



PEOPLESOFT TIME & LABOR 8.8 SELF-SERVICE USING ORACLE9i ON A MIXED HEWLETT-PACKARD PA-RISC/ALPHA 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 1.59 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 1,59 sec
	Concourants Utilisateurs	1.000
Benchmark-Test	PeopleSoft Zeitmanagement 8.8	
	Datenbankmodell "Large"	
(Deutsch)	Antwortzeit	Search 1,59 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 1,59 sec
	Simultáneos Utilizadores	1.000
Benchmark	Gerenciamento de Horas 8.8 do PeopleSoft	
	Volume grande dos dados	
(Português)	tempo de resposta	Search 1,59 sec
	Simultâneos Usuários	1.000

BENCHMARK PROFILE

In July 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® AlphaServer® ES45 server, running Hewlett-Packard® Tru64™ UNIX® Version 5.1b. One Hewlett-Packard® hp server rp8400 app. server and two rp2405 web servers ran HP-UX 11i.

The benchmark measured client response times for 500 and 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.

PeopleSoft HCM T&L 8.8 Online using Oracle9i on Hewlett-Packard Servers

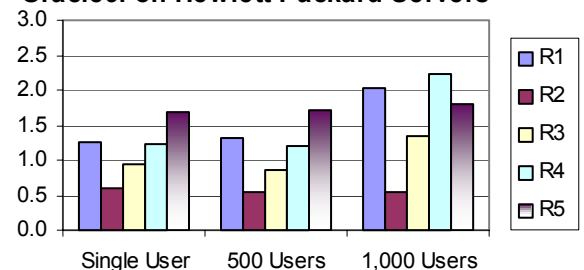


Figure 1: Average Response Times

* 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.

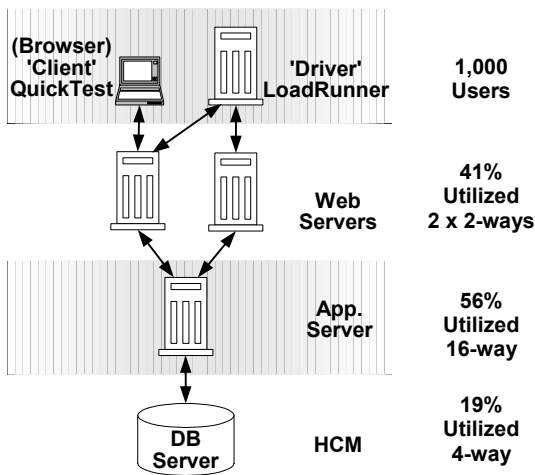


Figure 2: 4-Tier Configuration

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.

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	1.013	0.914	1.983
	E1_R2	0.275	0.183	0.173
	E1_R5	0.631	0.633	0.736
Weekly Elapsed Time	E2_R1	1.377	1.465	2.542
	E2_R5	1.177	1.137	1.141
Weekly Punch Time	E3_R4	0.994	1.042	2.259
Report Time by Period	M1_R3	0.909	0.807	2.108
	M1_R1	1.648	1.641	1.645
	M1_R2	0.675	0.682	0.678
Weekly Elapsed Time	M2_R3	0.961	0.884	0.859
	M2_R1	1.656	1.652	1.780
	M2_R5	1.128	1.219	1.153
Weekly Punch Time	M3_R4	0.955	0.961	0.911
	M3_R1	0.145	0.145	0.147
View Monthly Time	M5_R4	2.527	2.547	3.483
	M5_R5_A	10.220	10.367	10.930
	M5_R2_A	1.258	1.259	1.369
	M5_R5_B	6.528	6.827	7.130
View Weekly Time	M6_R4	2.400	2.491	3.009
	M6_R2	0.730	0.730	0.736
	M6_R5	4.219	4.356	4.773
View Daily Time	M7_R4	2.369	2.466	3.064
	M7_R5_A	1.730	1.752	1.748
	M7_R5_B	2.500	2.684	2.855
Approve Time by Group	M8_R4	1.520	1.577	2.508
	M8_R2	1.631	1.897	1.673
View Payable Time	M9_R1	0.988	1.091	1.398
	M9_R2_A	0.683	0.702	0.666
	M9_R2_B	1.231	1.136	1.333
Enroll Dynamic Groups	A1_R1	0.609	0.608	0.606
	A1_R2	0.664	0.663	0.666
Weighted Average R1		1.246	1.309	2.039
Weighted Average R2		0.588	0.545	0.542
Weighted Average R3		0.940	0.854	1.354
Weighted Average R4		1.219	1.213	2.218
Weighted Average R5		1.679	1.702	1.791
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.

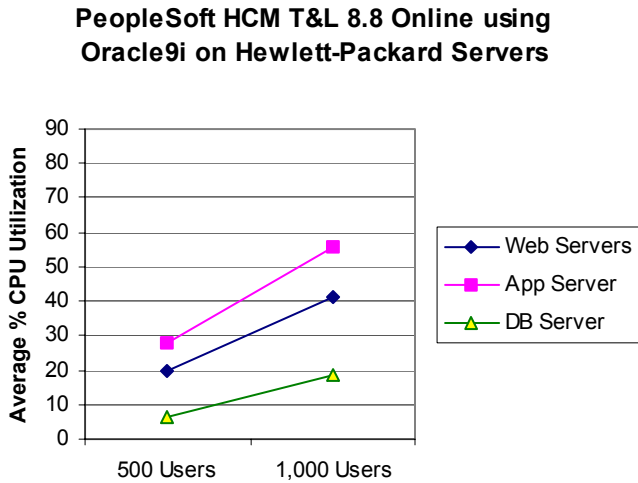


Figure 3: Average Server CPU Utilization

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® AlphaServer™ ES45 was used as the batch/database 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
- ~684 Gigabytes of total Disk Space (4 × 9 GB + 24 × 9 GB + 24 × 18 GB)
- 1 × Internal SCSI Disk Controller, 1 External (Fibre) Disk Controller
- 1 × External StorageWorks Enterprise Storage Array (ESA) 12000 Fibre Channel

Application Server(s):

1 × Hewlett-Packard® hp server rp8400® server was used as the application server. It was equipped with the following:

- 16 × 875 MHz PA-RISC 8700+® processors, each with 1.5 MB of Data Cache and 768 KB of Instruction Cache
- 24 Gigabytes of Memory
- ~72 Gigabytes of total Disk Space (4 × 18.2 GB)

Web Server(s):

2 × Hewlett-Packard® hp server rp2405® servers were used as the web servers. They were equipped with the following:

- 2 × 650 MHz PA-RISC 8700® processors, each with 1.5 MB of Data Cache and 768 KB of Instruction Cache
- 4 Gigabytes of Memory
- ~18 Gigabytes of total Disk Space (1 × 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 5.1b (on the database server)

Hewlett-Packard® HP-UX® 11i with Gold Base Patches (on the application server and web servers)

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

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The PeopleSoft logo is displayed in a large, blue, serif font. The word "PeopleSoft" is written in a classic, elegant typeface, with the "P" and "S" being notably larger and more prominent than the other letters.

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