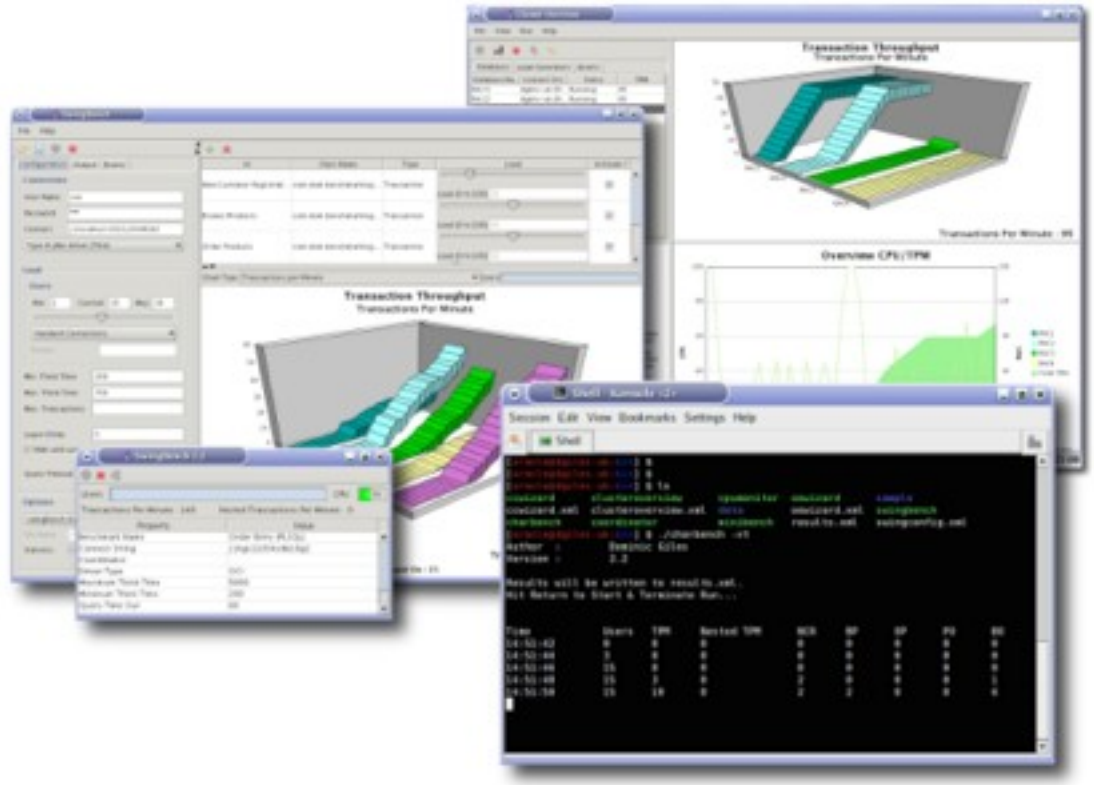
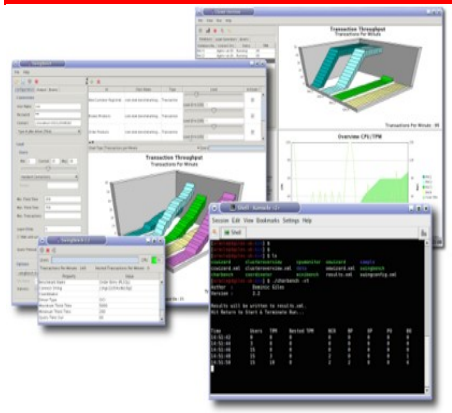


Swingbench

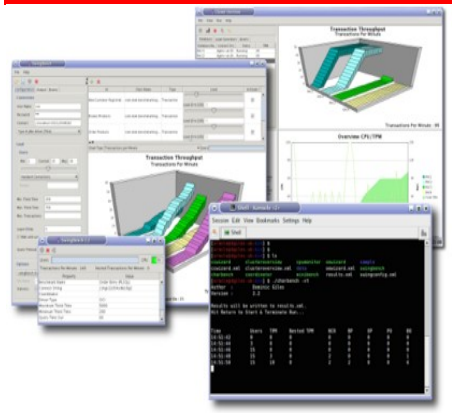
Dominic Giles
Oracle UK.

Agenda



- About the author
- Brief History
- Overview of Swingbench
- Swingbench Family
- Supplied Benchmarks
- Running and Installing Swingbench
- Other Useful Tools
- What Next
- Questions

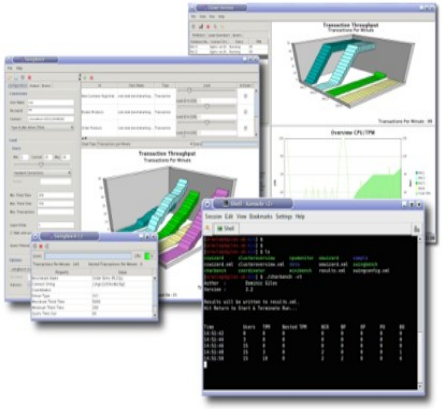
About the Author



About the Author

- Dominic Giles
- http://www.dominicgiles.com
- 18 years at Oracle UK
- Database specialist
- The UK “Database Solutions” team

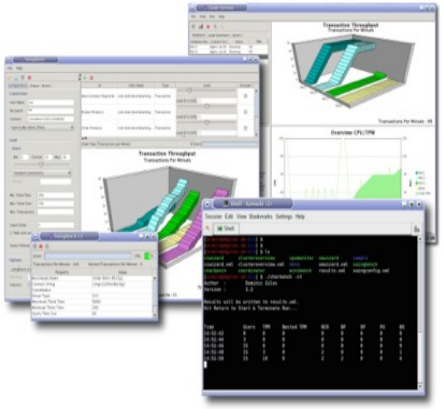
Brief History



Brief History

- Development started out of a need to demonstrate a load on Real Application Clusters
- Many of the commercial database solutions where simply an overkill and too difficult to obtain
- It started as a throw away project
- Swingbench 2.2 is currently production
- Swingbench 2.3 is now functionally complete.

Overview of Swingbench



Overview of Swingbench

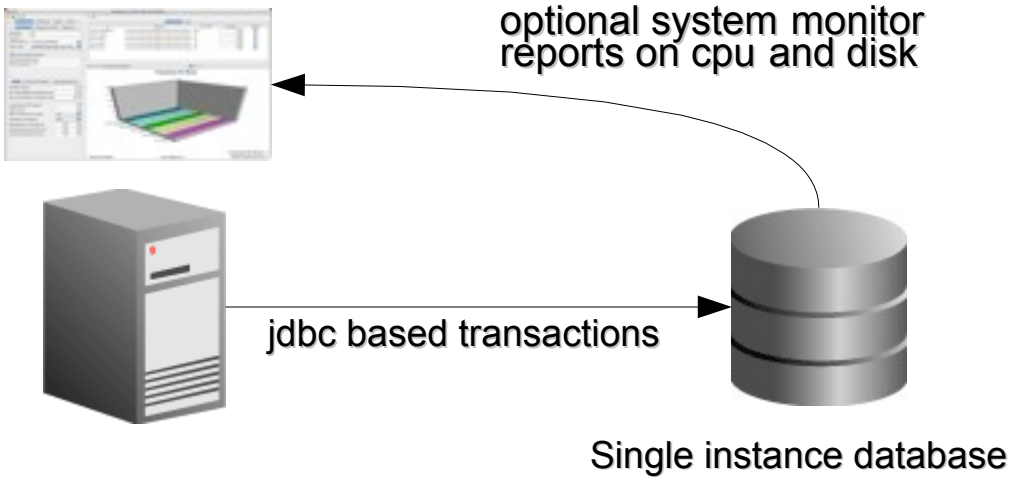
- Simple to use load generator for Oracle databases
- Three different front ends
  - Swingbench
  - Charbench
  - Minibench
- Four different benchmarks.
- Trivial to add you own transactions.
- Written in Java so should run on any platform with a 1.5 JVM.

Overview of Swingbench

- Typically used as a standalone load generator
- However a Coordinator process allows multiple load generators to work together.
- ClusterOverview aggregates all of the results together.
- Its free....

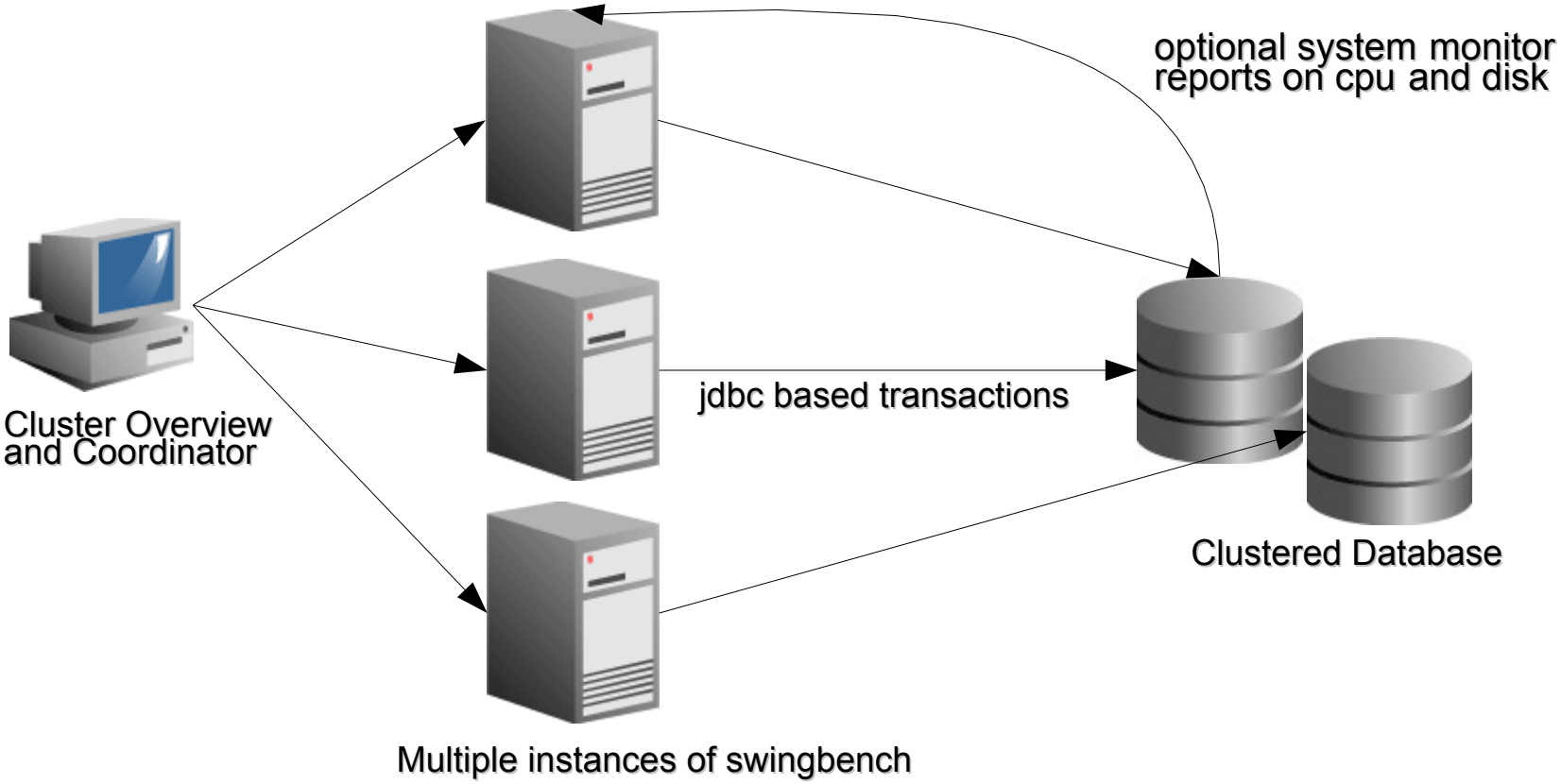
Overview of Swingbench

- Simple Architecture

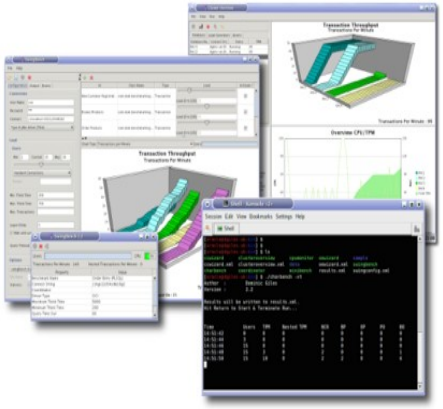


Overview of Swingbench

- Advanced Architecture



Swingbench Family



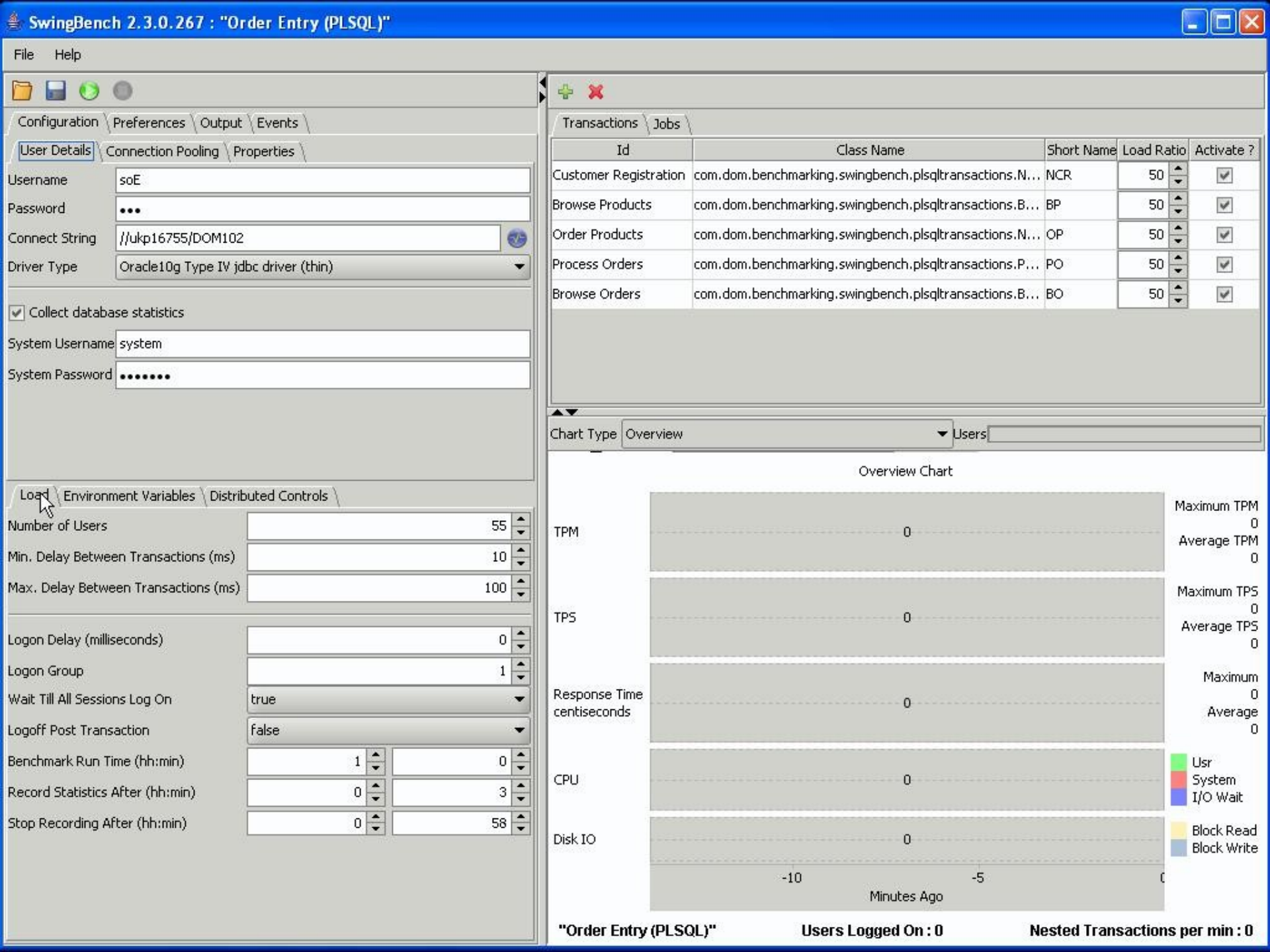
Swingbench Family

- Several front ends to the same kernel
- Configurations are saved to an xml based file
  - XML schema included
- Results are typically saved in xml to a results file
- Choose the frontend that suits your needs

Swingbench Family

Swingbench

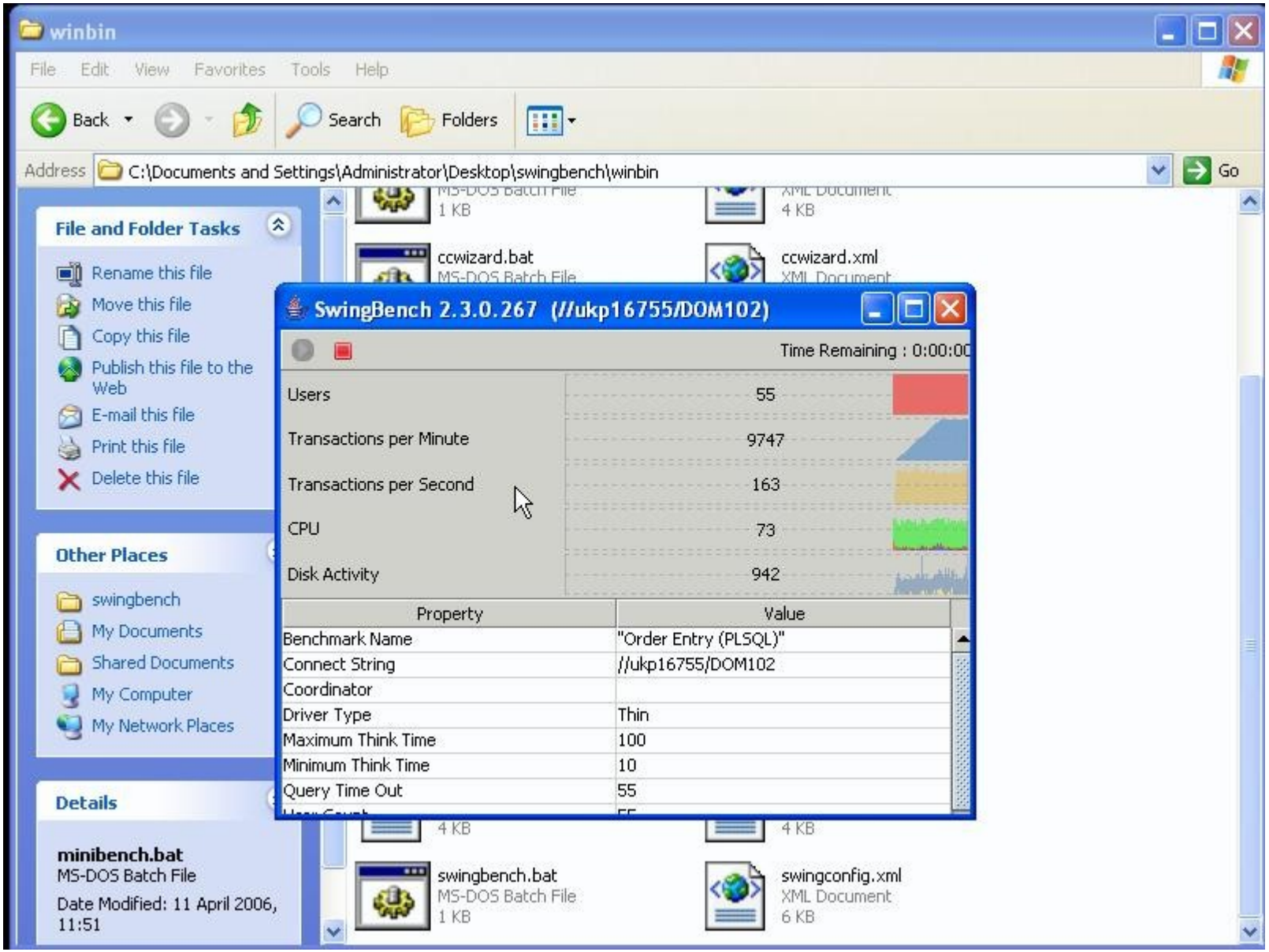
- Rich graphical front end
- Real time charting
- Editing of all configuration parameters (new in 2.3)
- Useful for demonstrations


SwingBench 2.3.0.267 : "Order Entry (PLSQL)"
File
Help
Configuration
Preferences
Output
Events
User Details
Connection Pooling
Properties
Username
soE
Password
Connect String
//ukp16755/DOM102
Driver Type
Oracle10g Type IV jdbc driver (thin)
Collect database statistics
System Username
system
System Password
Load
Environment Variables
Distributed Controls
Number of Users
55
Min. Delay Between Transactions (ms)
10
Max. Delay Between Transactions (ms)
100
Logon Delay (milliseconds)
0
Logon Group
1
Wait Till All Sessions Log On
true
Logoff Post Transaction
false
Benchmark Run Time (hh:min)
1
0
Record Statistics After (hh:min)
0
3
Stop Recording After (hh:min)
0
58
Transactions
Jobs
Id
Class Name
Short Name
Load Ratio
Activate ?
Customer Registration
com.dom.benchmarking.swingbench.plsqltransactions.N...
NCR
50
Browse Products
com.dom.benchmarking.swingbench.plsqltransactions.B...
BP
50
Order Products
com.dom.benchmarking.swingbench.plsqltransactions.N...
OP
50
Process Orders
com.dom.benchmarking.swingbench.plsqltransactions.P...
PO
50
Browse Orders
com.dom.benchmarking.swingbench.plsqltransactions.B...
BO
50
Chart Type
Overview
Users
Overview Chart
TPM
0
Maximum TPM
0
Average TPM
0
TPS
0
Maximum TPS
0
Average TPS
0
Response Time centiseconds
0
Maximum
0
Average
0
CPU
0
Usr
System
I/O Wait
Disk IO
0
Block Read
Block Write
-10
-5
Minutes Ago
"Order Entry (PLSQL)"
Users Logged On : 0
Nested Transactions per min : 0

Swingbench Family

Minibench

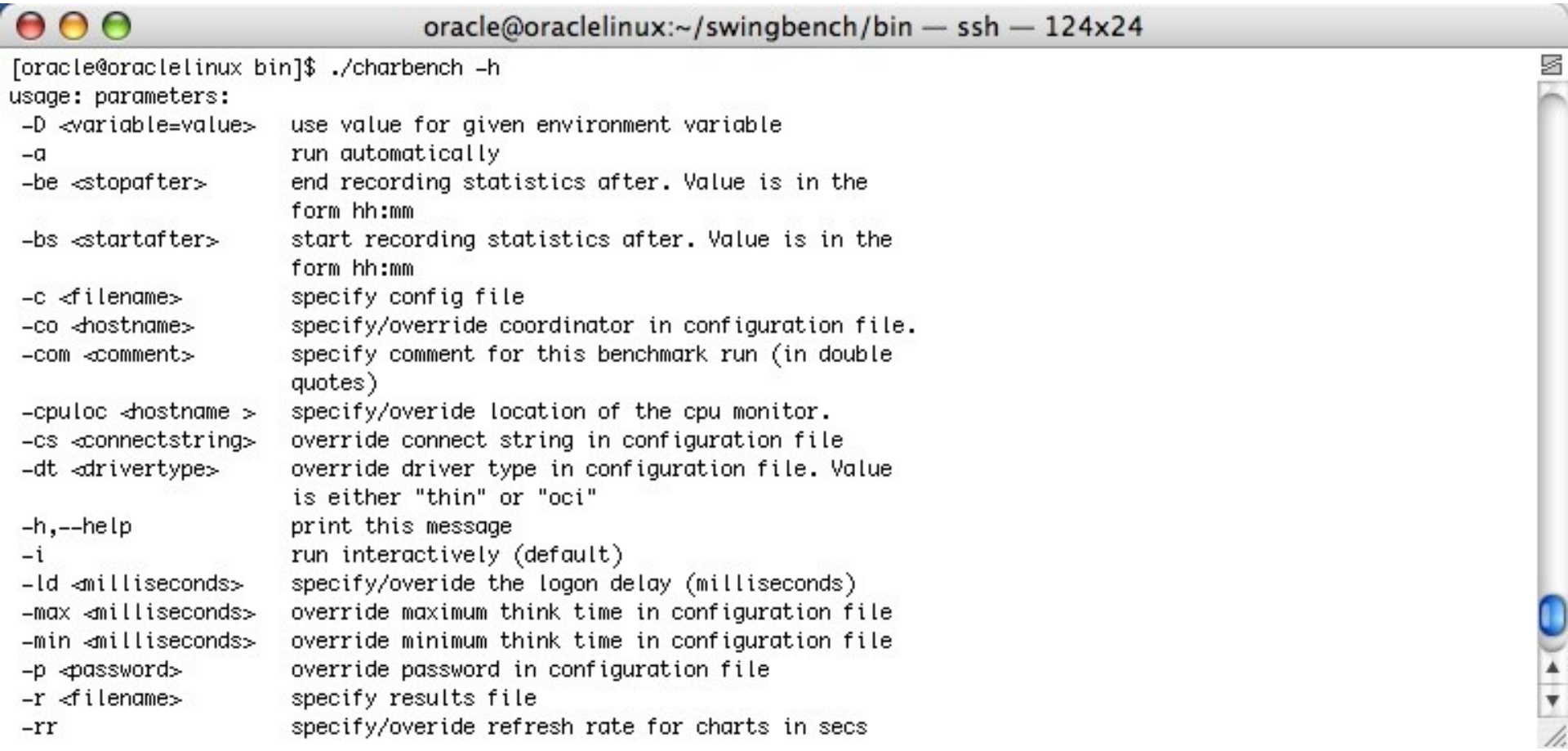
- Small footprint graphical front end
- Simple real time charting
- Results of benchmark are placed in file
- Useful for accessing in the impact of an operation such as a backup.


winbin
File Edit View Favorites Tools Help
Back Search Folders
Address C:\Documents and Settings\Administrator\Desktop\swingbench\winbin
Go
File and Folder Tasks
Rename this file
Move this file
Copy this file
Publish this file to the Web
E-mail this file
Print this file
Delete this file
Other Places
swingbench
My Documents
Shared Documents
My Computer
My Network Places
Details
minibench.bat
MS-DOS Batch File
Date Modified: 11 April 2006, 11:51
1 KB
4 KB
ccwizard.bat
MS-DOS Batch File
ccwizard.xml
XML Document
SwingBench 2.3.0.267 (//ukp16755/DOM102)
Time Remaining : 0:00:00
Users 55
Transactions per Minute 9747
Transactions per Second 163
CPU 73
Disk Activity 942
Property
Value
Benchmark Name
"Order Entry (PLSQL)"
Connect String
//ukp16755/DOM102
Coordinator
Driver Type
Thin
Maximum Think Time
100
Minimum Think Time
10
Query Time Out
55
4 KB
4 KB
swingbench.bat
MS-DOS Batch File
1 KB
swingconfig.xml
XML Document
6 KB

Swingbench Family

Charbench

- Character based
- Capable of vmstat/sar like output
- Wide range of command line options
- Used in “serious” benchmarking tests


oracle@oraclelinux:~/swingbench/bin — ssh — 124x24
[oracle@oraclelinux bin]$ ./charbench -h
usage: parameters:
-D <variable=value> use value for given environment variable
-a run automatically
-be <stopafter> end recording statistics after. Value is in the form hh:mm
-bs <startafter> start recording statistics after. Value is in the form hh:mm
-c <filename> specify config file
-co <hostname> specify/override coordinator in configuration file.
-com <comment> specify comment for this benchmark run (in double quotes)
-cpuloc <hostname > specify/overide location of the cpu monitor.
-cs <connectstring> override connect string in configuration file
-dt <drivertype> override driver type in configuration file. Value is either "thin" or "oci"
-h,--help print this message
-i run interactively (default)
-ld <milliseconds> specify/overide the logon delay (milliseconds)
-max <milliseconds> override maximum think time in configuration file
-min <milliseconds> override minimum think time in configuration file
-p <password> override password in configuration file
-r <filename> specify results file
-rr specify/overide refresh rate for charts in secs

Terminal — java — 124x24

```
[dgiles@macbook bin]$ ./charbench -a -v users,tpm,tps,cpu,disk -min 10 -max 100 -rt 0:05
Author  :        Dominic Giles
Version :        2.3.0.261

Results will be written to results.xml.

Time           Users   TPM     TPS     User    System  Wait    Idle    Bi      Bo
1:48:09 PM     0       0       0       0       0       0       0       0       0
1:48:11 PM     5       0       0       0       0       0       0       0       0
1:48:12 PM     5       10      5       0       0       0       0       0       0
1:48:13 PM     5       10      5       21      10      1       69      10      73
1:48:14 PM     5       26      7       21      10      1       69      10      73
1:48:15 PM     5       26      7       21      10      1       69      10      73
1:48:16 PM     5       62      17      21      10      1       69      10      73
1:48:17 PM     5       62      17      9       4       5       82      16      150
1:48:18 PM     5       83      10      9       4       5       82      16      150
1:48:19 PM     5       83      10      9       4       5       82      16      150
1:48:20 PM     5       112     13      9       4       5       82      16      150
1:48:21 PM     5       112     13      8       5       0       87      0       83
1:48:22 PM     5       133     9       8       5       0       87      0       83
1:48:23 PM     5       133     9       8       5       0       87      0       83
1:48:24 PM     5       155     11      9       5       2       84      12      125
1:48:25 PM     5       155     11      9       5       2       84      12      125
```

Swingbench Family

ClusterOverview

- Rich graphical front end
- Real time charting
- Typically used to test Oracle Real Application Clusters
- Can be used to coordinate large loads against large SMP machines.

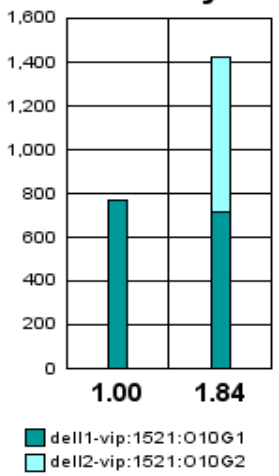
Cluster Overview

File View Run Help

Databases | Load Generators | Events

Database Name	Connect String	Status	TPM
dell1-vip:152...	dell1-vip:152...	Running and ...	706
dell2-vip:152...	dell2-vip:152...	Running and ...	702

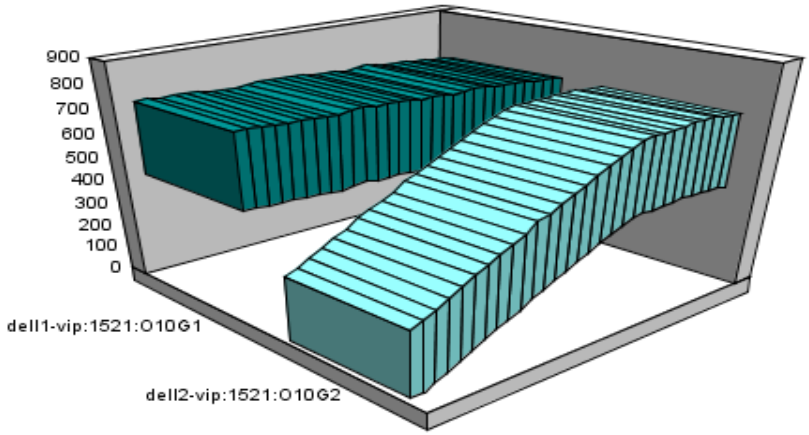
Scalability



Transactions Per...

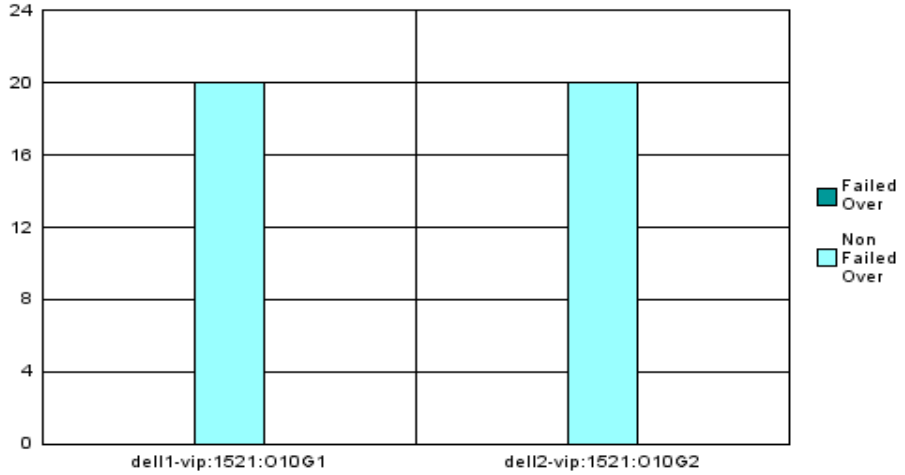
Transaction Throughput

Transactions Per Minute

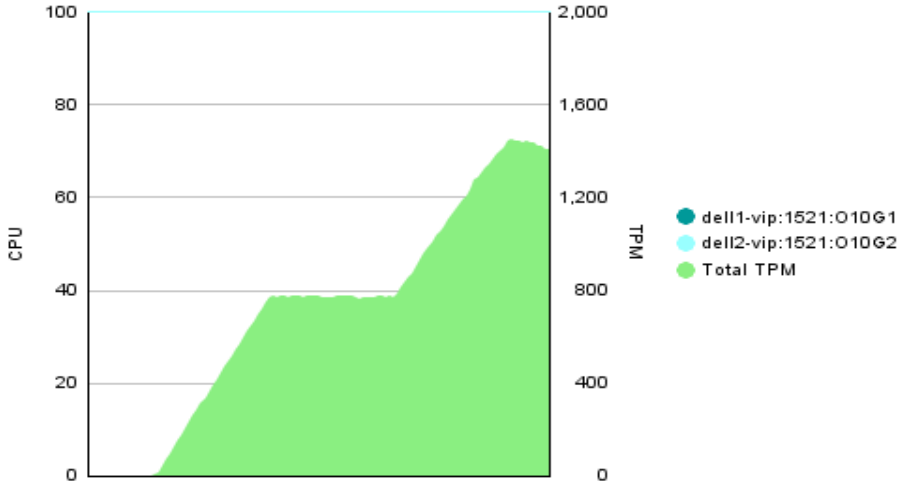


Transactions Per Minute : 1407

Users Logged on



Overview CPU/TPM

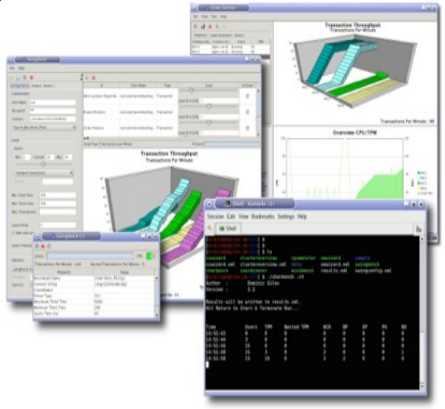


Start | 2 Windows Ex... | Oracle_Demos.r... | 4 Windows Co... | 3 Java(TM) 2... | EN | 15:26

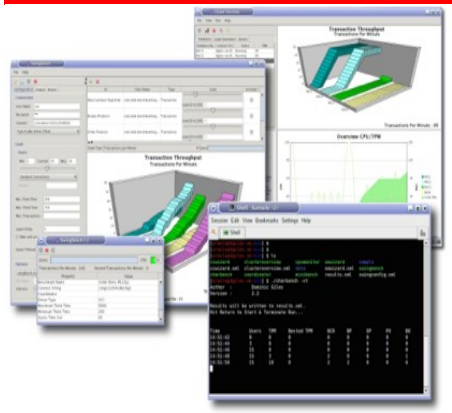
Whats New in 2.3

- Updated UI for Minibench and Swingbench
- Improved overview chart
- TimesTen support
- Benchmark windows
- Jobs
- More command line options
- DSS benchmark
- Faster benchmark schema creation

Quick demo of Swingbench



Supplied Benchmarks



Supplied Benchmarks

- Swingbench comes with four benchmarks
- Configuration files located in the sample directory

Benchmark	Description	Read/Write Ratio
OrderEntry	Classic Order Entry Benchmark. TPC-C Like	60/40
Calling Circle	Telco based self service application	70/30
Stress Test	Simple Insert / Update / Delete / Select benchmark	50/50
Sales History	DSS benchmark	100/0

Benchmarks

Order Entry

- TPC-C Like.
- Uses Oracle10g's “oe” schema as its basis
- Grows over time
- Does not require pre-generation of data for the benchmark.
- Stored procedure and native code versions
- Choice of using partitioning
- Maximum size 100GB*

* If using the order entry creation wizard

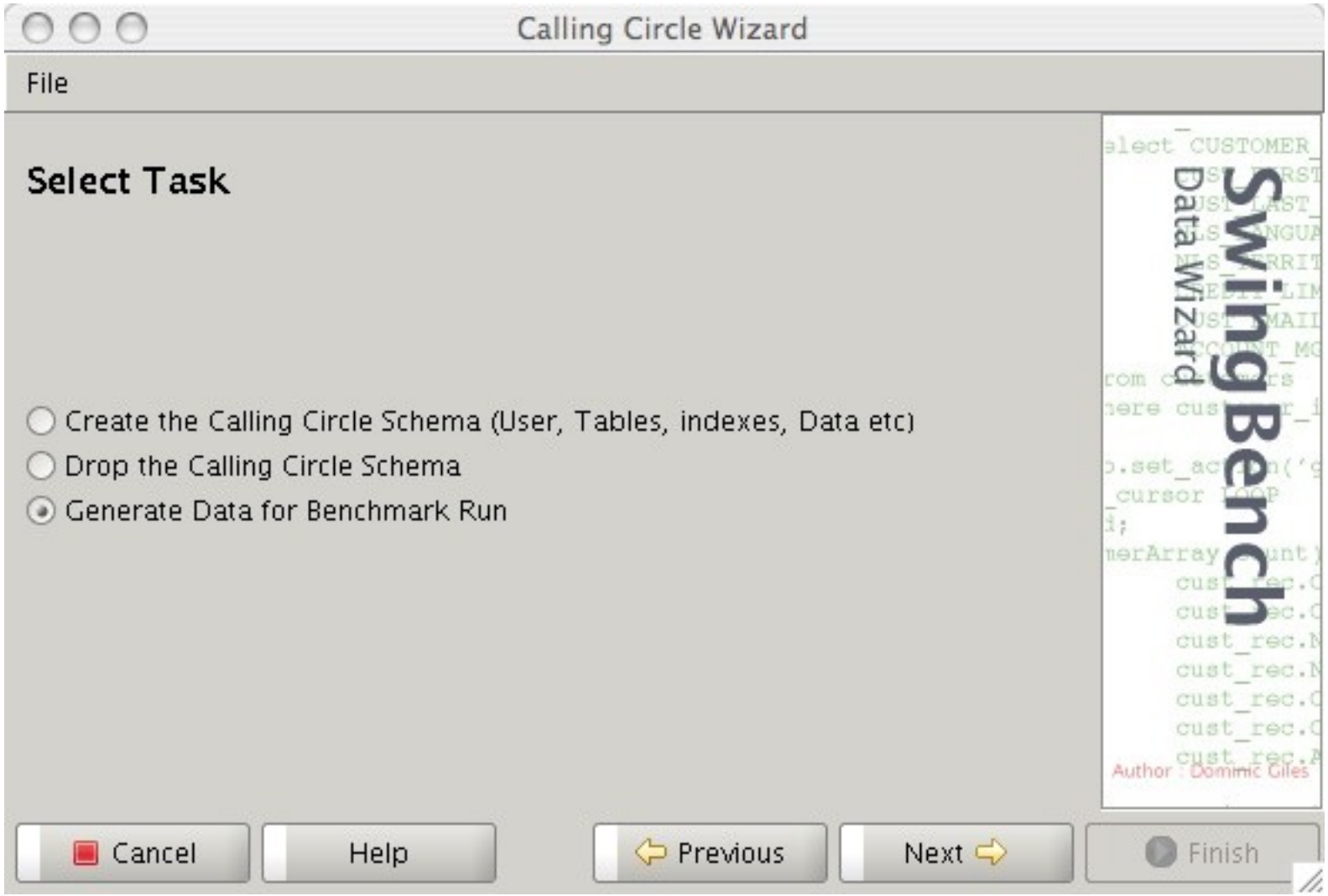
* Wizards can be run in “lights out” (character) mode

Benchmarks

Calling Circle

- Telco based self service benchmark
- Relatively static in size
- Requires the generation of a new set of data files for each new benchmark run
- The schema will eventually become “worn out” and will need to be rebuild
- Maximum size 100GB

* If using the order entry creation wizard



* Wizards can be run in “lights out” (character) mode

Benchmarks

Stress Test

- Simplest of all the benchmarks
- Performs simple Insert/Update/Delete/Select operations
- Schema created at run time
- Useful for quick tests
- Can be run against TimesTen

* If using the order entry creation wizard

Benchmarks

DSS

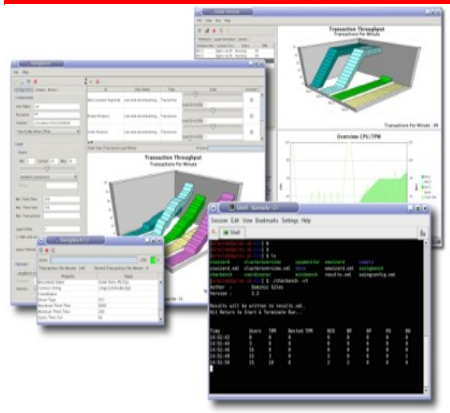
- A Data Warehousing class benchmark
- Still under testing
- Based on the Oracle10g “Sales History” schema
- No wizard at present
  - Priority to build one
- Uses “Datagenerator” to populate the database.
  - Scripts ship with Datagenerator
- Maximum size limited by disk and time

Benchmarks

Developing your own

- Swingbench ships with a “blank” benchmark that calls a stored procedure which can be modified to include your own transactions
- The Java source for all the transactions is shipped with swingbench.
  - An “Ant” script will compile your new or modified transactions
- Simple Java API allows for the creation of new transactions

Running and Installing Swingbench



Running and Installing Swingbench

- Download from

http://www.dominicgiles.com

- Installation requires the modification of either the swingbench.env file or swingbenchenv.bat file
- Simply set the SWINGHOME and JAVAHOME to reflect your environment
- Linux/Unix executables are in the bin directory
- Windows are in the winbin directory

Running and Installing Swingbench

- Swingbench, Minibench and Charbench can all override settings inside of the configuration file from the command line.

```
$> ./swingbench -c sample/ccconfig.xml -rt 1:30 -a
```

- You'll need to use double quotes on some commands on Windows

```
C:\> charbench.bat -a -v “users,tpm,tps” -rt 0:15
```

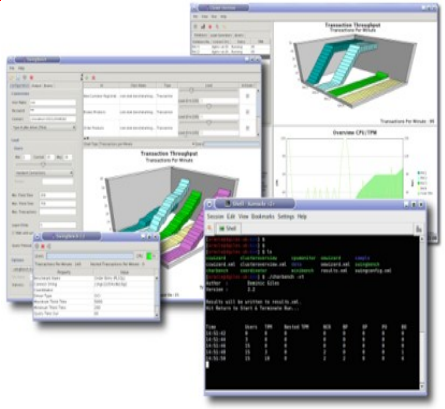
Running and Installing Swingbench

- Its possible to compare the results of several runs with the bmcompare tool

```
$> ./bmcompare -r results.xml,results0001.xml
```

- This will create a html file with a comparison of several runs

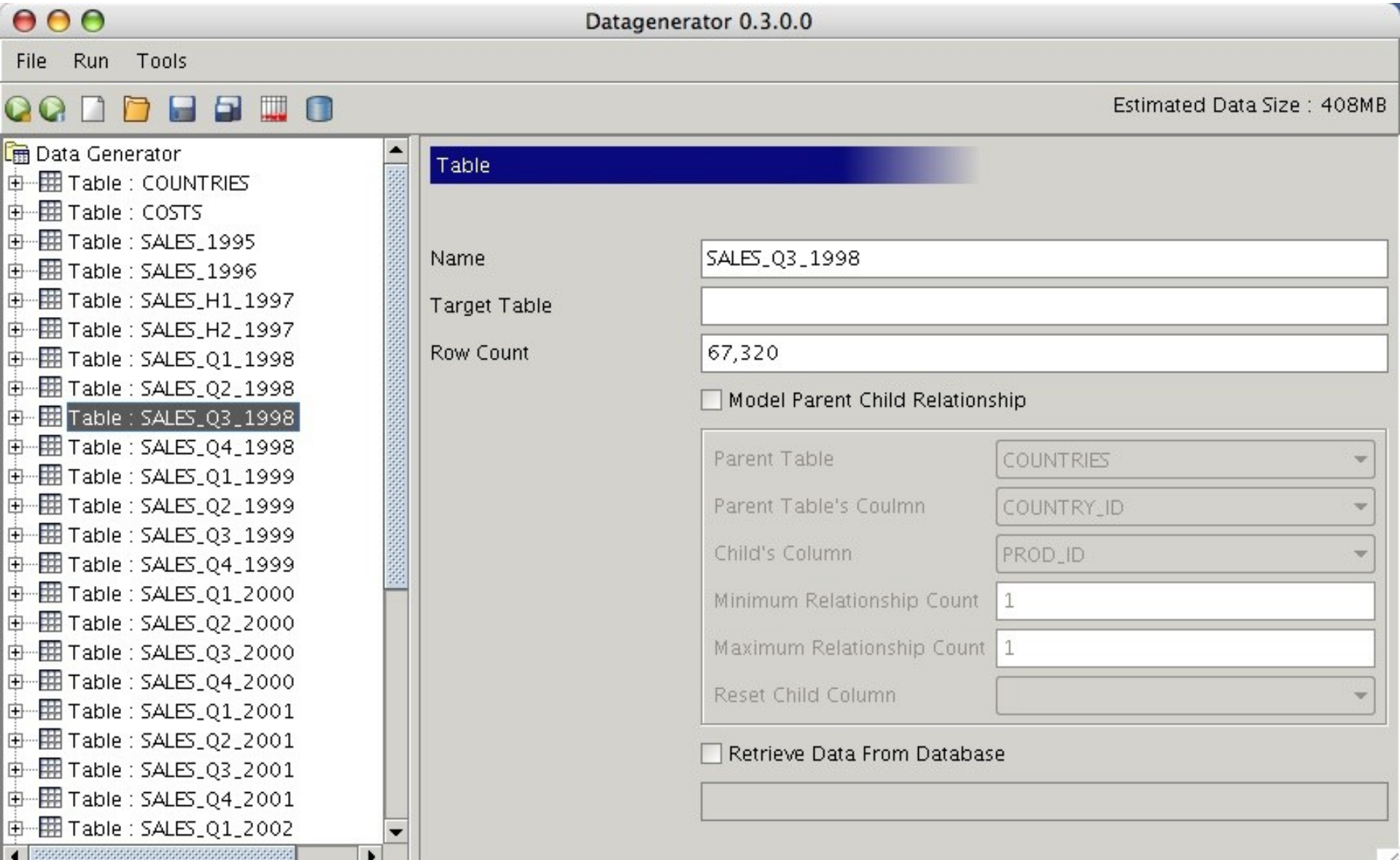
Other Useful Tools



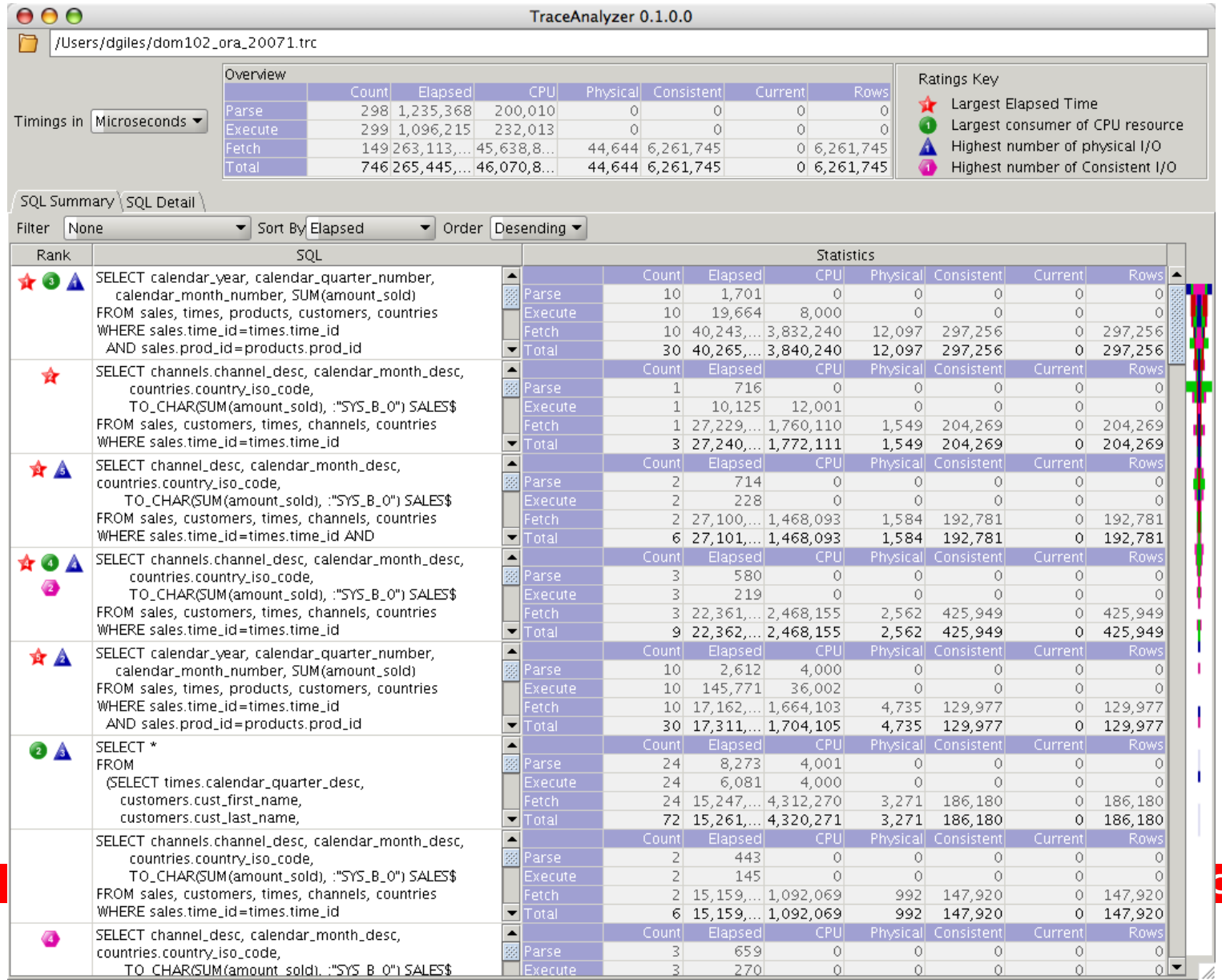
Other Useful Tools

- To support various aspects of current and future functionality TraceAnalyzer and Datagenerator came into existence
- Datagenerator is designed to reverse engineer simple schemas and generate dummy data
- TraceAnalyzer is designed to parse SQL trace files
  - In future it will create transactions for Swingbench

Datagenerator



TraceAnalyzer



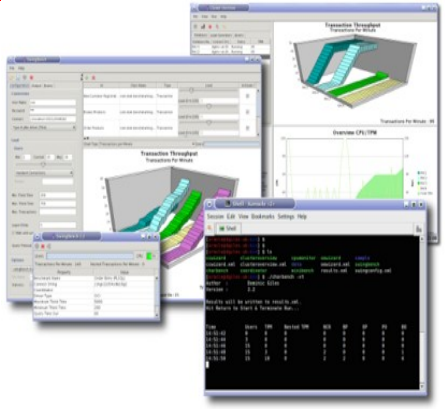
What Next?

- Swingbench 2.3 is functionally complete
- Testing, Bug Fixing, Documentation, Viewlets
- Testing of the DSS schema at large scale

What Next? Swingbench 2.4

- Wizard for the DSS benchmark
- TimesTen/Oracle Benchmark
- Application server based version of Swingbench
- TraceAnalyzer improvements
- Merge ClusterOverview with Swingbench

Questions?

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