PEOPLESOFT ENTERPRISE PORTAL 8.9 USING ORACLE10g ON HEWLETT-PACKARD INTEGRITY AND PROLIANT BLADE SERVERS

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

Benchmark	PeopleSoft 8.9 Enterprise Portal	
	Standard Data Volume Model	
(English)	Average Response	Login 2.45 sec, Search/Saves 1.53 sec
	Concurrent Users	4,000
Référence d'exécution	PeopleSoft 8.9 Enterprise Portal	
	Norme modèle de données	
(Français)	temps de réponse	Login 2,45 sec, Search/Saves 1,53 sec
	Concourants Utilisateurs	4.000
Benchmark-Test	PeopleSoft 8.9 Enterprise Portal	
	Datenbankmodell "Standard"	
(Deutsch)	Antwortzeit	Login 2,45 sek, Search/Saves 1,53 sek
	Gleichzeitige Benutzer	4.000
Patrón de rendimiento	PeopleSoft 8.9 Enterprise Portal	
	Volumen Estándar de los datos	
(Español)	tiempo de reacción	Login 2,45 sec, Search/Saves 1,53 sec
	Simultáneos Utilizadores	4.000

BENCHMARK PROFILE

In January 2006, PeopleSoft and Hewlett-Packard conducted a benchmark in Pleasanton, CA to measure the online performance of the Oracle's PeopleSoft Enterprise Portal 8.9 configured to run an HR sub-site within a Linux environment. PeopleSoft Enterprise HRMS provided remote transaction execution as well as pagelet content. The implementation used Oracle10g™ 10.1.0.4 on an 8-way partition of a Hewlett-Packard® IBM Integrity™ rx8620 database server, running Hewlett-Packard® HP-UX 11i v2.

Four 2-way HP ProLiant BL25p G1 Blade servers were used as Portal Application Servers running Red Hat Linux Advanced Server release AS3U6 2.4.21-34.ELsmp. Five BL30p G1 Blade servers were used as HR Application Servers (2), as Portal Web Servers (2) and as the HR Web Server (1). All ran Red Hat Linux Advanced Server release AS3U6 2.4.21-34.ELsmp. An HP StorageWorks XP128 disk array was used for data storage.

The benchmark measured the portal client response times for 4,000 concurrent users. The standard database composition model represents a medium-sized company profile. The testing was conducted in a controlled environment with no other applications running. **The goal of this Benchmark was to obtain baseline results and to show application scalability for Oracle's PeopleSoft Enterprise Portal 8.9 accessing PeopleSoft Enterprise HCM self-service applications with Linux.**

The figure below illustrates average load/search response times for a single user, and for a single user with 4,000 concurrent users.

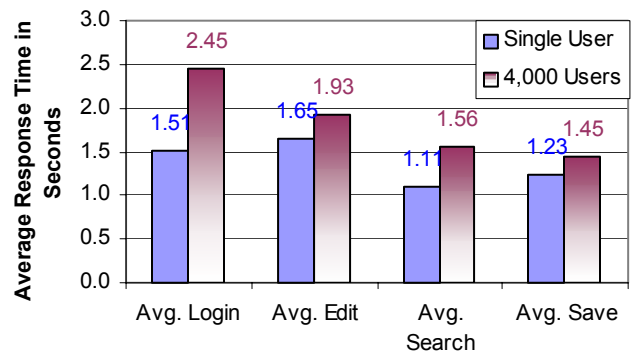### Enterprise Portal 8.9 using Oracle 10g on HP ProLiant Blade Servers

Figure 1: Average Response Times

ONLINE METHODOLOGY

Mercury Interactive's LoadRunner® was used as the load driver, simulating concurrent users. It submitted business processes at an average pacing of 10 minutes for each concurrent user.

Mercury Interactive's 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.

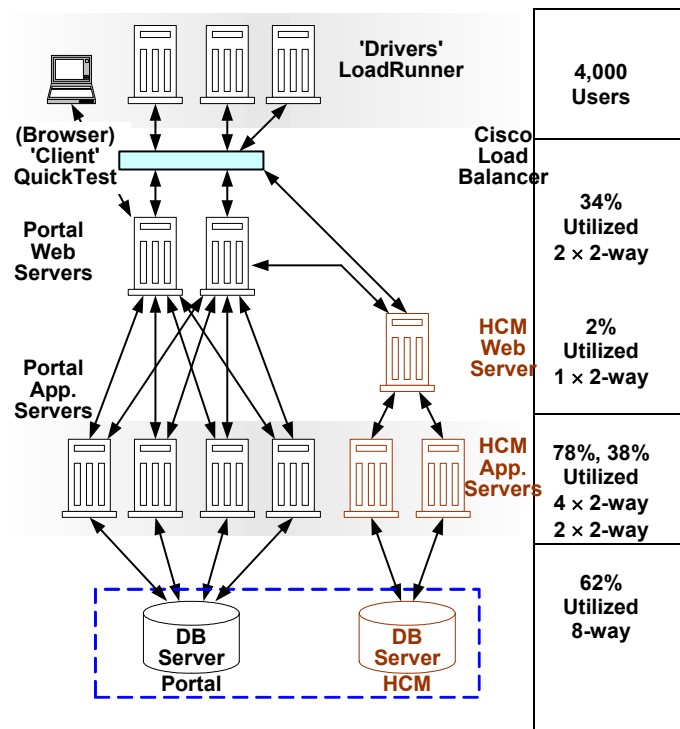Figure 2 shows this test's 4-tier benchmark configuration.

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.

PORTAL 'SELF-SERVICE' TRANSACTIONS

Login: Sign on with user logon id and password for the Enterprise Portal. Authentication of the user takes place, and the default homepage is displayed. Note that this is the starting point for all of the tested transactions.

Company News: After sign on, click on a company news article. Return to the portal homepage. Click on another company news article. Click home. (4 pagelets after sign on)
Paycheck Inquiry: From the home page, click on the 'view-paycheck' inquiry link from the shortcut collection and pull up a paycheck inquiry. (4 pagelets after sign on)
Search for Content: From the home page, enter the search word in the portal header. Search for the content that is in the top portal header. Select content from the search results' page. (4 pagelets after sign on)

WORKSPACE TRANSACTIONS

Login: Sign on with user logon id and password for the Enterprise Portal. Authentication of the user takes place, and the default homepage is displayed. Note that this is the starting point for all of the tested transactions.

Navigate to Sub-Site: After sign on, click on the 'My Workspaces' menu and select a particular workspace. Click on the 'View All Discussions' link and then on the 'Documents' link and then on the specified document. Click on the 'Properties' link for the document. (4 pagelets after sign on)
Content Management: Click on the 'Download File' button next to the doc filename and open the doc for editing. Make a change to the doc and save it. Click on the 'Save/Update' button and enter the document path and save. (4 pagelets after sign on)

SITE PUBLISHER TRANSACTIONS

Login: Sign on with user logon id and password for the Enterprise Portal. Authentication of the user takes place, and the default homepage is displayed. Note that this is the starting point for all of the tested transactions.

Navigate to Sub-Site: After sign on, click on the 'Subsites-Folder' inquiry link from the menu and select a particular site. (4 pagelets after sign on)
Folder Drilldown: From the designated sub-site, click on 'Managed Content' and then on 'Browse Folders.' (4 pagelets after sign on)
Edit Content: From the designated folder, click on the 'Edit Content' link. View the text/html preview. (4 pagelets after sign on)
Checkout, Save, Checkin: Click on the 'Checkout button. Change a word and click on the 'Save' button. Click on the 'Checkin' button. (4 pagelets after sign on)
Discussion Forum: From the home page, click on the 'Discussion Forums' menu and select the designated forum in the pagelet. Click on the specifed topic, then on the specified post. Add and save a reply. (4 pagelets after sign on)

Process	% of Users	Pacing	Pagelets on Home Page
Self-Service End User	80%	10 min	4
Workspace User	10%	10 min	4
Site Publisher	10%	10 min	4
Total	100%		

Table 1: Business Process Mix

Table 1 shows the proportions of the business processes used in the measurements of this benchmark. The proportions are intended to simulate a typical user scenario. The pacing for each transaction is also shown.

The database and application servers were processing a total of 400 business processes per minute at the peak load of 4,000 concurrent users. The transaction rate is calculated by dividing the total number of concurrent users by the average pacing rates.

Performance may vary on other hardware and software platforms and with other data composition models.

ONLINE PROCESS RESULTS

The table below shows average response times, in seconds, for each business process.

	Single User	4,000 Users
General User (80%)		
Login	1.54	2.51
View News	0.66	1.04
View Payslip	0.67	0.7
Select Home Page	0.1	0.17
Search	1.11	1.56
Logoff	0.97	0.8
Workspace User (10%)		
Login	1.62	2.32
Navigate to Sub-site	1.62	2.61
Navigate to Discussion Forum	1.09	1.9
Navigate to Content Management	0.88	1.04
CM Edit Content	2	2.48
Edit Document	1.92	2.07
Save Document	0.76	0.92
Upload Document	0.88	1.23
Logoff	1.1	1.13
Site Publisher (10%)		
Login	1.19	2.09
Navigate to Sub-site	1.28	1.27
Folder Drilldn. (3 clicks)	6.06	8.23
Edit Content	1.04	1.23
Checkout	1.73	1.97
Save	2.4	2.86
Check-in	2.15	2.92
Select Home Page	0.58	0.33
Discussion Forum	1.03	1.94
Discussion Topic	0.63	1.19
Discussion Post	0.56	0.57
Discussion Reply	0.58	0.71
Discussion Save	0.54	0.57
Logoff	0.61	0.55
Weighted Averages		
Average Login	1.51	2.45
Average Navigation	1.22	1.71
Average Edit	1.65	1.93
Average Search	1.11	1.56
Average Save	1.23	1.45

Table 2: Business Process Runtimes

SERVER PERFORMANCE

Figure 3 shows the average CPU utilization for each of the servers in this test.
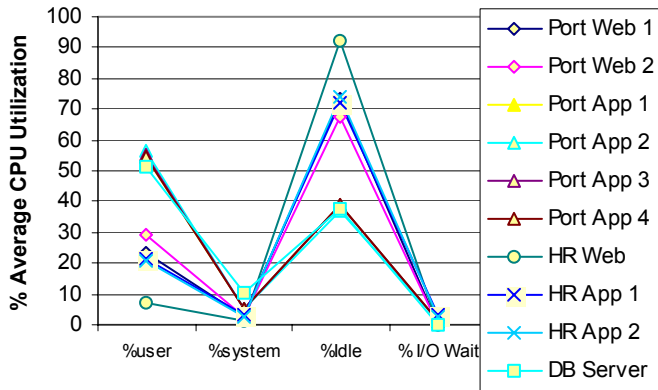
Figure 3: Server Performance

	User	System	Idle	I/O Wait
Port Web 1	23.61	2.88	73.49	0.00
Port Web 2	29.47	2.89	67.57	0.00
Port App 1	54.83	5.13	38.89	1.02
Port App 2	56.65	5.22	37.07	1.13
Port App 3	55.03	5.21	38.65	1.05
Port App 4	54.54	5.23	38.86	1.27
HR Web	6.93	1.03	92.07	0.00
HR App 1	21.32	3.32	71.93	3.45
HR App 2	20.92	2.85	73.81	2.36
DB Server	51.59	10.08	37.98	0.01

Table 3: Average CPU Utilization by Server

I/O PERFORMANCE

The PeopleSoft 8.9 Enterprise Portal Benchmark for a 4,000 Concurrent User run was run using an HP StorageWorks XP128 disk array. I/O performance is crucial to system performance and is summarized in the table below:

	Average
Total Transfers per Second	97
512K Blocks Transferred per Sec	3,835

Table 4: I/O Performance

DATA COMPOSITION DESCRIPTION

The large database was comprised of information on 40,000 employees in the Portal and HCM databases.

Entity	Breakout	Quantity
Employees	PERSON_DATA_FULLSYNC	40,000
	WORKFORCE_FULLSYNC	40,000
Companies	COMPANY_FULLSYNC	40
Departments	DEPT_FULLSYNC	4,000
Locations	LOCATION_FULLSYNC	80
Empl. Job Codes	JOBCODE_FULLSYNC	4,000
Portal Registry	Sites	50
	Folder References	60
	Content References per Folder	15
	Total C-References per Site	900
	Total C-References in DB	45,000
Portal Pagelets	Home Page	4
HRMS Pagelets	Home Page	1
Collab. Workspaces	Number of Templates	3
	Number of Workspaces	1,000
Content Manage.	Number of Con. Man. Folders	10,500
	# of Docs per Folder, 0.5 Meg	15
	# of HTML Content per Folder	5
	# of URLs in Content Manage.	5
	Total Number of Files	262,500
Discussion Forum	Number of Forums	1,050
	Number of Topics per Forum	50
	Number of Replies per Topic	5

Table 5: Data Model Details

BENCHMARK ENVIRONMENT

HARDWARE CONFIGURATION

Database Server (Portal, HCM):

A Hewlett-Packard® Integrity™ rx8620 was used as the database server. It was equipped with the following:

- 8 × 1.6 GHz Intel® Itanium®2 Processors, each with16 Kilobytes of Level-1 Cache, 256 Kilobytes of Level-2 Cache and 6 Megabytes of Level-3 Cache
- 16 Gigabytes of Memory (~XX GB used at peak load)
- 1 SAN-Connected HP StorageWorks XP128 disk array with 2 fibre-channel connections
- ~4.6 Terabytes of total Disk Space available (64 × 73 GB + 2 × 73 GB internal disk drives), approximately 325 GB of RAID 0+1 storage used for this benchmark
- 2 × Hewlett-Packard® Tachyon™ XL2 Fibre Channel Host Bus Adapters

Application Servers (Portal):

4 × HP ProLiant® BL25p G1 blade servers were used as the application servers. They were equipped with the following:

- 2 × 2.2 GHz AMD® Opteron™ Dual-Core (model 275) processors, each with 64 Kilobytes of Level 1 Cache per core and 1 Megabyte of Level-2 cache per core
- 8 Gigabytes of Memory
- ~145.6 GB of storage with an integrated SmartArray 6i Plus Controller

Application Servers (HCM):

2 × HP ProLiant® BL30p G1 blade servers were used as the application servers. They were equipped with the following:

- 2 × 3.2 GHz Intel® Xeon™ processors, each with 512 Kilobytes of Level 2 Cache and 2 Megabytes of Level-3 write-back cache per CPU
- 4 Gigabytes of Memory
- ~60 GB of storage with an integrated SmartArray 5i Plus Controller

Web Servers (Portal):

2 × HP ProLiant® BL30p G1 blade servers were used as the web servers. They were equipped with the following:

- 2 × 3.2 GHz Intel® Xeon™ processors, each with 512 Kilobytes of Level 2 Cache and 2 Megabytes of Level-3 write-back cache per CPU
- 4 Gigabytes of Memory
- ~60 GB of storage with an integrated SmartArray 5i Plus Controller

Web Server (HCM):

1 × HP ProLiant® BL30p G1 blade server was used as the web server. It was equipped with the following:

- 2 × 3.2 GHz Intel® Xeon™ processors, each with 512 Kilobytes of Level 2 Cache and 2 Megabytes of Level-3 write-back cache per CPU
- 4 Gigabytes of Memory
- ~60 GB of storage with an integrated SmartArray 5i Plus Controller

Load Simulation Driver(s):

1 × IBM xSeries 440 4-way was used as a driver. It was equipped with the following:

- 4 × 1.5 GHz Intel® Xeon™ MP Processors
- 3.5 Gigabytes of Memory

1 × IBM xSeries 255 2-way was used as a driver. It was equipped with the following:

- 2 × 1.6 GHz Intel® Xeon™ MP Processors
- 4 Gigabytes of Memory

Load Driver Controller:

1 × IBM SERASSLT x86-based PC workstation was used as a controller. It was equipped with the following:

- 2 × 700 Megahertz Pentium® III Processors, each with 512 kilobytes of Level-2 Cache
- 3.5 Gigabytes of Memory

Client PC:

Hewlett-Packard® d530C workstation with the following:

- 1 × 2.66 Gigahertz Intel® Pentium® 4 Processor, with 512 kilobytes of Level-2 Cache
- 1 Gigabyte of Memory

SOFTWARE VERSIONS

Oracle's PeopleSoft Enterprise Portal 8.9

Oracle's PeopleSoft Enterprise HCM 8.9

Oracle's PeopleSoft Enterprise (PeopleTools) 8.46.05

Oracle10*g*™ 10.1.0.4 (64-bit) with PeopleSoft-required patches

Hewlett-Packard® HP-UX® 11i v.2 (11.23) (64-bit) (on the database server)

Red Hat Linux Advanced Server release AS3U6 (2.4.21-34.Elsmp) (on the application servers and web servers)

Microsoft® Windows 2000 Professional (on the drivers and driver controller)

Microsoft Windows XP Professional (on the client)

Mercury Interactive's LoadRunner 7.51 w/SP 1

Mercury Interactive's QuickTest Professional 6.5

IBM WebSphere 5.1.0

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