PEOPLESOFT ENTERPRISE ORDER MANAGEMENT 8.8 USING DB2 UDB FOR HP-UX ON A MIXED HEWLETT-PACKARD PA-RISC/ITANIUM UNIX ENVIRONMENT (w/Pricing Rules)

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 Order Management 8.8	
	Large Volume Model	
(English)	Concurrent Users	500
	Order Lines/Hour	50,000 per hour
Référence d'exécution	PeopleSoft Gestion Commerciale 8.8	
	Grand modèle de données	
(Français)	Concourants Utilisateurs	500
	Lignes/heure	50.000 par heure
Benchmark-Test	PeopleSoft Auftragsabwicklung 8.8	
	Datenbankmodell "Large"	
(Deutsch)	Gleichzeitige Benutzer	500
	Zeilen/Stunde	50.000 pro Stunde
Patrón de rendimiento	PeopleSoft Ventas 8.8	
	Modelo con volumen superior de datos	
(Español)	Simultáneos Utilizadores	500
	Líneas/hora	50.000 por hora
Benchmark	Gerenciamento de Ordens 8.8 do PeopleSoft	
	Modelo de Grande Volume	
(Português)	Simultâneos Usuários	500
	Linhas/hora	50.000 por a hora

BENCHMARK PROFILE

In May 2004, PeopleSoft and Hewlett-Packard conducted a benchmark in Cupertino, CA, to measure the online performance of PeopleSoft Order Management (OM) 8.8 with IBM® DB2® Universal Database Enterprise Server Edition Version 8.1.7 (pre-release) for HP-UX on Itanium on a 4-way Hewlett-Packard® Integrity™ rx4640 database server, running Hewlett-Packard® HP-UX 11.23. One 16-way Hewlett-Packard® HP9000 rp8400 server was used as both an application server and a web server on HP-UX 11.11.

The benchmark measured client response times for 100, 300, and 500 concurrent users entering a simple order of five lines. Our standard data composition model was used and the testing was conducted in a controlled environment with no other applications running. **The goal of this benchmark was to obtain initial performance metrics for PeopleSoft Order Management 8.8 Online, with *complex pricing rules*, on DB2 UDB for HP-UX.**

The figure below illustrates average update response times for a single user, and for a single user with 100, 300, and 500 concurrent users saving their five-line orders.

PeopleSoft Order Management 8.8 Online with DB2 UDB for HP-UX on a mixed HP PA-RISC/Itanium Environment
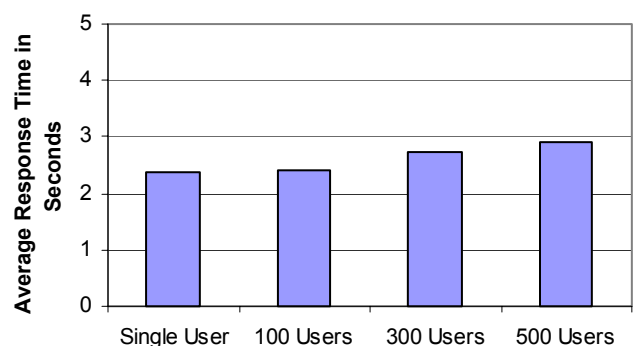

Figure 1: Average Response Times

NOTE: COMPLEX PRICING RULES USED

Note that this benchmark test includes orders *with* complex pricing rules. Thus it cannot be compared to the 8.4 test which used simple orders *without* price rules.

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

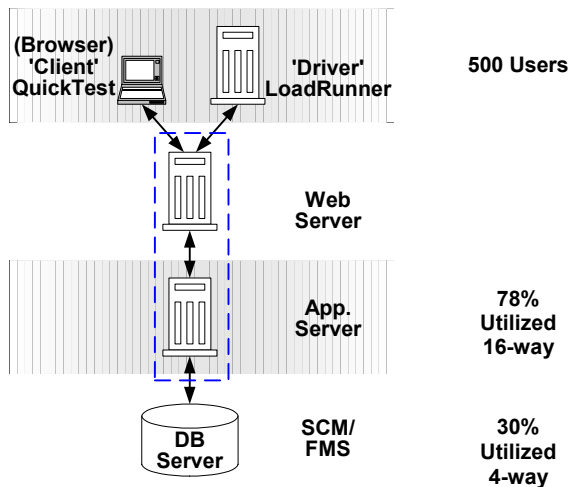Figure 2 shows a typical 4-tier benchmark configuration.

Figure 2: 4-Tier Configuration

This benchmark was run as a "Logical" 4-Tier configuration with the Application server and Web server instances hosted on a single server.

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.

BUSINESS PROCESSES

PeopleSoft defines a business process as a series of HTML pages that guide a user through a business process, such as an order entry, order update, or order inquiry.

The two PeopleSoft Order Management 8.8 business processes tested in this benchmark were as follows:

Simple New Order: Create a new order with 5 lines. Order entry to be performed with the web-browser interface.

Complex New Order: Create a new order with 50 lines. Order entry to be performed with the web-browser interface.

ONLINE PROCESS RESULTS

Table 1 shows average response times, in seconds, for each business process using a three-minute pacing.

	Single User	100 Users	300 Users	500 Users
Process Step	Simple 5-Line Order			
Load	1.75	1.72	1.71	2.23
Refresh	2.28	2.29	2.45	2.76
Save	2.39	2.42	2.72	2.91
Average Throughput	n/a	10,000 order lines/hr	30,000 order lines/hr	50,000 order lines/hr

Table 1: Average Response Times (5-Line Orders)

The servers were processing an average of 50,000 order lines per hour at the peak load of 500 concurrent users. Assuming a three-minute average pacing for each simulated concurrent user, about a third of all the users complete an order each minute. Example: 500 users ÷ 3 minutes = 167 orders/min. Each order has five lines. 167 orders/min × 5 lines × 60 min per hour = 50,000 order lines/hr.

Table 2 shows average response times, in seconds, for each business process using a mix of 5 Line Orders and 50 Line Orders. 225 users entered simple (5-Line) orders and 25 users entered complex (50-Line) orders.

		5 Line Orders (3 Min Pacing)		50 Line Orders (6 Min Pacing)	
Process Step		Single User	225 Users	Single User	25 Users
Load		n/a	1.75	2.22	2.37
Refresh (1)		n/a	2.5	10.01	10.12
Refresh 2				10.17	10.15
Refresh 3				9.89	10.33
Refresh 4				10.17	10.57
Refresh 5				10.21	10.19
Save		n/a	2.86	13.22	13.94
Average Throughput			22,500 order lines/hr		12,500 order lines/hr

Table 2: Average Response Times (5/50-Line Orders)

The combination of simple and complex order entry yielded a combined throughput of 35,000 order lines per hour.

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

SERVER PERFORMANCE

Figure 3 summarizes the average server CPU utilization measured during the simple order entry test.

PeopleSoft Order Management 8.8 Online with DB2 UDB for HP-UX on a mixed HP PA-RISC/Itanium Environment
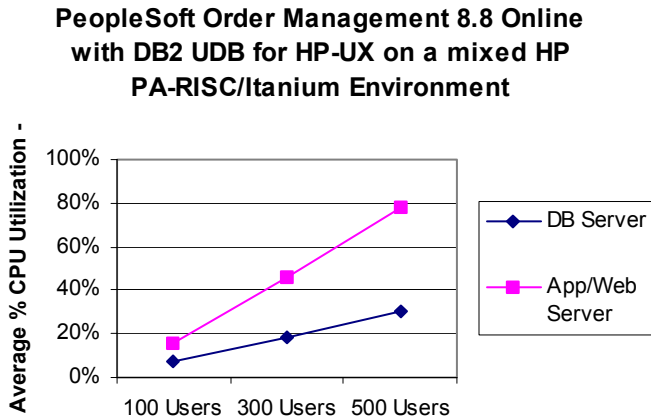

Figure 3: Server Performance (5 Line Order)

Note the linear scalability of the servers as more concurrent users were added.

Figure 4 summarizes the average server CPU utilization measured during the combined simple/complex order entry test with a total of 250 users (25 entering complex orders [50-line] and 225 entering simple orders [5-line]).
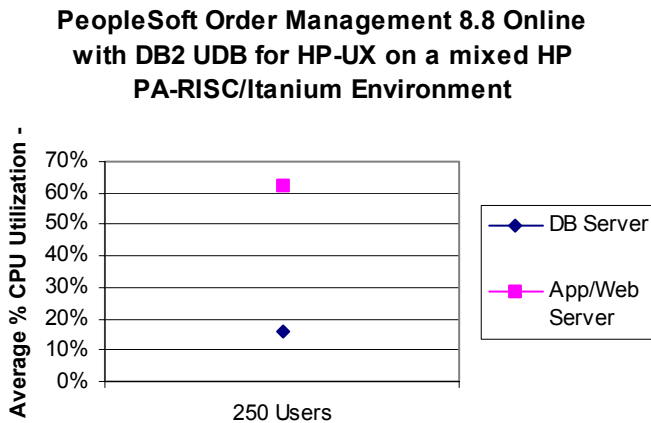
PeopleSoft Order Management 8.8 Online with DB2 UDB for HP-UX on a mixed HP PA-RISC/Itanium Environment

Figure 4: Server Performance (5/50 Line Order)

DATA COMPOSITION

Database Requirements	Average	Value
Order Management BU	1	USA01
Distribution Network	1	WEST
Inventory BU	3	3 Business Unit (US008, US010, US011)
Customers	300,000	
Customer Groups	10	Customers are grouped evenly into the 10 Customer Groups (30,000 per group)
Locations	1	1 Location per customer
Items	75,000	Clone of Item 10000
Non-Inventory Item Products	0	None
Products	75,000	Clone of Product 10000; stocked in INV BU US008,US010, US011
Orders/Day	50,000	One order line per order
Order Lines/Day	500,000	Assume an average of 10 lines per order
Order Schedules/Day	500,000	Assume 1 schedule per order line
Returns/Day	0	No Returns
Product Groups	10	10 Product Groups. Products above are divided evenly into the 10 Product Groups (7500 per Product Group)
Price Sets	3000	Set up by Customer Group and Product Group
Price Breaks	9000	Three Price Breaks per Price Set
Price Rules	1	Default Rule
Price Lists	5	Create 5 Different Price Lists and attach them to Price Sets by Customer Groups. Each Customer would then be attached to a Price List via a Customer Group
History Order Headers	150,000	
History Lines	1,500,000	
History Order Schedules	1,500,000	

Table 3: Order Management Data Composition

Test database was approximately 25 Gigabytes

BENCHMARK ENVIRONMENT

HARDWARE CONFIGURATION

Database Server:

A Hewlett-Packard® Integrity™ rx4640 was used as the batch/database server. It was equipped with the following:

- 4 × 1.5 GHz Intel® Itanium®2 Processors, each with 32 Kilobytes of Level-1 Cache, 256 Kilobytes of Level-2 Cache, 6 Megabytes of Level-3 Cache
- 64 Gigabytes of Memory (~21 GB used)
- 1 × Internal SCSI Disk Controller
- ~686 Gigabytes of total Disk Space available (2 × 73 GB + 15 × 36 GB disk drives) in VA7410 Array (RAID 0+1), approximately 330 GB usable with ~100 GB used
- 2 × Hewlett-Packard® Tachyon™ Fibre Channel Disk Controllers connected via two HP 2Gb Fibre Channel 16B switches

Application/Web Server:

1 × Hewlett-Packard® HP9000 rp8400® server was used as the application server. It was equipped with the following:

- 16 × 750 MHz PA-RISC 8700® processors, each with 1.5 MB of Data Cache and 768 KB of Instruction Cache
- 64 Gigabytes of Memory (~12 GB used)
- ~180 Gigabytes of total Disk Space (4 × 45 GB)

Load Simulation Driver:

1 × Hewlett-Packard® ProLiant™ DL580 served as a driver, it was equipped with the following:

- 4 × 700 Megahertz Pentium® III Xeon™ Processors with 1 Megabyte of Level-2 Cache
- 3.7 Gigabytes of Memory

QuickTest Client PC:

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

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

SOFTWARE VERSIONS

PeopleSoft Order Management 8.8

PeopleTools 8.44

IBM® DB2® Universal Database Enterprise Server Edition Version 8.1.7 (pre-release) for HP-UX (64-bit) on Itanium

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/web server)

Microsoft® Windows® 2000 Advanced Server 5.00.2195 w/SP 4 (on the driver and client)

Mercury Interactive's LoadRunner® 7.8

Mercury Interactive's QuickTest® Professional 6.5

BEA Tuxedo® 8.1, BEA Jolt 1.2

IBM® WebSphere® 5.1

ICE Incident(s): **678553000**

Important Note: At the time that this benchmark was executed, PeopleTools did not support DB2 UDB 8.1.7 on Itanium. Thus, these results are NOT CERTIFIED. DB2 UDB 8.1.7 will likely be certified for a PeopleTools version, or versions, at some time in the near future.

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