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COMPARISON OF ORACLE APPLICATION SERVER, WEBLOGIC AND WEBSPHERE USING PEOPLESOFT ENTERPRISE ONLINE MARKETING 8.9

As a global leader in e-business applications, Oracle is committed to delivering high performance solutions that meet our customers' expectations. Business software must deliver rich functionality with robust performance. This performance must be maintained at volumes that are representative of customer environments.

Oracle benchmarks demonstrate our software's performance characteristics for a range of processing volumes in a specific configuration. Customers and prospects can use this information to determine the software, hardware, and network configurations necessary to support their processing volumes.

The primary objective of our benchmarking effort is to provide as many data points as possible to support this important decision.

SUMMARY OF RESULTS

PeopleSoft Enterprise Online Marketing 8.9	1,500 Concurrent Users (QuickTest Client Timers)		
	OAS	Web-Logic	Web-Sphere
Open Dialog	**0.57 sec**	**0.57 sec**	**0.57 sec**
Submit Contact Information	**1.6 sec**	**1.49 sec**	**1.58 sec**
Review Contact Information	**0.57 sec**	**0.5 sec**	**0.57 sec**
Review Final Page	**1.06 sec**	**1.06 sec**	**1.02 sec**

BENCHMARK PROFILE

In April 2006, Oracle (PeopleSoft) conducted a benchmark in Pleasanton, CA to measure the comparative online performance of selected processes in Oracle's PeopleSoft Enterprise Online Marketing (CRM) 8.9 w/MP 1 with Oracle10g™ 10.1.0.2. We used an 8-way Hewlett-Packard® ProLiant™ DL-560 G1 as the database server, running Microsoft® Windows® Server 2003 Enterprise Edition. Another 8-way HP ProLiant DL-560 G1 server was used as an Application Server running Microsoft® Windows® Server 2003 Enterprise Edition. A single 8-way HP ProLiant DL-560 G1 server was used as the Web Server. An HP StorageWorks XP128 disk array was used for data storage.

This benchmark measured the online performance for a small-medium database model. Three web server solutions were run to investigate comparative performance issues.

Testing was conducted in a controlled environment with no other applications running. **The goal of this Benchmark was to obtain comparative performance results for Oracle's OAS, BEA's WebLogic and IBM's WebSphere.**

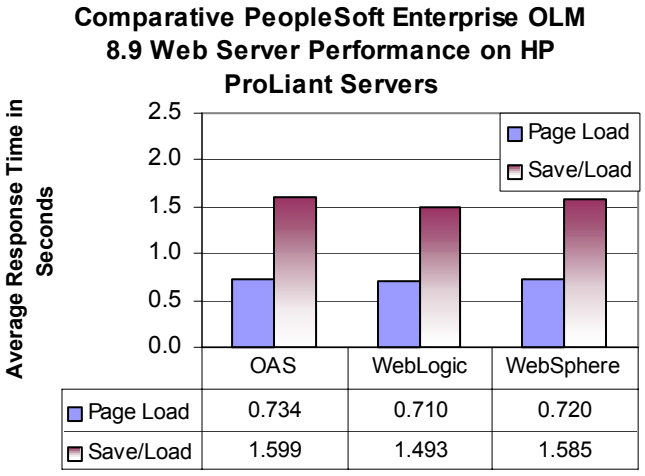


Figure 1: PeopleSoft Enterprise Online Marketing 8.9 Response Times

ONLINE METHODOLOGY

Mercury Interactive LoadRunner® was used as the load driver, simulating concurrent users. It submitted a business transaction at an average rate of one every 5 minutes for each concurrent user to the application servers via the web servers.

Mercury Interactive QuickTest® Professional was used to automatically submit transactions and to record the benchmark measurements on the client PC.

Measurements were recorded when the user load was attained and the environment reached a steady state.

Figure 2 shows a typical 4-tier benchmark configuration. This benchmark was run using a physical 4–tier configuration; with the database server, the application server and the web server all being hosted on separate boxes.

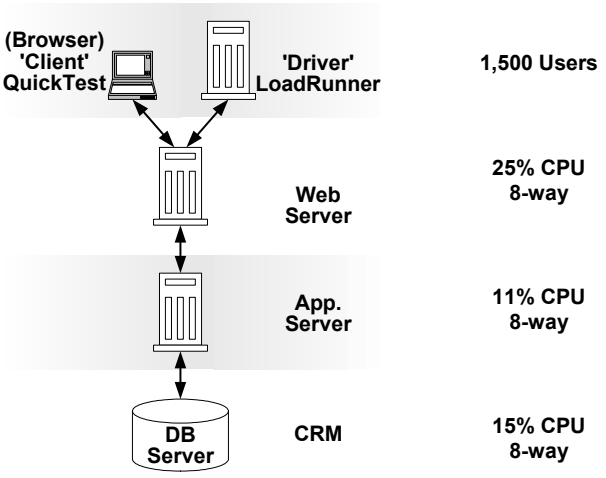


Figure 2: 4-Tier Configuration

Load times were measured from the time the user clicks a hyperlink or push button until the new HTML page has been rendered. Update times were measured from the time the user clicks the <SAVE> button until the new HTML page has been rendered.

Measurements were recorded on all of the servers when the user load was attained and the environment reached a steady state.

BUSINESS PROCESSES

Oracle (PeopleSoft) defines a business transaction as a series of HTML pages that guide a user through a business process, such as creating a new business case.

The PeopleSoft Enterprise Online Marketing 8.9 self-service processes tested in this benchmark are as follows:

ONLINE MARKETING

Insert Contacts into CRM Basic Tables: - User will open up a Reports Link page and click on the link to a Web document. The user will fill out the pages in the document and submit for processing. Matching rules will be invoked but since data returned will not currently exist in CRM, it will therefore result in new Inserts to the Basic tables.

Open Dialog (OpenDialog): Time taken to open and display a dialog.

Submit Contact Information (ClickNext): Time taken to submit the contact information and to display review page.

Review Contact Information (Submit_1): Time taken to display the review page.

Final Page Display (ClickSubmit): Time taken to display the final page.

- The average dialog consists of 10 documents.
- Each document will contain an average of 20 profile fields.
- A subset of these documents will contain the merging of Dynamic Content
- The dialog will be triggered by link to landing page provided by link report. A series of web pages will be rendered based on decision points. Often an email will follow web pages based on decision point criteria.

ONLINE PROCESS RESULTS

Table 1 shows the corresponding average QuickTest response times, in seconds, for each business process along with the overall averages. The percentage 'delta' between the OAS and WebLogic & WebSphere runs is also shown.

Process (1,500 Users)	OAS	OAS-WL Δ	Web-Logic	OAS-WS Δ	Web-Sphere
Insert Contacts					
Open Dialog	0.566	0.41%	0.568	0.1%	0.566
Submit Contact Info	1.599	-6.6%	1.493	-0.9%	1.585
Review Contact Info	0.573	-13%	0.499	-1.1%	0.567
Review Final Page	1.062	-.04%	1.061	-3.5%	1.025
Transactions / minute	300		300		300

Table 1: Business Process Response Times

The QuickTest results include browser rendering on a client while the LoadRunner results are the response times to the simulated client (load driver box).

The QuickTest results are the average of fifty iterations of each transaction on a real client.

Note that the combined 'Page Load & Save' result in the "Calculate Tuition" transaction is not included in the weighted average for Page Load or Page Save.

The database and application servers were processing a total of ~300 business processes per minute at the peak load of 1,500 concurrent users. The transaction rate is calculated by dividing the number of users by the corresponding pacing.

SERVER PERFORMANCE

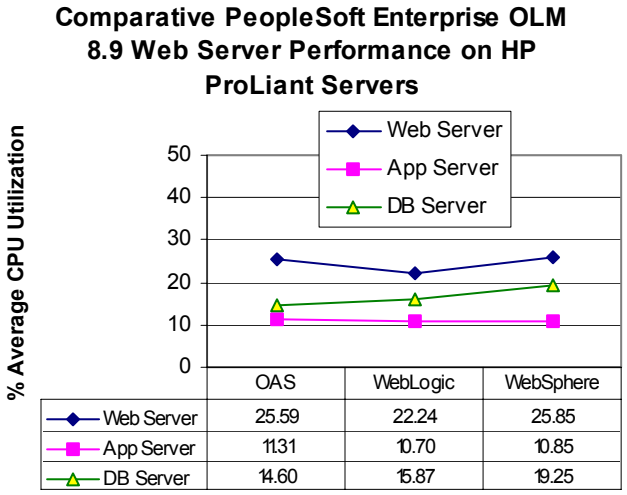


Figure 3: Average CPU Utilization

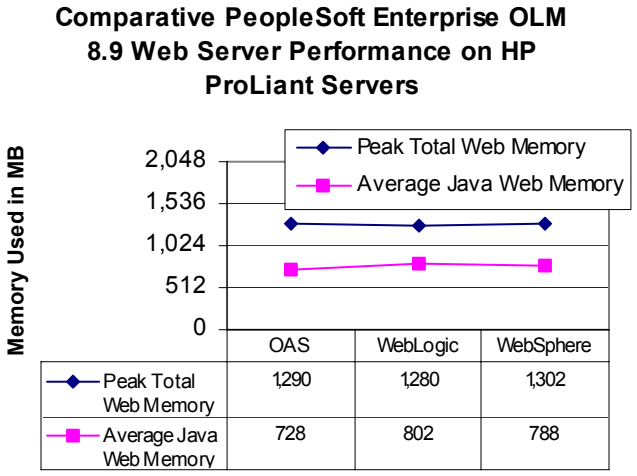
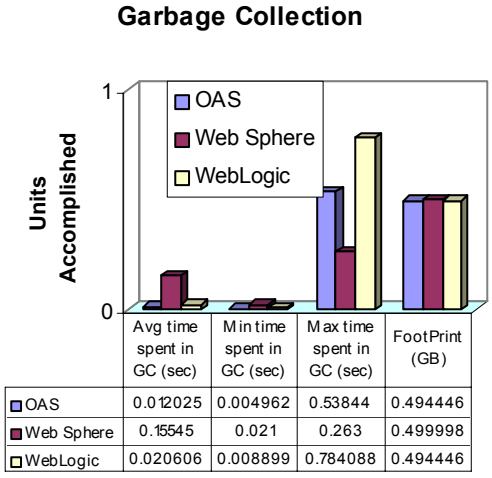
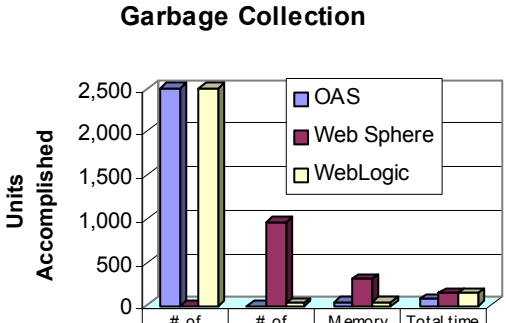


Figure 4: Peak/Average Memory Utilization



	Avg time spent in GC (sec)	Min time spent in GC (sec)	Max time spent in GC (sec)	FootPrint (GB)
OAS	0.012025	0.004962	0.53844	0.494446
Web Sphere	0.15545	0.021	0.263	0.499998
WebLogic	0.020606	0.008899	0.784088	0.494446

Figure 5: Garbage Collection Metrics



	# of Minor collections	# of Major collections	Memory collected (GB)	Total time spent in GC (sec)
OAS	6,691	3	43	80
Web Sphere	0	965	306	150
WebLogic	7,120	30	42	146

Figure 6: Garbage Collection Metrics Continued

DATA COMPOSITION DESCRIPTION

Table 2 summarizes the structure of the target organization.

Data Model	Sm-Med
Companies	100,000
Contacts	600,000
Audiences	100
Click-Through(s) per Year	8,000,000

Table 2: Selected Data Composition

TUNING

Web Logic:

setEnv.cmd; startPSWEBAPPS.cmd; config.xml

One JVM with heapsize 512MB and number of threads 50;

Web Sphere:

server.xml

One JVM with heapsize 512MB
Thread pool: Min 100 Max 300
KeepAliveEnabled = true
MaxKeepAliveConnection = 300
MaxKeepAliveRequests = 350
ConnectionKeepAliveTimeout = 5
ConnectionIOTimeout= 60

OAS:

httpd.conf

One JVM with heapsize 512MB
KeepAlive On
MaxKeepAliveRequests 100
KeepAliveTimeout 5
ThreadsPerChild 500

Disabled all custom logs from httpd.conf
Disabled access log in default-web-site.xml
Disabled Dynamic Monitoring Service

BENCHMARK ENVIRONMENT

HARDWARE CONFIGURATION

A Hewlett-Packard® ProLiant™ DL-560 G1 was used as the batch/database server. It was equipped with the following:

- Quad 2.5 GHz Intel® Xeon™ MP processors (Hyper-Threaded), each with 8 Kilobytes of Level 1 Cache, 512 Kilobytes of Level 2 Cache and 1 Megabyte of Level-3 write-back cache per CPU
- 8 Gigabytes of Memory
- Embedded SmartArray 5i Plus Controller
  - 2 × 26.4GB Ultra320 15K Disk Drives
- A7388A – Emulex LightPulse Fibre Channel HBA
  - MSA1000 Controller
  - 14 × 36.4 GB Ultra3 Disk Drives
    - Logical Drive 1 (347,318 MB, Raid ADG) - DB
    - Logical Drive 2 (34,731 MB, Raid 0) - LOGS

Application Server(s):

1 × HP ProLiant® DL-560 G1 server was used as the application server. It was equipped with the following:

- Quad 2.5 GHz Intel® Xeon™ MP processors (Hyper-Threaded), each with 8 Kilobytes of Level 1 Cache, 512 Kilobytes of Level 2 Cache and 1 Megabyte of Level-3 write-back cache per CPU
- 4 Gigabytes of Memory
- Embedded SmartArray 5i Plus Controller
  - 2 × 26.4GB Ultra320 15K Disk Drives

Web Server(s):

1 × HP ProLiant® DL-560 G1 server was used as the web server. It was equipped with the following:

- Quad 2.5 GHz Intel® Xeon™ MP processors (Hyper-Threaded), each with 8 Kilobytes of Level 1 Cache, 512 Kilobytes of Level 2 Cache and 1 Megabyte of Level-3 write-back cache per CPU
- 3 Gigabytes of Memory (~1.3 GB used at peak load)
- Embedded SmartArray 5i Plus Controller
  - 2 × 26.4GB Ultra320 15K Disk Drives

QuickTest Client PC:

Hewlett-Packard® Evo D530c desktop (DG767A) with the following:

- 1 × 2.66 GHz Intel® Pentium® IV Processors
- 1 Gigabyte of Memory

Load Simulation Driver(s):

1 × Hewlett-Packard® NetServer® 1p1000r was used as the load driver controller. It was equipped with the following:

- 2 × 1 Gigahertz Pentium® III Xeon™ Processors, each with 1 Megabyte of Level-2 Cache
- 4 Gigabytes of Memory

2 × Hewlett-Packard® NetServer® 1p1000r were used as the load drivers. They were equipped with the following:

- 2 × 1.4 Gigahertz Pentium® III Xeon™ Processors, each with 1 Megabyte of Level-2 Cache
- 4 Gigabytes of Memory

SOFTWARE VERSIONS

Oracle's PeopleSoft Enterprise CRM (Online Marketing) 8.9 C323 with OLM patch from C327

Oracle's PeopleSoft Enterprise (PeopleTools) 8.47.01b

Oracle10*g*™ 10.1.0.2

Microsoft® Windows® Server 2003 Enterprise Edition w/SP 1 Build 3790 (64 bit) (on the database server, application server and web server)

Microsoft® Windows 2000 Advanced Server 5.0 Build 2195 (on the Drivers)

Microsoft® Windows® XP Professional w/SP 2 (on the client)

Mercury Interactive LoadRunner® 8.0

Mercury Interactive QuickTest® Professional 6.5

BEA Tuxedo® 8.1 RP89 with Jolt 8.1

Microsoft Internet Explorer® 6.0

Oracle Application Server (OAS) 10.1.2

Java version "1.4.2_04"
Java(TM) 2 Runtime Environment, Standard Edition (build 1.4.2_04-b05)
Java HotSpot(TM) Client VM (build 1.4.2_04-b05, mixed mode)

BEA WebLogic Server™ 8.10 w/SP 4

Java version "1.4.2_05"
Java(TM) 2 Runtime Environment, Standard Edition (build 1.4.2_05-b04)
Java HotSpot(TM) Client VM (build 1.4.2_05-b04, mixed mode)

IBM WebSphere™ Application Server 5.1.1.7 Build cf70540.03

Java version "1.4.2"
Java(TM) 2 Runtime Environment, Standard Edition (build 1.4.2)
Classic VM (build 1.4.2, J2RE 1.4.2 IBM Windows 32 build cn1420-20040626 (JIT enabled: jitc))

ICE Tracking:

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