



PEOPLESOFT TIME & LABOR 8.8 SELF-SERVICE USING ORACLE9i ON A MIXED HEWLETT-PACKARD ALPHA/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 HCM Time & Labor 8.8 Self-Service	
	Large Volume Data Model	
(English)	Average Response	Search 1.35 sec
	Concurrent Users	1,000
Référence d'exécution	PeopleSoft Gestion des Temps et des Activités (GTA) 8.8	
	Grand volume de données	
(Français)	temps de réponse	Search 1,35 sec
	Concourants Utilisateurs	1.000
Benchmark-Test	PeopleSoft Zeitmanagement 8.8	
	Datenbankmodell "Large"	
(Deutsch)	Antwortzeit	Search 1,35 sec
	Gleichzeitige Benutzer	1.000
Patrón de rendimiento	PeopleSoft Gestión de Tiempos y Tareas 8.8	
	Volumen grande de los datos	
(Español)	tiempo de reacción	Search 1,35 sec
	Simultáneos Utilizadores	1.000
Benchmark	Gerenciamento de Horas 8.8 do PeopleSoft	
	Volume grande dos dados	
(Português)	tempo de resposta	Search 1,35 sec
	Simultâneos Usuários	1.000

BENCHMARK PROFILE

In August 2003, PeopleSoft conducted a benchmark in Pleasanton, CA to measure the online performance of PeopleSoft Human Capital Management (HCM) Time & Labor 8.8 using Oracle9i™ 9.2.0.2 on a Hewlett-Packard® Integrity™ rx5670 server, running Hewlett-Packard® HP-UX 11.22. One Hewlett-Packard® AlphaServer® GS160 app. server and one AlphaServer® ES45 web server ran Hewlett-Packard® Tru64™ UNIX® Version 5.1a.

The benchmark measured client response times for 1,000 concurrent users. The standard database composition model represents a large-sized company profile. The testing was conducted in a controlled environment with no other applications running. The tuning changes, if any, were approved by PeopleSoft Development and are generally available. **The goal of this Benchmark was to obtain baseline results for PeopleSoft HCM T&L 8.8 self-service transactions with Oracle9i on HP.**

The figure below illustrates average response (Rn) times for a single user, and for a single user with 500 and 1,000 concurrent users.

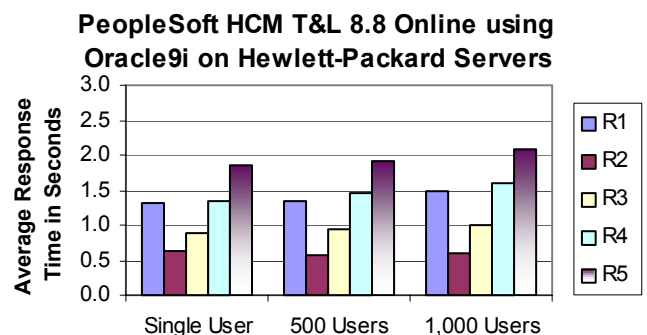


Figure 1: Average Response Times

* This average is weighted based on the business mix as reflected in Table 1: Business Process Mix.

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.

Figure 2 shows a typical 4-tier benchmark configuration.

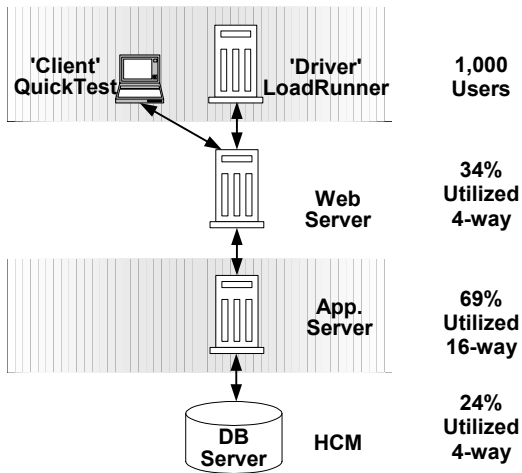


Figure 2: 4-Tier Configuration

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.

Update times were measured from the time the user clicks the <SAVE> button until the system has released the page.

More detail on the metrics for this benchmark are found in Table 2.

BUSINESS PROCESSES

PeopleSoft defines a business transaction as a series of HTML pages that guide a user through a business process, such as reporting time for a payroll period.

The twelve PeopleSoft 8.8 T&L business processes tested in this benchmark are as follows:

EMPLOYEE SELF-SERVICE

Time Reporting

Report Time by Period: Used to report time for week, bi-week, bi-month, or month. The same transaction can be used for various reporting periods.

Weekly Elapsed Time: Time & Labor transaction to report time for a week. This transaction was designed to simulate a time card. The data is displayed in a cross-tab manner, unlike the way it is stored.

Weekly Punch Time: Time & Labor transaction to report punch time for a week. The difference here is that time run's vertically instead of horizontally like the Weekly Elapsed Time transaction.

MANAGER SELF-SERVICE

EManage Time

Report Time by Period: Used to report time for week, bi-week, bi-month, or month. The same transaction can be used for various reporting periods.

Weekly Elapsed Time: Time & Labor transaction to report time for a week. This transaction was designed to simulate a time card. The data is displayed in a cross-tab manner, unlike the way it is stored.

Weekly Punch Time: Time & Labor transaction to report punch time for a week. The difference here is that time run's vertically instead of horizontally like the Weekly Elapsed Time transaction.

View Monthly Time: Used to view reported, payable, scheduled, absence, and training time in one monthly calendar view.

View Weekly Time: Used to view reported, payable, scheduled, absence, and training time in one weekly calendar view.

View Daily Time: Used to view reported, payable, scheduled, absence, and training time in one daily calendar view.

Approve Time by Group: Used to approve employee's time so it can be paid by payroll.

View Payable Time: Used to view employee's time, which is ready for distribution to other systems like payroll and projects.

T&L ADMINISTRATOR

Enroll Dynamic Group: Used to enroll Time Reporters into a dynamic group. This allows the T&L administrator to define the group and see a list of employees that satisfy the group criteria.

Process	Percentage of Total
Employee Self-Service	
Report Time by Period	25%
Weekly Elapsed Time	25%
Weekly Punch Time	25%
Manager Self-Service	
Report Time by Period	2.3%
Weekly Elapsed Time	3.5%
Weekly Punch Time	3.4%
View Monthly Time	2.3%
View Weekly Time	2.3%
View Daily Time	4.6%
Approve Time by Group	2.3%
View Payable Time	2.3%
T&L Administrator	
Enroll Dynamic Groups	2%
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.

ONLINE PROCESS RESULTS

Metric Type	Metric Description	Metric Details
R1	Retrieval of transaction page from search page.	The time it takes to bring up the primary transaction page from the Tools or Self-Service search page.
R2	Retrieval of detail page from transaction page.	The time it takes to bring up a detail page after selecting an item from a transaction.
R3	Retrieval of search page from navigation link.	The time it takes to bring up a self-service search page after selecting an item from the menu.
R4	Retrieval of transaction page from navigation link.	The time it takes to bring up the primary transaction page after selecting an item from the menu.
R5	Refresh page with new data.	The time it takes to refresh the page with new data via a button.
T1	Total Transaction time.	The total Transaction time it takes user from selecting the transaction from menu to save confirmation. Save can be with Saved Tools message on upper-right of page or actual confirmation page.

Table 2: Legend for Metrics

Table 3 shows average response times, in seconds, for each business process.

Transaction	Metric	Single User	500 Users	1,000 Users
Report Time by Period	E1_R4	1.188	1.248	1.428
	E1_R2	0.298	0.231	0.177
	E1_R5	0.631	0.686	0.644
Weekly Elapsed Time	E2_R1	1.469	1.541	1.714
	E2_R5	1.208	1.248	1.403
Weekly Punch Time	E3_R4	1.128	1.358	1.414
Report Time by Period	M1_R3	0.906	0.898	1.075
	M1_R1	1.653	1.650	1.694
	M1_R2	0.781	0.677	0.742
Weekly Elapsed Time	M2_R3	0.881	0.952	0.967
	M2_R1	1.831	1.723	1.763
	M2_R5	1.200	1.202	1.358
Weekly Punch Time	M3_R4	0.966	0.908	1.028
	M3_R1	0.148	0.144	0.145
View Monthly Time	M5_R4	2.417	2.375	2.689
	M5_R5_A	10.980	11.403	12.389
	M5_R2_A	1.266	1.359	1.367
	M5_R5_B	6.945	7.234	8.350
View Weekly Time	M6_R4	2.306	2.477	2.627
	M6_R2	0.733	0.783	0.825
View Daily Time	M6_R5	4.794	5.042	5.720
	M7_R4	2.736	2.638	3.072
	M7_R5_A	1.841	1.745	1.817
Approve Time by Group	M7_R5_B	3.831	3.811	4.252
	M8_R4	1.400	1.411	1.553
View Payable Time	M8_R2	1.625	1.630	1.917
	M9_R1	0.955	0.958	0.997
	M9_R2_A	0.792	0.697	0.859
Enroll Dynamic Groups	M9_R2_B	1.192	1.186	1.566
	A1_R1	0.658	0.605	0.680
	A1_R2	0.666	0.661	0.669
Weighted Average R1		1.323	1.357	1.482
Weighted Average R2		0.616	0.569	0.590
Weighted Average R3		0.891	0.930	1.010
Weighted Average R4		1.354	1.460	1.610
Weighted Average R5		1.847	1.905	2.079
Transaction Rate		n/a	100	200

Table 3: Employee/Manager Process Runtimes

The database and application servers were processing a total of 200 business processes per minute at the peak load of 1,000 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.

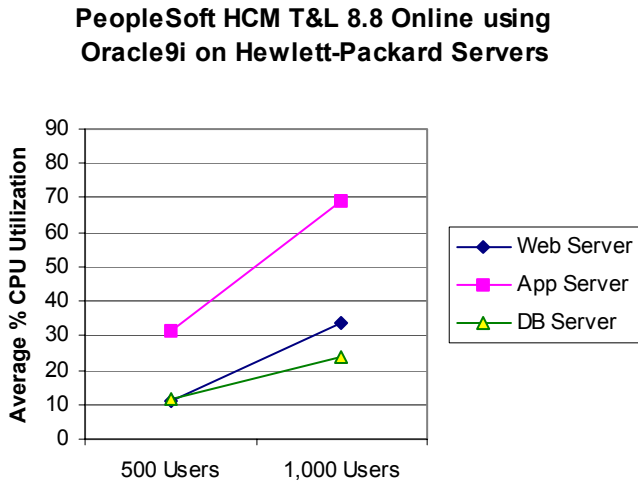


Figure 3: Average Server CPU Utilization

DATA COMPOSITION DESCRIPTION

The standard database was comprised of:

- 110,000 Employees (10 per Department)
- 1 Manager for every 49 Employees

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 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
- 8 Gigabytes of Memory
- 1 × HP Enterprise Virtual Array (EVA) 5000 with ~3 Terabytes of total Disk Space (86 × 36 GB), 200 GB allocated
- 1 × Internal SCSI Disk Controller, 2 External EVA 5000 (Fibre) Disk Controllers

Application Server(s):

1 × Hewlett-Packard® AlphaServer™ GS160 server was used as the application server. It was equipped with the following:

- 16 × 6/731 MHz (21264A) Alpha Processors, each with 4 Megabytes of ECC Level-2 Onboard Cache
- 32 Gigabytes of Memory
- ~108 Gigabytes of total Disk Space (6 × 18 GB)
- 1 × SCSI Internal Disk Controller

Web Server:

1 × Hewlett-Packard® AlphaServer™ ES45 was used as the web server. It was equipped with the following:

- 4 × 68/1000 MHz (21264C) Alpha Processors, each with 8 Megabytes of ECC Level-2 Onboard Cache
- 4 Gigabytes of Memory
- ~36 Gigabytes of total Disk Space (2 × 18.2 GB)
- 1 × SCSI Internal Disk Controller

Load Simulation Driver:

1 × Hewlett-Packard® ProLiant® model 5000 was used as the driver. It was equipped with the following:

- 4 × 400 MHz Intel® Pentium® II Processors, each with 2 Megabytes of Level-2 Cache
- 3.2 Gigabytes of Memory

Client PC:

Compaq® Evo D510 desktop (470057-004) with the following:

- 2.4 GHz Intel® Pentium® IV Processor
- 768 Megabytes of Memory

SOFTWARE VERSIONS

PeopleSoft HCM Time and Labor 8.8

PeopleTools 8.43.02

Oracle9i™ 9.2.0.2

Hewlett-Packard® Tru64™ UNIX® Version 5.1a (on the application server and web server)

Hewlett-Packard® HP-UX® 11.22 (on the database server)

Microsoft® Windows® 2000 Advanced Server 5 w/SP 2 (on the load driver)

Microsoft® Windows® 2000 Professional 5 w/SP 2 (on the Client)

Mercury Interactive's LoadRunner® 7.51

Mercury Interactive's QuickTest® Professional 6.0

BEA Tuxedo® 6.5 with Jolt 1.2

BEA WebLogic Server™ 6.1 w/SP 4

ICE: 606711000
555918000
558707000



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>

PeopleSoft, the PeopleSoft logo, PeopleSoft 8, PeopleTools, PS/nVision, PeopleCode, and PeopleBooks are registered trademarks, and Red Pepper, *PeopleTalk*, and "We work in your world." are trademarks of PeopleSoft, Inc. All other company and product names may be trademarks of their respective owners. C/N 0538-0903