E-BUSINESS APPLICATIONS 11*i* (11.5.10) BENCHMARK - USING ORACLE10*g* ON IBM SYSTEM p 570 POWER6 PROCESSOR TECHNOLOGY AND SYSTEM p5 SERVERS

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

Oracle 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

Online Workload			
Number of Users		**Avg. Resp. (Sec)**	**90th Percentile Response Time (Sec)**
3,000 Concurrent Users		0.764	1.484
Batch Workload			
Order-to-Cash Batch		**Time (Min)**	**Hourly Order Line Throughput**
50,000 Order/Inv. Lines		31.66	94,757 Lines/Hour
Payroll Batch		**Time (Min)**	**Hourly Employee Throughput**
10,000 Employees		8.08	74,257 Empl./Hour

Note that the online users and the two batch workloads were running simultaneously and the hourly throughput numbers mentioned above are linear extrapolations. Many factors can influence performance and your results may differ.

BENCHMARK PROFILE

In March and April 2007, Oracle and IBM conducted a benchmark in Beaverton, OR to measure the online and batch performance of the Oracle Applications Standard Benchmark processes in an environment running Oracle E-Business Suite 11*i* (11.5.10) with Oracle10*g*™ (10.2.0.2) for the IBM AIX® operating system on an 8-core IBM® System p™ 570 database server running AIX 5L™ V5.3 TL06 (64-bit) OS. Two 16-core IBM System p 570 servers were used as Application/Web servers.

An IBM TotalStorage® DS4800 equipped with six disk arrays of 467 GB each (Total 2.6 Terabytes.) were used for data storage.

The benchmark measured the online user response times and the Order Management and Payroll batch business process hourly throughputs for a medium database model. Testing was conducted in a controlled environment with online users and the two batch processes running concurrently. **The goal of this Benchmark was to obtain reference response times and throughputs for Oracle E-Business Suite 11*i* Benchmark on IBM System p 570 servers.**

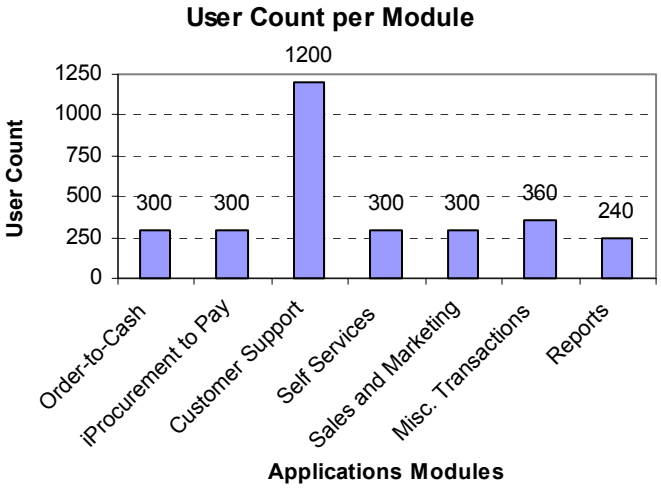

Figure 1: Oracle eBS Benchmark Concurrent User Distribution

BENCHMARK METHODOLOGY

E-Business Suite 11*i* Benchmark 11.5.10 online and batch processes can be initiated from a browser. For this benchmark, all runs used a browser to initiate the on-line user transactions and the batch processes were initiated as concurrent programs running simultaneously with the online users.

The batch workloads were run as standard concurrent processes via the concurrent manager.

Mercury Interactive's LoadRunner® was used as the load driver, simulating concurrent users. It submitted transactions at an average rate of one every 2.5 – 15 minutes for each concurrent user.

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

Figure 2 shows the configuration used for this benchmark run.

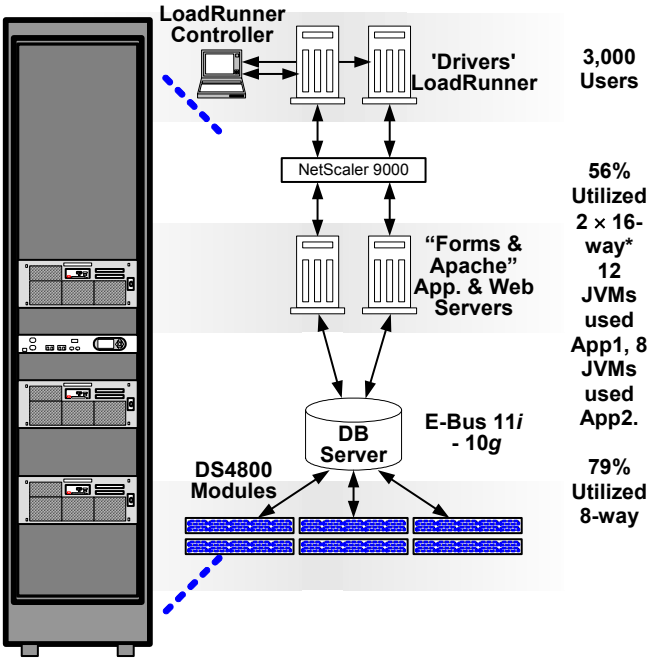

Figure 2: 3-Tier Configuration

This benchmark was run as a "Physical" 3-Tier configuration with discrete machines hosting all of the Database and Application server instances. The load across the multiple mid-tiers was balanced using a Citrix® NetScaler™ Application Switch 9000 platform device.

BENCHMARK BUSINESS PROCESSES

The eBS benchmark consists of a mix of on-line transactions and batch processes running in parallel. The following table describes the on-line transactions included in the benchmark run.

Oracle Application Product Flow	% within App.	% Overall	Pacing in Min
Order to Cash (10%)			
Create & Book Order	40	4	5
Pick Release	20	2	2.5
Ship Confirm / ITS	20	2	2.5
Receivables - Invoice	20	2	2.5
Procurement to Pay (10%)			
Create & Query Requisition	20	2	3
Auto-create & Approve PO	20	2	3
View Purchase Order	20	2	3
Create Invoice	20	2	3
Invoice Inquiry	20	2	3
Customer Service (40%)			
Create Service Request	40	16	4
Update Service Request	40	16	4
Close Service Request	20	8	4
Self Service (10%)			
Create & Query Cash Exp.	20	2	6
Create & Query C. Card Exp.	20	2	6
Create Project Timecard	30	3	6
View Employee Payslip	30	3	6
Sales & Marketing (10%)			
Sales Lead to Proposal	40	4	3
Opportunity to Quote	20	2	10
Sales Opportunity to Order	20	2	10
Opportunity to Sales Forecast	20	2	7.5
Miscellaneous Trans. (12%)			
AR View Customer Transact.	16.7	2	7.5
AR Customer Summary	16.7	2	7.5
FA Create & Query Asset	16.7	2	7.5
GL Create Journal Entry	16.7	2	7.5
INV View Item Attributes	16.7	2	7.5
INV Insert Misc. Transactions	16.7	2	7.5
Reports (8%)			
AR – Aging Report	25	2	15
INV – Min/Max Inventory Rep.	25	2	15
OM – Order Summary Report	25	2	15
PO – Printed PO Report	25	2	15
		100%	

Table 1: Online Transaction Mix

Batch Order-to-Cash Processes

Business Process	Number of Threads Used
High Vol. Order Proc.	8
Pick Release	8
Shipping Confirmation	8
ITS	8
Auto Invoice	8
Revenue Recognition	8
GL	8

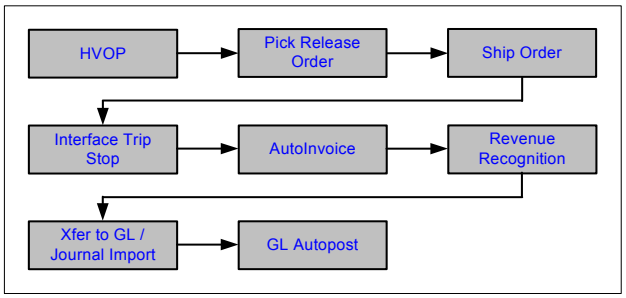

Figure 3: Order-to-Cash Process Flow

High Volume Order Processing (HVOP): The HVOP program processes orders by reading the rows from the Order Management Interface tables and converting the interface records into permanent order headers and their respective order lines. The orders are then booked and advanced to the shipping state.

Pick Release: Pick Release finds and release the eligible delivery lines that meet the release criteria, and creates move orders. The process of transacting move orders creates a reservation and determines the inventory source sub-inventory.

Ship Confirm: Ship Confirm is the process of confirming that items have shipped. When a delivery is ship-confirmed, Shipping Execution confirms that the delivery lines associated with the delivery have shipped.

Interface Trip Stop: The deliveries created in the previous step are then assigned to trips, which may involve multiple stops depending upon the shipping addresses of the deliveries. SRS has been modified to accept Organization code as a parameter and process the trip stops for the specified organization. Interface Trip Stop - SRS has also been enhanced to spawn multiple child processes to process trip stops in parallel. The parameter Stops per Batch is used to specify the number of stops to be processed by each thread of the Interface Trip Stop - SRS. Interface Trip Stop - SRS has also been enhanced to defer the Inventory Interface processes. In the eBS kit, this profile is set to Yes so that the Inventory Interface transactions are processed in the background by the Inventory transaction manager.

INV Material: The material transaction manager is configured to execute material transaction by periodic concurrent request submissions. The execution interval is set to 20 minutes.

Auto-Invoice: The Auto-Invoice process is used to import invoices, credit memos, debit memos, and on–account credits. 'Receivables' ensures that the data imported is accurate and valid.

Revenue Recognition: Revenue Recognition program generates the revenue distribution records for the invoices and credit memos that use Invoicing and Accounting Rules. Accounting rules were assigned to recognize revenue over a 12-months accounting period. The Revenue Recognition program will create distribution records for the invoices and credit memos that are created in Receivables and imported using Auto-Invoice.

Transfer to General Ledger & Journal Import: The General Ledger Interface program transfers Receivables transaction accounting distributions to the general ledger interface table (GL_INTERFACE) and creates either detailed or summarized journal batches. "Receivables" creates un-posted journal entries in general ledger and executes Journal Import from Oracle General Ledger. It posts journal batches in Oracle General Ledger to update account balances.

General Ledger Auto-post: This posts journal batches to update the account balances of the detail and summary accounts. It can post actual budget or encumbrance journal batches.

Batch Payroll Processes

Business Process	Number of Threads Used
Payroll Process	8
PrePayments	8
NACHA	8
Check Writer	8
Costing	8

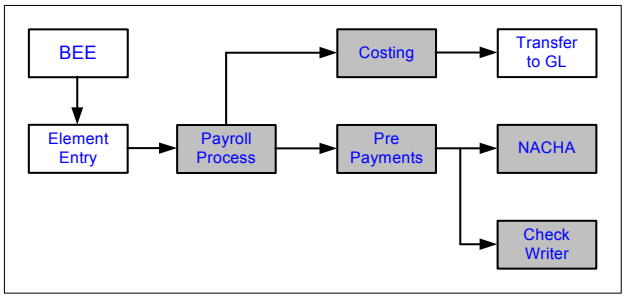

Figure 4: Payroll Process Flow

The Oracle E-Business Suite 11*i* Payroll processes tested are as follow:

Payroll Process: Identifies all employees to be processed and performs calculations required to complete the gross to net calculation including earnings, deductions, and taxes. The specific groups of employees processed can be controlled by multiple parameters to the payroll process including the ability for a user to define a rules based set of employees.

PrePayments: Distributes the net pay for each employee across the various payment methods (Direct Deposit, Check, or Cash). This can be run for a single payroll process or across multiple payroll processes.

NACHA: This is the US version of the Global Direct Deposit process which creates the bank interface file as per NACHA rules based on the rules in the Pre Payment process.

Check Writer: (Oracle Report Writer) This process allocates check numbers and creates/prints the payroll check and associated paper payslip.

Costing: This process associates the payroll transaction data with the General Ledger (GL) accounts in preparation for transfer of the data to GL. This process uses a sophisticated hierarchical rules based engine to determine the mapping of the HRMS data and payroll results to the GL accounts.

BENCHMARK RESULTS

Online Workload		Avg. Resp. (Sec)	90th Percentile Response Time in Seconds
3,000 Concurrent Users		0.764	1.484

Table 2: Online Overall Response Times

Two checkpoints were completed during the measurement interval.

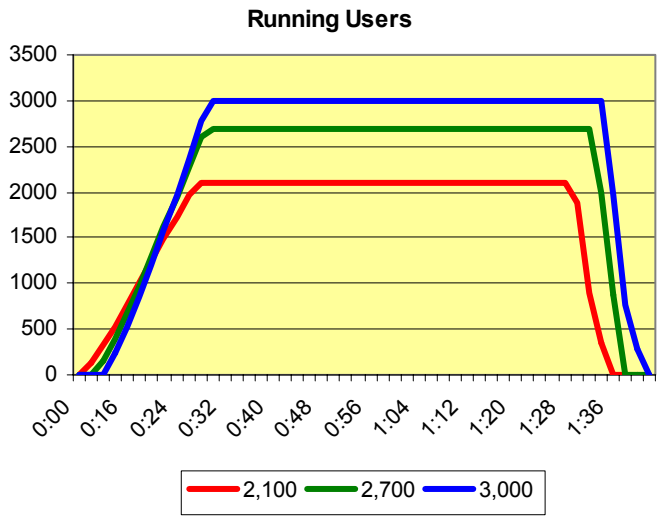

Figure 5: User Load Over Time

Batch Business Metrics		Achieved Output
Order to Cash		
Number of Order Lines Created/Booked		50,000
Number of Order Lines Picked		50,000
Number of Order Lines Ship Confirmed		50,000
Number of Order lines Interface Trip Stopped		50,000
Number of Invoice Headers Created		50,000
Number of Invoice Lines Created		100,000

Table 3a: Batch Transactions Completed (3,000 Users)

Online Business Metrics		Achieved Output
Order to Cash		
Number of Orders Created/Booked		7,579
Number of Orders Picked		7,200
Number of Orders Ship Confirmed		7,200
Number of Orders Interface Trip Stopped		7,020
Number of Invoice Headers Created		7,215
Number of Invoice Lines Created		14,430
Procurement to Pay		
Number of Requisitions Created		1,202
Number of Purchase Orders Created		5,995
Number of Purchase Orders Approved		5,995
Number of PO Invoices Created		1,200
Customer Support		
Number of Service Requests Created		7,200
Number of Service Requests Updated		7,738
Number of Service Requests Closed		3,600
Self-Service		
Number of Cash Expenses Created		1,195
Number of Credit Card Expenses Created		1,195
Number of Timecards Created		900
Sales & Marketing		
Number of Leads Converted to Proposal		2,401
Number of Leads Converted to Opportunities		2,397
Number of Opportunities Converted to Quotes		720
Number of Opportunities Converted to Orders		359
Miscellaneous Transactions		
Number of Fixed Assets Created		479
Number of GL Entries Created		4,800
Number of INV Miscellaneous Transactions Completed		2,400
Reports		
Number of GL Autoposts		240
Number of AR Reports		240
Number of INV Reports		240
Number of OM Reports		240
Number of PO Reports		241

Table 3b: Online Transactions Completed (3,000 Users)

	3,000 Users	
	Avg.	90th%
Order to Cash		
Cr./Book Order	1.32	1.71
Pick Release	0.39	0.46
Ship Confirm	0.22	0.21
AR Insert Inv.	0.52	0.61
Procurement to Pay		
Checkout req.	0.99	1.49
Submit Rq Data	0.93	1.37
Query Req.	0.72	1.15
Auto-create PO	0.22	0.21
Approve PO	0.41	0.62
View Purchase Order Find	0.32	0.37
Lines	0.50	0.54
Shipments	0.44	0.43
Distributions	0.66	0.66
Create AP Inv.	0.35	0.42
Inv. Distribution	0.33	0.38
View AP Invoice Find	0.22	0.22
Overview	1.27	1.41
Distributions	0.30	0.36
Customer Service		
Create Service Request	0.36	0.42
Update Service Request	0.27	0.39
Close Service Request	1.97	2.98
Self Service		
Create Cash Exp. Login	1.39	2.17
Submit Cash Exp.	1.07	1.50
Query Cash Exp.	0.34	0.43
Credit Card Expense Entry	0.79	1.28
Submit	1.15	1.65
Query Credit Card Expense	0.93	1.37
Create Project Timecard	0.77	1.24
View Employee Payslip	1.08	1.61

Table 4a: Detailed Online Transaction Response Times

	3,000 Users	
	Avg.	90th%
Sales & Marketing		
Create Proposal	0.93	1.36
Create Quote	1.36	1.98
Update quote	1.17	1.83
Place Order	1.66	2.32
Query Forecast	0.99	1.46
Query Forecast Details	0.78	1.21
Submit Forecast	0.95	1.38
Update Forecast	0.81	1.31
Update Forecast Details	0.95	1.34
Miscellaneous Trans.		
AR Bill to Open	0.22	0.21
AR View Cust. Transact. Find	0.70	0.98
Aging	0.24	0.32
Acct. Summary	0.19	0.21
Acct. Details 1	0.19	0.22
Acct. Details 2	0.79	1.19
Line Items	0.57	0.72
Tax	0.20	0.32
Tr. Accounting	0.19	0.22
AR Cust. Sum. Open Address	0.22	0.21
Open 'Ship To'	0.22	0.21
FA Create	0.22	0.21
FA Query Asset	0.22	0.26
GL Create Journal Entry	0.26	0.35
GL Query J. E.	0.17	0.21
INV Insert	0.92	1.05
INV View Item Attributes	0.32	0.37
INV View Quant	0.22	0.21
Overall Avg.	0.76	1.48

Table 4b: Detailed Online Transaction Response Times

50,000 order lines were processed in this test. Table 5 shows the processing time in minutes.

50,000 Order Lines	Time (Min)	Order Lines per Hour
HVOP	1.78	1,685,393
Pick Release	5.28	568,182
Ship Confirm	0.68	4,411,765
ITS	3.9	769,231
Auto Invoice	7.8	384,615
Revenue Recognition	4.67	642,398
General Ledger	4.95	606,061
Journal Import	2.08	1,442,308
Posting	0.52	5,769,231
Totals:	31.66	94,757

Table 5: Order-to-Cash Batch Performance (3,000 Users)

10,000 employees were processed for the semi-monthly payroll in this test. Table 6 shows the processing time in minutes.

10,000 Employees	Time (Min)	Employees per Hour
Payroll Process	6.73	89,153
PrePayments	0.4	1,500,000
NACHA	0.05	12,000,000
Check Writer	0.38	1,578,947
Costing	0.52	1,153,846
Totals:	8.08	74,257

Table 6: Payroll Batch Performance (3,000 Users)

SERVER PERFORMANCE

Figure 6 shows the average CPU utilization for each process. The value shown is the average across the eight processors (eight cores) in the database server and the eight processors (16 cores) in each application server.

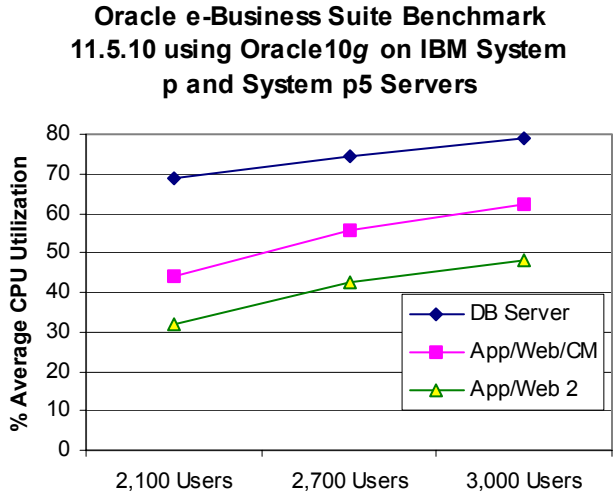

Figure 6: Average CPU Utilization

Each server scaled smoothly as users were added, keeping the batch load constant over the steady state period.

Online Workload	User	System	Idle	I/O Wait
DB 3,000 Users	72.74	6.28	19.21	1.69
App 1 1,500 Users	55.42	6.75	37.83	0.0
App 2 1,500 Users	41.99	6.16	51.89	0.0

Table 7: Average CPU Utilization

Online Workload	3,000 Users
DB Server (128 GB)	79.7
App/Web Svr. 1 (64 GB)	29.1
App/Web Svr. 2 (64 GB)	28.1

Table 8: Average Memory Utilization (Gigabytes)

I/O PERFORMANCE

One IBM TotalStorage DS4800system with six disk arrays was used for storage. I/O performance is crucial to batch performance and is summarized as follows:

1K Blocks		3,000 Users
Transfers/Sec Avg.		17,224
Peak		81,938
Writes/Sec Avg.		665
Peak		2,446
Reads/Sec Avg.		234
Peak		600
Avg. Service Time (ms)		2.42
Peak		5.7

Table 9: I/O Subsystem Metrics

DATA COMPOSITION DESCRIPTION

Major data components for the model under test are summarized in the following table.

Application	Business Objects	Medium Model
TCA	Organizations	500,000
	Contacts	1,000,000
	Contact Points	1,000,000
	Accounts	500,000
	Account Sites	500,000
	Account Site Uses	1,000,000
Contracts	Contracts	100,000
Install Base	Instances	500,000
	Trackable Items	5
Items	Reserve - Items	500,000
HR	Managers	400
	Employees	50,000
	Payroll Users	50,000
	Users	10,000
	Credit Card Entries	500,000
	Supplier(s)	5,000
Assets	Asset Categories	100
General Ledger	GL Code Combinations	1,000
Sales & Marketing	Resources	9,021
	Resource Groups	820
	Resource Hierarchy Level(s)	4
	Sales Leads	500,000
	Campaigns	1
	Sales Territories	8,201

Table 10: Data Composition

PATCHES

The following patches were applied to the benchmark environment on top of Oracle Applications 11.5.10.

1. 4529484: SUBMIT EXPENSE PERFORMANCE ISSUE
2. 4058603: OIE.I ROLLUP PATCH #2
3. 4282785: PERFORMANCE: SERVICE REQUEST CREATION IS SLOW FROM THE SRTAB FROM CC
4. 4455883: POOR PERFORMANCE SEARCHING SEVICE REQUESTS
5. 4564212: AR AGING 4 BUCKET REPORT IS DOING FULL TABLE SCAN
6. 4345584: UNABLE TO ENTER A LINE IN SALES ORDER FORM
7. 4605076: EXCESSIVE EXECUTIONS FOR SPECIFIC PACKAGE
8. 4612749: BUG FIXES FOR CS: OCT-05 PATCH
9. 4756197: TOO MANY EXECUTIONS OF SELECT A.PERZ_DATA_ID, A.PROFILE_NAME...IN UPDATE
10. 4733725: BUG FIXES FOR CS: DEC 05 PATCH
11. 5068932: INV: EXCESSIVE PROFILE AND LOGGING CALLS IN PICK RELEASE
12. 4384590: BACKPORT FOR BUG# 4287370
13. 4699535: HIGH BUFFER GET SQL IN WSHINTERFACE.
14. JAVA.LANG.ARRAYINDEXOUTOFBOUNDSEXCEPTION WHILE CREATING QUOTATION.
15. The 'View Payables Invoice – Overview' LoadRunner script was modified to close the invoice header and distribution windows for each user iteration.

APPLICATION SETTINGS

Database:

1. The database initialization parameters were set according to the MetaLink document 216205.1 "Database Initialization Parameters and Configuration for Oracle Applications 11i".

Order Management:

1. The profile option 'OM: Apply Automatic Attachments' was set to 'No'.
2. Price adjustment event at booking. "Book Order" was disabled.
3. The item identifier default type was changed to 'Internal Item Number'.
4. The setup parameters "Enable Freight Ratings" and "Enable Ship Method" were set to No.
5. Re-pricing was disabled at Book Order. 'Save Order Event' was disabled in the Pricing setup.
6. The profile option ONT_BYPASS_NOTIFY_OC was created and set to "Y".

Inventory:

1. The pick release rules were set to "Autocreate Deliveries".
2. Except 'serviceable items', all other items used in the benchmark were set as 'Non Trackable' through the Item Master form.

Tech. Stack Configuration:

1. In jserv.properties file the following properties were changed:
   # XML Gateway Parameters
   wrapper.bin.parameters=-DOXTALogDebugMsg=false
   # OA Framework
   wrapper.bin.parameters=-Djbo.323.compatible=true
   # JMS & WF
   wrapper.bin.parameters=-DLONG_RUNNING_JVM=true
   # STO
   wrapper.bin.parameters=-DCACHEMODE=DISTRIBUTED
2. jserv.conf
   ApJServVMTimeout set from 90 to 120
3. httpd.conf
   KeepAliveTimeout set from 15 to 45
4. VIS_appx.env:
   FORMS60_TIMEOUT set from 5 to 60

APPLICATION SETTINGS CONTINUED

Sales & Marketing:

1. Update 'Launch On Date' to current date if 3 months passed after Campaign Schedule created.
2. The profile options ASO: Calculate Price' and 'ASO: Calculate Tax' were set to "Manual".
3. The profile option 'ASO: Use Network Container' was set to 'No'.

Service:

1. Business event subscriptions were disabled.
2. For iSupport, the type of Alert bin was changed to Java.
   Content Source Type : Java Object
   Content Source Name: oracle.apps.ibu.homepage.AlertBinRenderer

Receivables:

1. The scheduled "General Ledger Transfer" concurrent program was cancelled.

Payroll:

1. CHUNK_SIZE was set to 20 in PAY_ACTION_PARAMETERS table.

APPLICATION TUNING

1. Two additional indexes were created on table RA_CUSTOMER_TRX_LINES_ALL on columns interface_line_attribute1 and interface_line_attribute6

2. Parallel concurrent processing was enabled on the Concurrent manager to balance the workload on the two app servers.

3. protocol.ora in $TNS_ADMIN includes the following parameter: TCP.NODELAY=YES. This helps in getting rid of Database wait event 'Sqlnet more data from client' issue

4. The index INV.MTL_ITEM_CATEGORIES_N3 was modified to have the columns in the following order.
   MTL_ITEM_CATEGORIES(CATEGORY_ID,CATEGORY_SET_ID,ORGANIZATION_ID)

5. The sequence cache size for the following indexes were set to 10000:

   INV.MTL_SALES_ORDERS_S,
   ONT.OE_MSG_ID_S,
   ONT.OE_SALES_CREDITS_S,
   MRP.MRP_AP_REFRESH_S,
   MRP.MRP_ATP_SCHEDULE_TEMP_S,
   WSH.WSH_DELIVERY_ASSIGNMENTS_S,
   WSH.WSH_DELIVERY_DETAILS_S

6. The snapshot logs were dropped on the following tables:
   INV.MTL_MATERIAL_TRANSACTIONS
   INV.MTL_RESERVATIONS
   INV.MTL_DEMAND
   OSM.AS_SALES_LEADS

7. The retention time of the following queues was set to 0:
   APPLSYS.WF_REPLAY_OUT
   APPLSYS.WF_REPLAY_IN
   APPLSYS.WF_IN
   APPLSYS.WF_OUT
   APPLSYS.WF_DEFERRED
   APPLSYS.WF_NOTIFICATION_IN
   APPLSYS.WF_NOTIFICATION_OUT
   APPLSYS.WF_JAVA_DEFERRED

8. Statistics were re-collected for index HZ_RELATIONSHIPS_N6

APPLICATION TUNING CONTINUED

9. The index AR.RA_CUST_TRX_LINE_GL_DIST_N2 was dropped.

10. RA_CUST_TRX_LINE_GL_DIST_ALL, GL_INTERFACE, RA_CUSTOMER_TRX_ALL, RA_CUSTOMER_TRX_LINES_ALL, GL_IMPORT_REFERENCES, GL_JE_HEADERS, GL_JE_LINES, MTL_MATERIAL_TRANSACTIONS, MTL_RESERVATIONS, MTL_ONHAND_QUANTITIES_DETAIL,tables and their index were moved to the tablespace, locally managed, uniform size 10M

11. PAY_RUN_RESULTS, PAY_RUN_RESULT_VALUES tables and index were moved to the tablespace, locally managed, uniform size 20M.

OPERATING SYSTEM TUNING

1. Large Page option was enabled with entire SGA in Large pages. The SGA does not page out under Large Page setting. To enable Large Pages, perform the following:

   # chuser "capabilities=CAP_PROPAGATE, CAP_BYPASS_RAC_VMM" <oracle_userid>
   # vmo –p –o v_pinshm=1
   # vmo –p –o maxpin%=90
   # vmo –p –o lgpg_regions=704 –o lgpg_size=16777216
   # bosboot –ad /dev/ipldevice
   Oracle init.ora changes: lock_sga=true

2. AIO servers was set to 20 (Database server)
   # chdev –p –l aio –a maxservers=20

3. AIX_THREADSCOPE=S
   In .profile for database and apps login

4. Multiple page size
   Cd $ORACLE_HOME/bin
   Export LDR_CNTRL=DATAPSIZE=64K@TEXTPSIZE=64K@STACKPSIZE=64K oracle
5. Reliability, Availability, Serviceability (RAS) option was disabled
   # ctctrl -P memtraceoff
   # errctrl -P errcheckoff
   # raso -r -o mtrc_enabled=0
   Do a bosboot after executing the above commands.

For more AIX/Oracle tuning, please refer to the document "Tuning IBM AIX5L for an Oracle Database." Available at http://www-03.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/WP100883

BENCHMARK ENVIRONMENT

HARDWARE CONFIGURATION

An IBM System p 570 server was used as the batch/database server. The system was equipped with the following:

- 8 × 4.7 GHz IBM POWER6™ processor chips (SMT-enabled), each with L2 Cache of 4 MB per core and L3 Cache of 32 MB per Single Core Module (SCM).
- Total Memory: 128 GB
- Network: Gigabit full duplex.
- Operating system: IBM AIX 5L V5.3 TL06
- For more details on System p 570, please visit TBD
- Storage: DS4800 with 6 arrays of 467 GB each (Total 2.6 Terabytes.). Each array has 14 physical disks --- RAID 0, two controllers - one exclusively for redo logs.
- For more details on DS4800, please visit http://www.ibm.com/servers/storage/disk/ds4000/ds4800/index.html

Application Servers:

2 × IBM System p5 570 were used as application and web servers. Each system was equipped with the following:

- 16 × Core SMP implemented on eight Dual-core IBM POWER5+™ processor chips each 2.2 GHz with L2 Cache of 8 × 1.9MB and L3 Cache of 36MB per SCM (SMT-enabled).
- Total Memory: 61.75 GB.
- Network: Gigabit full duplex.
- Operating system: IBM AIX 5L V5.3 TL05

APPLICATION TRAFFIC MANAGEMENT DEVICES

1 × Citrix® NetScaler™ Application Switch 9000 platform was used to distribute the LoadRunner traffic across the Web and application servers.

For more details on NetScaler 9000, please refer to: http://www.citrix.fr/REPOSITORY/docRepository/id_1584_1125922815011718.pdf

Load Drivers:

2 × IBM xSeries® 336 servers were used as load drivers. Each system was equipped with the following:

- 2 × 3.6 GHz Intel® Xeon™ processors
- Total Memory: 8 GB.

SOFTWARE VERSIONS

Oracle's E-Business Suite (eBS Kit) 11.5.10

Oracle10*g* 10.2.0.2 (64-bit)

IBM AIX 5L for POWER V5.3 with the 5300-06 Technology Level (on the database and Application /Web/CM servers)

Mercury Interactive's LoadRunner 8.0

For more details on Mercury's LoadRunner, please refer to http://www.mercury.com/us/products/performance-center/loadrunner/

Apache WebServer 1.3.19 with JServ 1.1.2

Java™ 2 Runtime Environment, Standard Edition (build 1.4.2). Classic VM (build 1.4.2, J2RE 1.4.2 IBM AIX build ca142-20061124 (SR7) (JIT enabled: jitc))

Citrix NetScaler NS7.0: Build 50.2, Date: Jan. 31, 2007

Glossary and Acronyms:

ATP	Available to Promise
BEE	Batch Element Entries
HVOP	High Volume Order Processing
OASB	Oracle Applications Standard Benchmark
RAC	Real Applications Clusters

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The results published in this report have been independently reviewed and audited by:

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