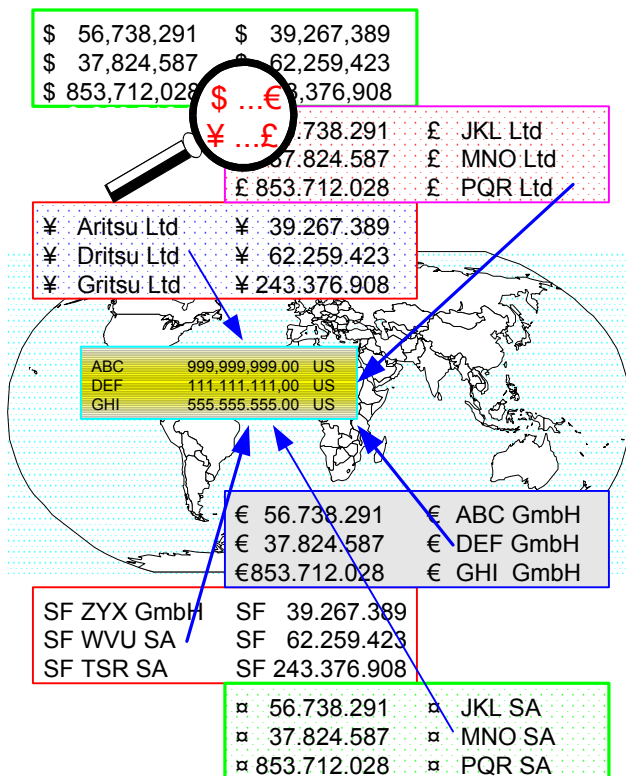PEOPLE
Soft.
certified
Technology Benchmark

PEOPLESOFT GLOBAL CONSOLIDATIONS 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.

OVERVIEW

PeopleSoft's Global Consolidations application enables large enterprises to rapidly consolidate their disparate ledgers into a single entity for reporting needs and strategic decision-support. Further, the impact of Pro Forma adjustments to the initial consolidation is immediately manifested.

The main batch flow processed 2,000 business units, including 2,000,000 ledger lines in about an hour. This included journal preparation, equitization, and both Inter-Company eliminations and Non Controlling-Interest eliminations. An incremental pro forma adjustment took about 3.3 minutes to flow through the same rules.

BENCHMARK PROFILE

In November 2003, Hewlett-Packard and PeopleSoft conducted a benchmark in Cupertino, CA to measure the batch and online performance of PeopleSoft Global Consolidations 8.8 using Oracle9i™ 9.2.0.2 on a 4-way Hewlett-Packard® Integrity™ rx5670 database server, running Hewlett-Packard® HP-UX 11.22. One 8-way rp8400 batch/application/web server ran HP-UX 11.11.

The benchmark measured batch-processing time for processing a financial period's ledger data. The time for processing a Pro Forma adjustment was also measured. Finally, client response times for 25 and 50 concurrent users entering queries to the consolidation were recorded.

The standard database composition model represents an extra-large-sized company profile. The testing was conducted in a controlled environment with no other applications running. **The goal of this Benchmark was to obtain results for PeopleSoft Global Consolidations 8.8 with Oracle9i on an HP Integrity server.**

2,000 Business Units × 1,000 Lines	Time
Ledger Preparation (3.5 M Ledger Lines)	13.88 min
Equitization (2 M Ledger Lines)	26.18 min
Inter-Company Eliminations	7.98 min
Non-Controlling Interest Eliminations	12.98 min
Total	61.03 min
Throughput: Business Units per Hour / Ledger Lines per Hour	1,966 / 1,966,100
Pro Forma (Incremental) Adjustment	3.3 min
50 Users — Ledger Inquiry, after initial load of ~3.4 M Ledger Lines	2.044 sec
50 Users — Variance Inquiry, after initial load of ~6.8 M Ledger Lines	2.452 sec

Table 1: Summary Elapsed Times and Throughput

BATCH METHODOLOGY

The PeopleSoft Global Consolidations processes are designed to consolidate disparate financial data into a single location for reporting and strategic decision-support. The effect of any subsequent pro forma adjustments on the consolidated results is readily computed. *The goal was to run this batch series in 1.5 hours, or less. For this extra-large database model, it ran in just over an hour.*

This application was run as sixteen concurrent processes.

Batch processes are background processes, requiring no operator intervention or interactivity. Results of these processes are automatically logged in the database. The runtimes are posted to the Process Request database table where they are stored for subsequent analysis.

LEDGER PREPARATION

You may be implementing from a conglomerate of systems with mini-consolidations occurring, or subsidiaries prepare their data outside of corporate systems.

Ledger Preparation (No Prep Option) [AE]: This option shortens the time to consolidation by allowing the ledger preparation process to be skipped for those entities within your organization who prepare their data outside of the PS PeopleSoft Global Consolidations ledger preparation process. If your subsidiary ledgers are already in the same format as the consolidation ledger, or you retain these processes in order to quickly recognize some of the early benefits of global consolidations, you can indicate that no mapping is required.

CONSOLIDATION

PeopleSoft Directory Interface

Equitization [AE]: This process does four things for the overall consolidation effort. Equitization is a term used at PeopleSoft to recognize proper accounting for earnings of subsidiaries and non-controlling or minority interests. First, this process uses the ownership structures to properly calculate the recognition of a parent's equity interest in the earnings of all direct and indirect subsidiaries according to the US GAAP and IAS rules. Using threshold percentages, the complexity of this calculation is automated. Second, you may also set up the rules to include the elimination of the parent's recognition of earnings for consolidation purposes. Third, this process includes the calculation, and properly records, the amounts related to non-controlling or minority interests. Finally, audit trails generated in this process give clear visibility into the calculation of the amounts.

Inter-Company Eliminations [AE]: This process is used to generate entries that eliminate transactions between related parties, according to US GAAP and IAS rules. A typical example would be the offset of one organizations accounts receivable balance against the related accounts payable on another entity's books.

NCI Eliminations (Non-Controlling Interest) [AE]: This process does three things for the overall consolidation effort. This process at PeopleSoft is used to recognize proper accounting eliminating the parent's investment in a subsidiary against the subsidiary's equity and non-controlling or minority interest liability. First, this process eliminates the parent investment against the subsidiary equity. Second, it uses the ownership structures to properly calculate the recognition of non-controlling or minority interest liability according to the US GAAP and IAS rules. Finally, audit trails generated in this process give clear visibility into the calculation of the amounts.

PRO FORMA (INCREMENTAL) PROCESSING

Proforma processing allows you to perform an impact only consolidation. This allows you to record a top-sided entry and quickly see the effect that entry has on the consolidated results. A top-sided entry is an adjustment to consolidated results that may or may not be directed at a specific legal entity initially. By indicating the top-sided or journal adjustment(s) to proforma process, you can run the adjustment through one or all of the rules defining the equitization process, intercompany elimination and NCI process. The result is an additional journal adjustment that reflects the changes only to the previous consolidation caused by the topsided entry. Included in this process are the following choices:

Equitization (Pro Forma) [AE]: Equitization – Pro forma – Running a selected journal(s) against the rules defining the equitization process for the purpose of generating an impact only adjustment to a previous equitization process.

Inter-Company Eliminations (Pro Forma) [AE]: Inter-company Eliminations – Pro forma - Running a selected journal(s) against the rules defining the inter-company elimination process for the purpose of generating an impact only adjustment to a previous inter-company elimination process.

NCI Eliminations (Pro Forma) [AE]: NCI Eliminations – Pro forma - Running a selected journal(s) against the rules defining the NCI elimination process for the purpose of generating an impact only adjustment to a previous NCI elimination process.
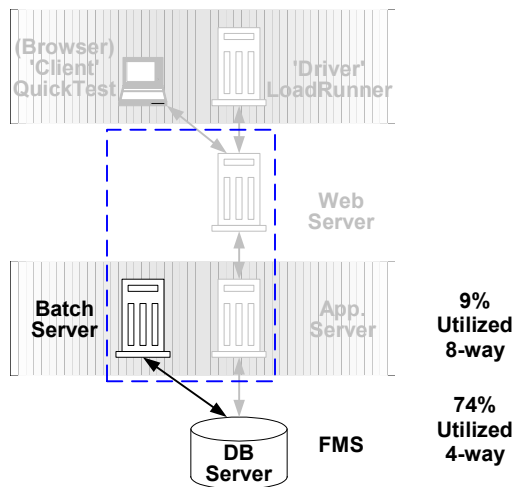
Figure 1: GC Batch Test Implementation

BATCH PROCESS RESULTS

Process (2,000 Business Units × 1,000 Lines)	Elapsed Time
Preparation	
Ledger Prep (No Prep Option)	13.88
Consolidations	
Equitization	26.18
Inter-company Eliminations	7.98
Non Controlling Interest Eliminations	12.98
Subtotal	47.15
Total in Minutes	**61.03**
Throughput in Business Units per Hour	**1,966**
Throughput in Ledger Lines per Hour	**1,966,100**
Pro Forma (Incremental) Processing	
Equitization	0.9
Inter-company Eliminations	0.8
Non Controlling Interest Eliminations	1.6
Subtotal	3.3
Overall Total	64.33

Table 2: Batch Business Process Runtimes

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 six 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.

BUSINESS PROCESSES

PeopleSoft defines a business transaction as a series of HTML pages that guide a user through a business process, such as checking a financial entity's account balances.

The PeopleSoft Global Consolidations 8.8 business processes tested in this benchmark are as follows:

ONLINE CONSOLIDATIONS INQUIRIES

The current design on the application is to load the data and aggregate to all levels of the reporting tree when the page is loaded. This way, users can navigate through the tree accessing only memory and not the database. In these transactions, about 3.4/6.8 million lines of data are being aggregated.

Ledger Inquiry: Navigate to the Global Consolidation Home page and click on "Ledger Inquiry." Click on "Balance Sheet" and then on "Assets." Filter the data for a single Business Unit. User loads page – which includes all 3.4 million lines. Next, the user selects a Node and then a single Business Unit. Note that with all the data loaded, it is possible to examine multiple nodes and business unit balances without further database queries.

Variance Inquiry: Navigate to the Global Consolidation Home page and click on "Variance Inquiry." Click on "Balance Sheet" and then on "Assets." Filter the data for a single Business Unit. User loads page – which includes all 6.8 million lines. Next, the user selects a Node and then a single Business Unit. Note that with all the data loaded, it is possible to examine multiple nodes and business unit balances without further database queries.
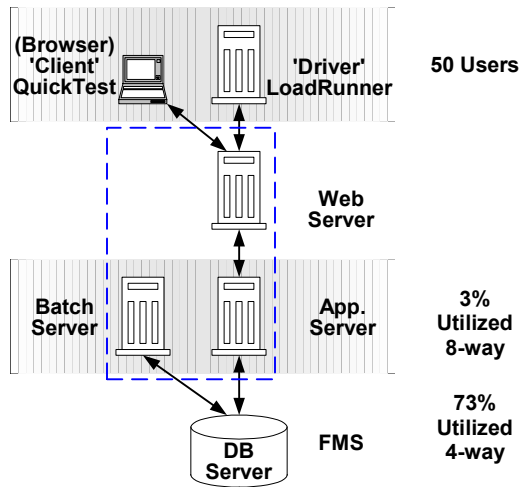
Figure 2: Four-Tier Online Test Implementation

Process by Role	Percent of Total	Average Pacing (Minutes)
Inquiries		
Ledger Inquiry	40%	10 min
Variance Inquiry	40%	10 min
* Background Misc. Inquiries	20%	10 min
Total	100%	

Table 3: Business Process Mix

The table above shows the proportions of the business processes used in the measurements of this benchmark. The proportions are intended to simulate a typical user scenario.

* In a production environment there would likely be some background transactions underway at any given time.

ONLINE PROCESS RESULTS

Table 4 shows average retrieval (search) times.

		Single User	25 Users	50 Users
Ledger Inquiry	Load Page	7.841	9.045	13.150
↑ (~3.4 M Lines)	**Select Node**	1.191	1.708	2.044
	Select BU	3.248	5.222	7.305
Variance Inquiry	Load Page	14.664	19.638	23.009
↑ (~6.8 M Lines)	**Select Node**	1.159	1.428	2.452
	Select BU	4.705	8.184	11.817
Transactions/min		n/a	2.5	5

Table 4: Online Business Process Runtimes

The database and application servers were processing a total of 5 business processes per minute at the peak load of 50 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

Figures 3 and 4 show 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.
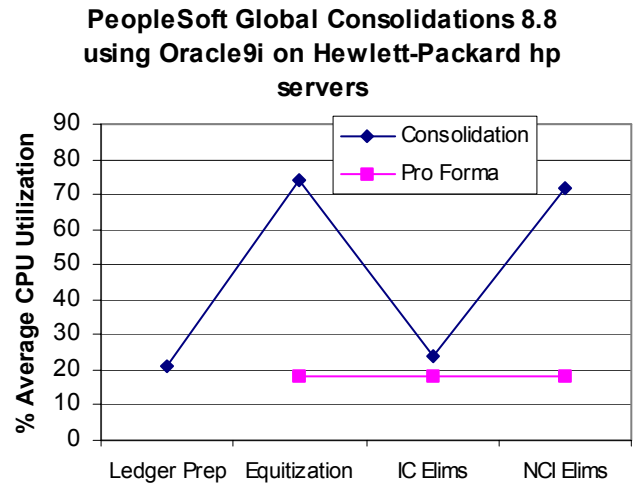

Figure 3: Average Database Server CPU Utilization

The Equitization and NCI Eliminations processes were CPU-bound. Stages two and three of the Equitization process were I/O-bound.
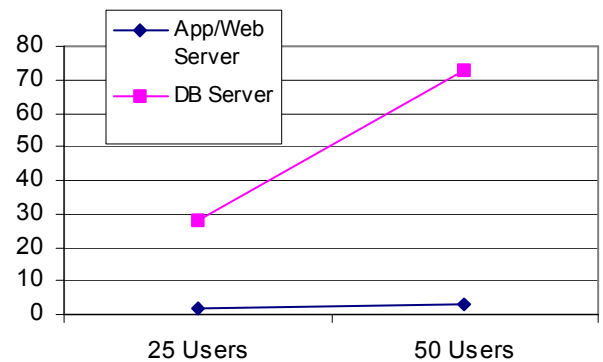

Figure 4: Average Online Server CPU Utilization

DATA COMPOSITION DESCRIPTION

The database was comprised of:

	Extra-Large Model
Number of Business Units	2,000
Percentage of Business Units with Foreign Currency Source Data	75%
Levels in the Consolidation Tree	5
Scenarios	1
Number of Lines per Business Unit	1,000
Number of Dimensions used on CLED Table	8
Number of Lines involved in the Consolidation Process – each Organization	500
Amount of History Data (Months)	16

Table 5: Data Model Characteristics

- Consolidation Tree has 10 nodes, with 199 Business Units per Node

- Half the Business Units are fully owned, with the other half partially owned (requiring Non Controlling Interest [NCI] processing)

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 SAN-Connected HP EVA 5000 disk array with 2 fibre-channel connections

- ~6 Terabytes of total Disk Space available (84 × 73 GB disk drives), approximately 320 GB of RAID 0/1 storage used for this benchmark

- 2 × Hewlett-Packard® Tachyon™ Fibre Channel Disk Controllers connected via two HP 2Gb Fibre Channel 16B switches

Batch/Application/Web Server:

1 × Hewlett-Packard® hp server rp8400® server was used as the batch/application/web server. It 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

- ~145 Gigabytes of total Disk Space (2 × 73 GB)

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® Evo D510 desktop (DG767A) with the following:

- 2 × 2.4 GHz Intel® Pentium® IV Processors, each with 512 Kilobytes of Level-2 Cache

- 256 Megabytes of Memory

SOFTWARE VERSIONS

PeopleSoft FMS Global Consolidations 8.8

PeopleTools 8.43

Oracle9i™ 9.2.0.2

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

Hewlett-Packard® HP-UX® 11i (11.11) (on the batch server, application server and web server)

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

Mercury Interactive's LoadRunner® 7.5

Mercury Interactive's QuickTest® Professional 6.0

BEA Tuxedo® 6.5 with Jolt 1.2

BEA WebLogic Server™ 6.10 w/SP 2

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