PeopleSoft | Enterprise

REVISION 2.3

PEOPLESOFT ENTERPRISE EXPENSES 8.8 USING ORACLE9i ON A MIXED HEWLETT-PACKARD PA-RISC/ITANIUM UNIX ENVIRONMENT

As the world's leading provider of application software for the Real-Time Enterprise, PeopleSoft delivers high performance solutions that exceed our customers' expectations. Business software must deliver rich functionality with robust performance maintained at volumes representative of customer environments.

PeopleSoft benchmarks demonstrate our software's performance characteristics for a range of processing volumes with a specific platform configuration. Customers and prospects can use this information while planning 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 Enterprise Expenses 8.8	
	Extra-Largel Volume Model	
(English)	Average Response	Load 3.31 sec, Save 2.18 sec
	Concurrent Users	1,700
Référence d'exécution	PeopleSoft 8.8 Gestion des Frais	
	Grand modèle supplémentaire de données	
(Français)	temps de réponse	Load 3,31 sec, Save 2,18 sec
	Concourants Utilisateurs	1.700
Benchmark-Test	PeopleSoft 8.8 Spesenabrechnung	
	Datenbankmodell "Extra-Large"	
(Deutsch)	Antwortzeit	Load 3,31 sek, Save 2,18 sek
	Gleichzeitige Benutzer	1.700
Patrón de rendimiento	PeopleSoft 8.8 Gastos	
	Volumen grande adicional de los datos	
(Español)	tiempo de reacción	Load 3,31 sec, Save 2,18 sec
	Simultáneos Utilizadores	1.700
Benchmark	Despesas 8.8 do PeopleSoft	
	Volume grande extra dos dados	
(Português)	tempo de resposta	Load 3,31 sec, Save 2,18 sec
	Simultâneos Usuários	1.700

BENCHMARK PROFILE

In December 2003, PeopleSoft conducted a benchmark in Pleasanton, CA to measure the online performance of PeopleSoft Enterprise Expenses 8.8 using Oracle9i™ 9.2.0.4 on a 4-way Hewlett-Packard® Integrity™ rx5670 database server, running Hewlett-Packard® HP-UX 11.23. Two Hewlett-Packard® HP9000 rp8400 servers were configured as four 8-way hardware partitions for application servers on HP-UX 11.11.

The benchmark measured client response times for 1,700 concurrent users using a standard 'extra-large' data composition model. The testing was conducted in a controlled environment with no other applications running. Tuning changes, if any, were approved by PeopleSoft Development and will be available in a future update or release. **The goal of this benchmark was to obtain baseline performance data for PeopleSoft Expenses 8.8 Online with Oracle9i on HP Integrity and PA-RISC servers.**

The figure below illustrates average retrieve (load) and update (save) response times for a single user with 1,700 concurrent users.

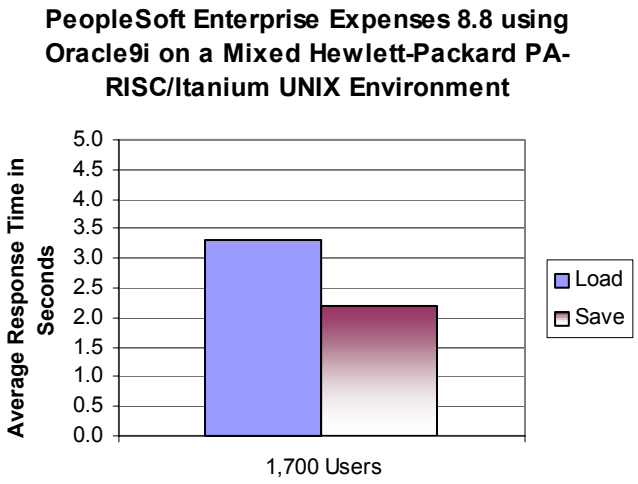

Figure 1: Average Response Times

* Results are weighted averages corresponding to the transaction mix specified in the Data Composition model below.

ONLINE METHODOLOGY

Mercury Interactive's LoadRunner® was used as the load driver, simulating concurrent users. It submitted a business process at an average rate of one every five 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.

Load times were measured from the time the user clicks the <OK> button until all the data for the entire business transaction has been retrieved.

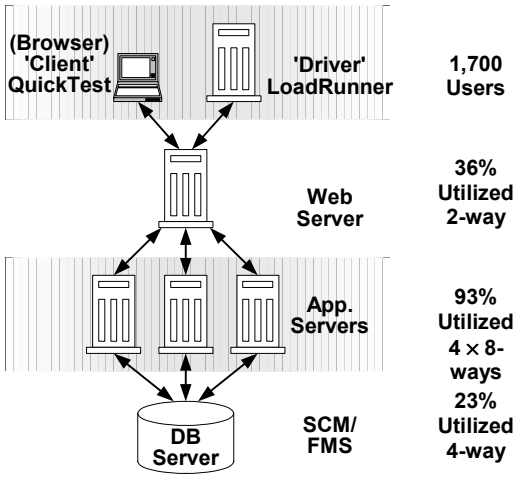

Figure 2: Four-Tier Online Test Implementation

SELF-SERVICE BUSINESS PROCESSES

PeopleSoft defines a business transaction as a series of HTML pages that guide a user through a business process, such as entering an expense report. Four business transactions within Expenses were tested for this benchmark. They are as follows:

Expense Report – Daily Entry: This scenario simulates those users that enter expenses daily during their business travel. Create an expense report to record domestic travel-related expenses.

Navigate to the Travel and Expense Center and click on "Create" within the Expense Report menu. Enter 15 detail lines for domestic travel (i.e., airfare, hotel, and car). Include exception comments on multiple detail lines.

Expense Report – Weekly Entry: This scenario is included to simulate business travelers that enter all expense at once. Create an expense report to record international travel-related expenses.

Navigate to the Travel and Expense Center and click on "Create" within the Expense Report menu. Enter 30 detail lines for international travel (i.e., per diem, auto mileage, multi-currency, etc). Include exception comments on multiple detail lines.

Hotel Wizard: Navigate to the Travel and Expense Center and click on "Add." Itemize a hotel charge for a 7-day business trip with five itemized hotel charges per day.

Travel Authorization – Weekly Entry: Create a travel authorization for international travel. Navigate to the Travel and Expense Center and click on "Create" within the Travel Authorization menu. Enter 4 detail lines for international travel with 4 unique expense types (i.e., airfare, per diem, varied auto mileage rates and meal – dinner).

Time Report – Weekly Entry: Create a time report to record hours worked associated with a project. Navigate to the Travel and Expense Center and click on "Create" within the Time Report menu. Enter a time report with 1 unique project and 4 activities – 3 hours per activity per day.

Table 1 shows how the business transactions were weighted for the benchmark. The weightings are intended to simulate a typical user environment.

Business Transaction	Percent of Total	Average Pacing (Minutes)
Entry and Save		
Daily Expense Reports	40%	5 min
Weekly Expense Reports with Hotel Wizard	10%	5 min
Travel Authorization	25%	5 min
Daily and Weekly Time Reports	25%	5 min
Total	100%	

Table 1: Business Transaction Mix

ONLINE TRANSACTION RESULTS

Table 2 shows average logon, navigation, load, save and inquiry response times, in seconds, for each business transaction.

		1,700 Users
Daily Expense Report	Logon	1.81
	Navigation	0.86
	Load	4.96
	Save	4.03
	Inquiry	3.59
Weekly Expense Report	Logon	5.38
with Hotel Wizard	Navigation	2.36
	Load	5.31
	Save	7.23
	Load 2	7.31
Travel Authorization	Logon	1.44
	Navigation	1.38
	Load	0.79
	Save	3.12
Daily Time Report	Logon	1.38
	Navigation	2.48
	Load	2.88
	Save	1.42
Weighted Average Load		**3.31**
Weighted Average Save		**2.18**
Transactions/min		340
Transactions/hour		**20,400**

Table 2: Online Business Transaction Runtimes

The database and application servers were processing a total of 340 business transactions per minute at the peak load of 1,700 concurrent users. The estimated transaction rate is calculated by dividing the total number of concurrent users by the average pacing rate.

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

SERVER PERFORMANCE

Figure 3 shows the average CPU utilization for each of the servers in this test. The CPU utilization is the average across all of the CPUs in each server.

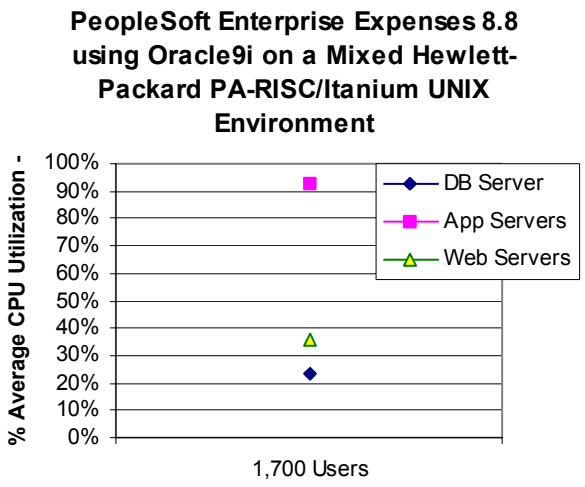

Figure 3: Average Server CPU Utilization

DATA COMPOSITION DESCRIPTION

The database was based on our standard "extra-large" data model as described below:

Expenses Model Size	Extra-Large Model
# of Business Units (US001, US006, FRA01)	25
# of Expense Reports processed annually	2,371,200
# of My Wallet (20 entries per exp rpt)	47,424,000
# of Projects and Activities (estimates)	15,000
# of Time Reports	5,200,000
# of Travel Authorizations	2,642,400
Average Lines (history and active)	
Expense Reports	25
Time Reports	4
Travel Authorizations	4
Avg. Accounting Lines per Active Expense Entry	
Expense Reports	30
Travel Authorizations	1
Time Reports	2
Avg. Accounting Lines per Historical Expense Entry	
Expense Reports	1
Travel Authorizations	1
Time Reports	1

Table 3: Data Composition

Six months of historical data was created for Expense Reports, Time Reports and Travel Authorizations.

BENCHMARK ENVIRONMENT

HARDWARE CONFIGURATION

Database Server:

A Hewlett-Packard® Integrity™ rx5670 was used as the batch/database server. It was equipped with the following:

- 4 × 1.3 GHz Intel® Itanium®2 Processors, each with 32 Kilobytes of Level-1 Cache, 256 Kilobytes of Level-2 Cache, 3 Megabytes of Level-3 Cache
- 16 Gigabytes of Memory
- 1 SAN-Connected HP EVA 5000 (2C60-B) disk array with 2 fibre-channel connections
- ~3.1 Terabytes of total Disk Space available (84 × 36 GB disk drives), approximately 755 GB of RAID 0 storage used for this benchmark
- 2 × Hewlett-Packard® Tachyon™ Fibre Channel Disk Controllers connected via two HP 2Gb Fibre Channel 16B switches

Application Server(s):

2 × Hewlett-Packard® HP9000 rp8400® servers were used as the application servers. Each was physically partitioned into two 8-way servers (four 8-ways total). Each partition was equipped with the following:

- 8 × 875 MHz PA-RISC 8700+® processors, each with 1.5 MB of Data Cache and 768 KB of Instruction Cache
- 16 Gigabytes of Memory
- ~146 Gigabytes of total Disk Space (2 × 73 GB)

Web Server(s):

1 × Hewlett-Packard® ProLiant® DL380 G3 server was used as the web server. It was equipped with the following:

- 2 × 2.8 GHz Intel® Xeon™ processors, each with 512 Kilobytes of Level 2 Cache and 1 Megabyte of Level-3 Cache
- 4 Gigabytes of Memory

Load Simulation Driver:

1 × Hewlett-Packard® NetServer™ lp1000r was used as the driver. It was equipped with the following:

- 2 × 1.4 Gigahertz Pentium® III Processors, each with 256 Kilobytes of Level-2 Cache
- 4 Gigabytes of Memory

Client PC:

Hewlett-Packard® xw6000 workstation with the following:

- 1 × 2.8 GHz Intel® Pentium® IV Processors, each with 512 Kilobytes of Level-2 Cache
- 1 Gigabyte of Memory

SOFTWARE VERSIONS

PeopleSoft Enterprise Expenses 8.8

PeopleTools 8.44.03

Oracle9i™ 9.2.0.4

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

Hewlett-Packard® HP-UX® 11i v.1 (11.11) (on the application servers)

Microsoft® Windows 2000 Advanced Server 5.0 Build 2195 w/SP 4 (on the web server, driver and client)

Mercury Interactive's LoadRunner® 7.8

Mercury Interactive's QuickTest® Professional 6.0 Build 1170

BEA Tuxedo® 8.41 with Jolt 1.2

BEA WebLogic Server™ 8.10 w/SP 1

Merant™ (Micro Focus) Server Express™ 1.1

PeopleSoft Worldwide Headquarters
4460 Hacienda Drive
P. O. Box 8018
Pleasanton, California 94588-8618
Tel 925/694-3000
Fax 925/694-3100
Email info@peoplesoft.com
World Wide Web http://www.peoplesoft.com