PeopleSoft Enterprise

REVISION 2.2

PEOPLESOFT ORDER MANAGEMENT 8.8 ONLINE USING DB2 UDB FOR AIX ON IBM eSERVER™ pSERIES® Servers (Simple Orders)

As a global leader in e-business applications, PeopleSoft 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.

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

BENCHMARK PROFILE

In December 2003, PeopleSoft conducted a benchmark in Pleasanton, CA, to measure the online performance of PeopleSoft Order Management (OM) 8.8 with IBM® DB2® Universal Database Enterprise Server Edition Version 8.1 w/FP 4 for AIX on a 4-way IBM® @server™ pSeries® 630+ database server, running IBM® AIX® 5.2. An 8-way IBM® @server™ pSeries® 650 6M2 application server and a 4-way p630+ web server also ran IBM® AIX® 5.2.

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, *using simple orders without pricing rules*, on DB2 UDB for AIX.**

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.

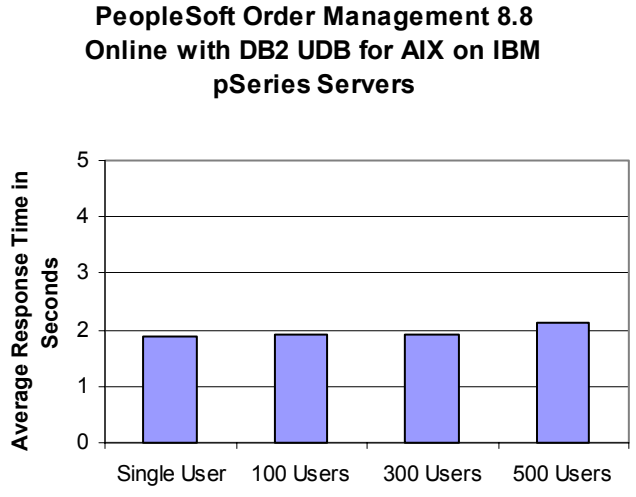

Figure 1: Average Response Times

Note that this benchmark test used the same simple orders *without* price rules as the preceding 8.4 test. This was done to allow a quick comparison with the previous results. A concurrent test includes orders *with* complex pricing 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.

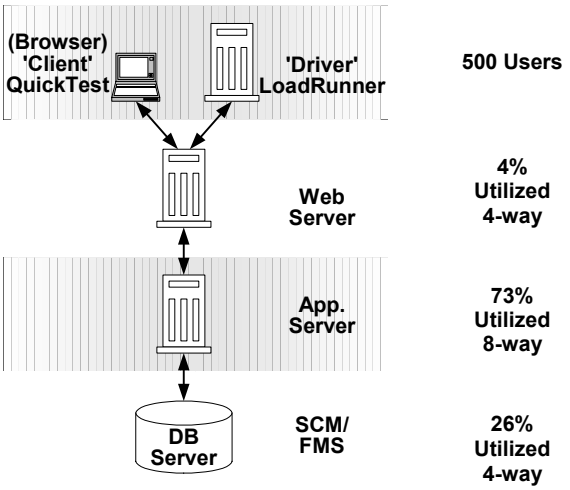

Figure 2: 4-Tier Configuration

This benchmark was run as a "Physical" 4-Tier configuration with discrete machines hosting all of the Database, Application, and Web server instances.

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	1.22	1.27	1.43	1.49
Refresh	2.16	2.26	2.43	2.54
Save	1.89	1.92	1.92	2.14
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	1.51	1.19	1.62
Refresh (1)	n/a	2.27	9.76	10.24
Refresh 2			9.47	9.83
Refresh 3			9.35	10.4
Refresh 4			9.23	10.25
Refresh 5			9.4	9.7
Save	n/a	1.96	10.28	11.28
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.

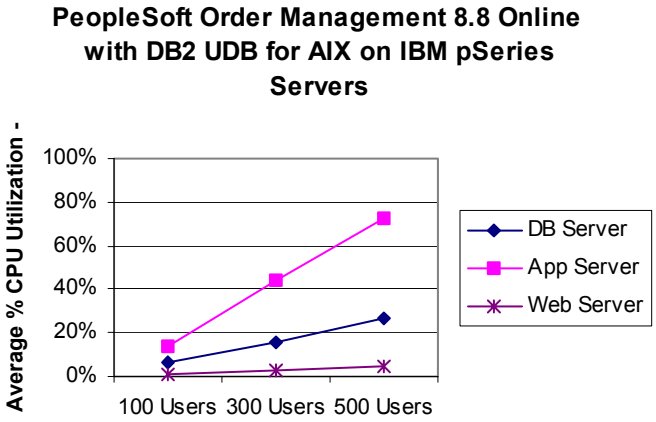

Figure 3: Server Performance (5 Line Order)

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]).

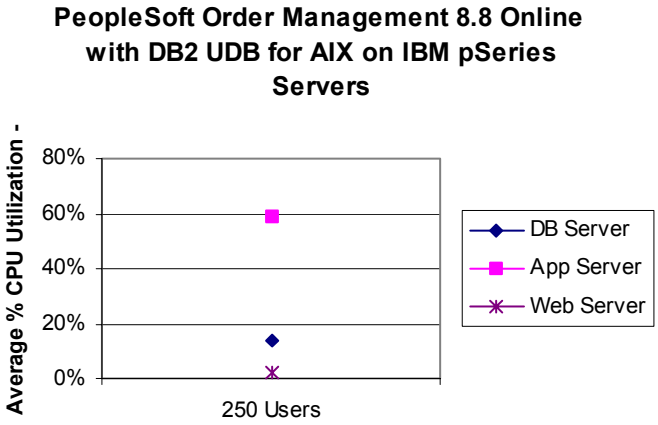

Figure 4: Server Performance (5/50 Line Order)

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:

The IBM @server pSeries 630+ (7028-6C4) server was used as the database server. It was equipped with the following:

- 4 × 1.45 GHz IBM Power4+™ processors, each with 32 Kilobytes of Level-1 Data Cache and 64 Kilobytes of Level-1 Instruction Cache, 0.768 Megabytes of Level-2 Cache, with an average of 4 Megabytes of Level 3 Cache
- 16 Gigabytes of Memory
- ~396 Gigabytes of total Disk Space (4×73 GB SCSI + 6×66.8 GB [IBM® TotalStorage™ FAStT RAID 5 arrays]) ~35 GB used
- 3 Disk Controllers (1 × SCSI, 2 × 2 Gbit Fibre Channel)

Application Server:

The IBM @server pSeries 650 (7038-6M2) server was used as the application server. It was equipped with the following:

- 8 × 1.45 GHz POWER4+® Processors, each with 32 Kilobytes of Level-1 Data Cache and 64 Kilobytes of Level-1 Instruction Cache, 0.75 Megabytes of Level-2 Cache, with an average of 16 Megabytes of Level 3 Cache
- 32 Gigabytes of Memory
- ~36 Gigabytes of total Disk Space (2 × 18.2 GB)
- 1 × SCSI Disk Controller

Web Server:

The IBM @server pSeries 630+ (7028-6C4) server was used as the web server. It was equipped with the following:

- 4 × 1.45 GHz IBM Power4+™ processors, each with 32 Kilobytes of Level-1 Data Cache and 64 Kilobytes of Level-1 Instruction Cache, 0.768 Megabytes of Level-2 Cache, with an average of 4 Megabytes of Level 3 Cache
- 16 Gigabytes of Memory
- ~36 Gigabytes of total Disk Space (2 × 18.2 GB)
- 1 × SCSI Disk Controller

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 w/FP 4 for AIX (64-bit)

IBM® AIX® 5.2 (on the database server, application server and web server)

Microsoft® Windows® 2000 Advanced Server 5.00.2195 w/SP 2 (on the driver)

Microsoft® Windows® XP Advanced Server w/SP 1 (on the client)

Mercury Interactive's LoadRunner® 7.8

Mercury Interactive's QuickTest® Professional 6.0

BEA Tuxedo® 8.1, BEA Jolt 1.2

IBM® Websphere® Single Server Version 5.1 with JRE 1.3.1

ICE Incident(s): **678553000**

PeopleSoft.

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