary

Performance Is Critical

Performance is of critical importance to Cisco Unified Computing System™ (Cisco UCS®) customers, and Cisco is committed to making sure that Oracle E-Business Suite running on the Cisco UCS platform performs to exceptional standards. Working together with Oracle, Cisco has demonstrated its commitment to Oracle E-Business Suite performance with a series of industry-leading benchmark publications using the Oracle E-Business Suite Standard Benchmark. Cisco UCS now dominates the landscape in Oracle E-Business Suite performance.

Overview

History

Oracle developed the Oracle E-Business Suite Standard Benchmark more than eight years ago.

- Released in 2004 for Oracle E-Business Suite Version 11.5.9
- Major overhaul in 2005 for Oracle E-Business Suite Version 11.5.10
- Modified in 2008 for Oracle E-Business Suite Version 12.0.4
- Modified in 2010 for Oracle E-Business Suite Version 12.1.2
- Modified in 2012 for Oracle E-Business Suite Version 12.1.3

Goals

The Oracle E-Business Suite Standard Benchmark is developed on a native Linux 64-bit environment, but it can also be exported for deployment on non-Linux platforms. The benchmark has several goals:

- Demonstrate performance and scalability of Oracle E-Business Suite on a variety of platforms
- Establish common metrics for performance comparisons of different system configurations
- Gather performance data to assist in sizing of Oracle E-Business Suite customer deployments
- Provide a feedback mechanism to Oracle development teams to maintain high product quality

Technology Stack

The latest version of the Oracle E-Business Suite Standard Benchmark is built on the technology stack outlined in Table 1.

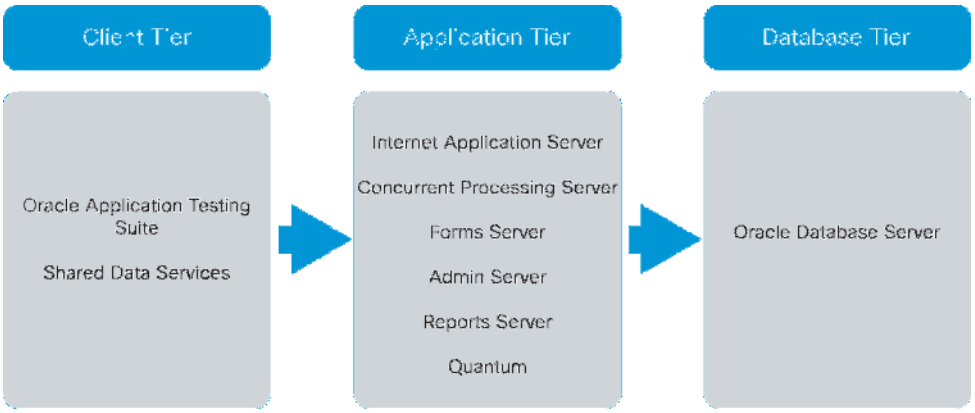
Table 1. Technology Stack

Component	Version
Oracle E-Business Suite	12.1.3
Oracle Forms	10.1.2.3
Oracle Internet Application Server (Apache)	10.1.3.5.0
Oracle client home	10.1.2 and 10.1.3
Oracle Database	11.2.0.3.0 (64-bit)
Java Development Kit (JDK)	1.6.0_17
Java Database Connectivity (JDBC) Driver	11.2.0.1.0
Servlet Engine	2.4
Perl	5.10.0
Oracle Linux	5.6
Oracle Unbreakable Enterprise Kernel	1.0
Oracle Application Testing Suite	9.31

Architecture

Figure 1 shows the Oracle E-Business Suite Standard Benchmark architecture.

Figure 1. Benchmark Architecture



Mixed Workload: Batch and Online

The Oracle E-Business Suite Standard Benchmark consists of a mixed workload intended to model the most commonly used applications, modules, and transactions. The benchmark has two main components: batch and online. The batch component consists of Order-to-Cash and Payroll Processing flows. The online component exercises the common flows that are most-frequently used by customers. Benchmark flows were defined through collaboration with functional consultants and are intended to be representative of typical customer workloads.

Batch Flows

The batch flow workload composition of the Oracle E-Business Suite Standard Benchmark is listed in Table 2.

Table 2. Batch Flow Composition

Batch Flow	Transaction
Order-to-Cash	High Volume Order Processing
	Pick Release Order
	Ship Confirm
	Interface Trip Stop
	Inventory
	Auto Invoice
	Revenue Recognition
	Transfer to GL (Accounting Submit)
	GL Autopost (Accounting Create)
Payroll	Payroll Process
	Prepayments
	NACHA
	External Process Archive
	Check Writer
	Costing

Online Flows

To maintain benchmark workload consistency across a variety of online user counts, the concept of atomic groups is employed. For the Oracle E-Business Suite Standard Benchmark, an atomic group is 100 online users. This group is the smallest number of online users that can be added while still ensuring a consistent workload composition, specifically in terms of the percentages of each type of user in the mix. More online users can be added in increments of 100 by increasing the number of atomic groups.

For the online component of the Oracle E-Business Suite Standard Benchmark, individual flows or the complete atomic group can be executed. This approach offers more workload flexibility in order to address a variety of business case requirements.

The online flow workload composition of the Oracle E-Business Suite Standard Benchmark is listed in Table 3.

Table 3. Online Flow Composition

Online Flow	Transaction	User Count
Financials	View Customer Transaction	2
	Create / Query Asset	2
	General Ledger Journal Entry	2
	View Item Attributes	2
	Insert Misc Transaction	2
	Aging Report	2
	Min/Max Report	2
Order-to-Cash	Create / Book Order	4
	Pick Release	2
	Ship Confirm / ITS	2
	Receivables Invoice	2
	Customer Summary	2
	Order Summary Report	2
iProcurement	Create / Query Requisition	2
	Create / Approve Purchase Order	2
	View Purchase Order	2
	Create Payables Invoice	2
	View Payables Invoice	2
	Print Purchase Order Report	2
Self-Service	Cash Expenses	4
	Credit Card Expenses	4
	Submit Time Card	6
	View Payslip	6
Customer Service	Create Service Request	16
	Update Service Request	16
	Close Service Request	8
		100

Four Model Sizes

The Oracle E-Business Suite Standard Benchmark supports four model sizes: Small, Medium, Large and Extra-Large. The number of batch transactions and online users varies with each model size to simulate different enterprise environments (Table 4).

Table 4.

Model Size	Order-to-Cash Batch	Payroll Batch	Online Users
Small	10,000 Order Lines	5,000 Employees	100 to 1,000
Medium	50,000 Order Lines	10,000 Employees	1,100 to 3,000
Large	100,000 Order Lines	50,000 Employees	3,100 to 10,000
Extra-Large	250,000 Order Lines	250,000 Employees	10,100 to 20,000

Database

The Data Composition Model has been developed to reflect realistic performance for companies that maintain a year of history. The same Oracle database with the same amount of data is used for all models, but the number of online users and batch transactions processed against that database varies depending on the model size (Table 5).

Table 5. Data Composition

Application	Business Objects	Row Counts
TCA	Organizations	1,113,734
	Contacts	4,962,828
	Contact Points	3,771,992
	Account	1,101,954
	Account Sites	1,093,903
	Account Site Uses	2,187,131
Contracts	Contracts	222,528
IB	Instances	1,355,994
IB Items	Items	5
	Managers	800
Self-Service	Employees	40,000
	Users	20,000
	Credit Card Entries	4,000,000
	Asset Categories	985
	GL Code Combinations	93,391
	Suppliers	10,000
Order-To-Cash	Order Lines	250,000
Payroll	Employees	250,000
	Users	250,000

Audit and Publication

Oracle conducts a review of all Oracle E-Business Suite Standard Benchmark results before publication. Oracle confirms that all workload flows have been processed correctly and completely, verifying that:

- Benchmark rules were followed
- Expected row counts and table sizes before and after the run were as expected
- All processing occurred in the proper sequences and ran to completion
- The permitted number of threads were used
- Hardware and software environments were as described

A formal audit by an independent third-party auditor is also a pre-requisite for publication. The auditor reviews all results, system utilization reports, and log files, and verifies that the systems and databases were properly built and configured. The auditor also confirms that transactions were run successfully with required completion rates, and that response-time constraints were met. An audit summary report is generated by the auditor attesting to the validity of the benchmark results.

Results for the Oracle E-Business Suite Standard Benchmark are published at the Oracle website. Detailed benchmark reports accompany each publication, including disclosure of hardware and software configurations, resource utilization, and tuning.

Analysis and Comparison of Results

Much of the benefit derived from the Oracle E-Business Suite Standard Benchmark comes from detailed analysis of the results in the published benchmark reports. These reports include CPU, memory, and storage utilization for both the application tier and database tier. Oracle database statistics from Oracle Automatic Workload Repository (AWR) reports are also published.

Comparison of Oracle E-Business Suite Standard Benchmark results should be based only on the reported metrics. For batch benchmarks, the key metric is *throughput*. For online benchmarks, the metrics are *user count and average response time*. There is no price performance metric for the Oracle E-Business Suite Standard Benchmark. Performance comparisons between different configuration models (such as Small, Medium, and Large) are discouraged. Comparison of results between a Single Instance and Oracle Real Application Clusters (RAC) is also discouraged.

Benchmarking methodology focuses on tuning both software and hardware to eliminate resource contention at every level. Memory and storage are amply sized to eliminate bottlenecks and facilitate maximum CPU utilization. This approach produces highly-tuned benchmark configurations for optimal performance. When evaluating benchmark results, note that Oracle E-Business Suite is deployed in a wide range of environments to meet different customer requirements. Therefore, actual performance may vary significantly from published benchmark results.

Conclusion

Cisco is committed to helping ensure exceptional performance of Oracle E-Business Suite running on the Cisco UCS platform. This commitment is highlighted by a series of industry-leading benchmark publications using the Oracle E-Business Suite Standard Benchmark. Cisco UCS now dominates the landscape in Oracle E-Business Suite performance. The details of these benchmark publications can be reviewed at the Oracle website.

See http://www.oracle.com/us/solutions/benchmark/apps-benchmark/results-166922.html

For More Information

Read more about the Oracle E-Business Suite Standard Benchmark and the Cisco Unified Computing System, or contact your local account representative.

- Oracle Applications on Cisco UCS
- Oracle Applications Benchmark
- Cisco UCS Performance Benchmarks

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