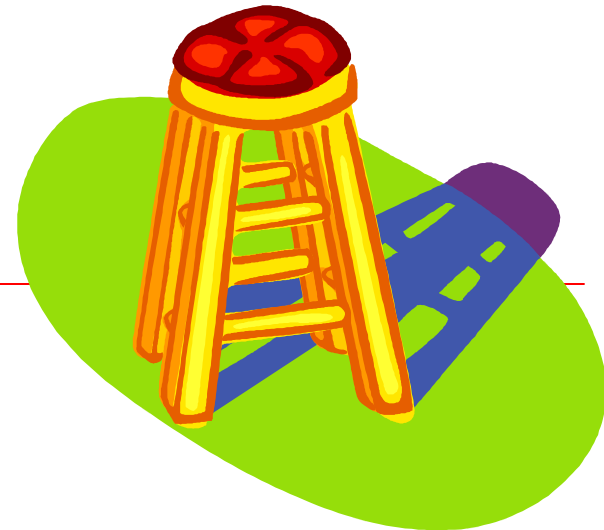


4-Legged Stool of Good Database Performance for Oracle E-Business

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Hotsos Enterprises, Ltd.
Friday August 15, 2008*



Hotsos Enterprises, Ltd.

Larry Klein

4 yrs	VP of Product Strategy, Hotsos Enterprises <ul style="list-style-type: none">• Former Consulting VP, performance and architecture consultants• Consultant, performance and capacity projects• Inventor, Hotsos HAWCS analysis product for Oracle E-Business
10 yrs	Senior Director, Oracle Consulting and Development <ul style="list-style-type: none">• Co-Architect, Oracle's own Global Database consolidation project• Lead Architect, several Oracle customer global implementations• Mgr and Consultant, scores of custom and packaged apps projects
17 yrs	Mainframe Performance and Diagnostics Specialist, IBM and Candle

Who is Hotsos? Company Overview

- **Thought leadership**

- *Optimizing Oracle Performance*
- www.hotsos.com Library
- Method R

- **Consulting Services**

- Rapid performance assessment
- On-site consulting
- Remote analysis

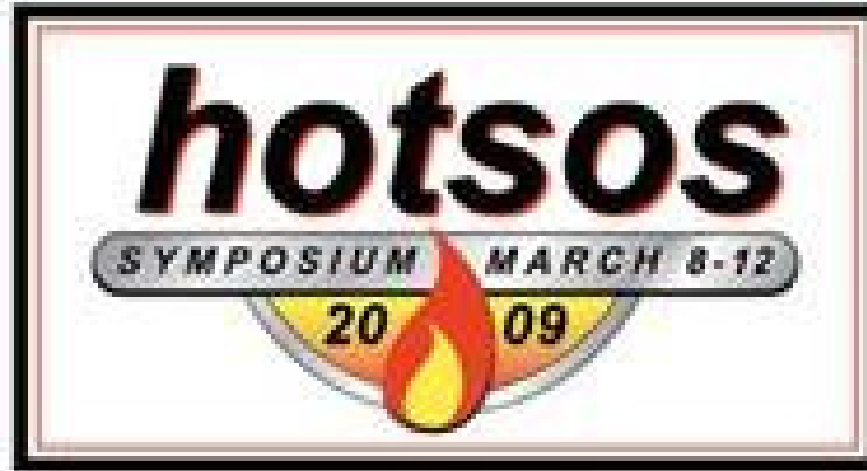
- **Software Solutions**

- Hotsos Profiler
- Laredo
- HAWCS

- **Education**

- Oracle performance curriculum
- Public and private events

And Hotsos is Most Known for...



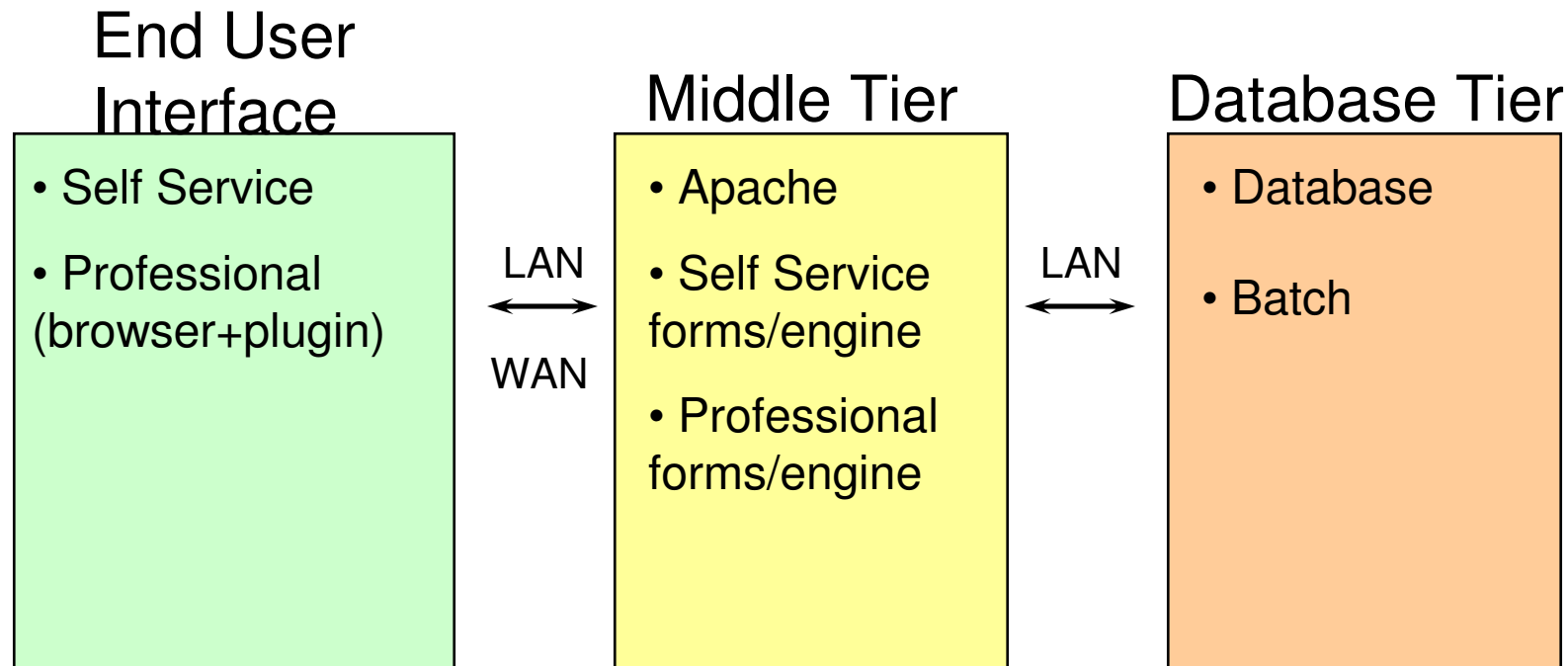
- Oracle performance
- Technical content, collegial style
- No Marketing
- World class speakers

Agenda

- Background
- The 4-Legged Stool
- Summary
- Questions

Background

The Span of Oracle E-Business Application Architecture



There's a lot of Technology here

We are some pretty busy DBA's...

Background The Challenge to the DBA

Apps on RAC

And even more stuff here

Oracle E-Business

There's extra stuff here

Oracle Database

You're a great database DBA

Oracle RAC

And lots of stuff here

And your boss says,

"You can handle it, since it all has 'Oracle' on the box."

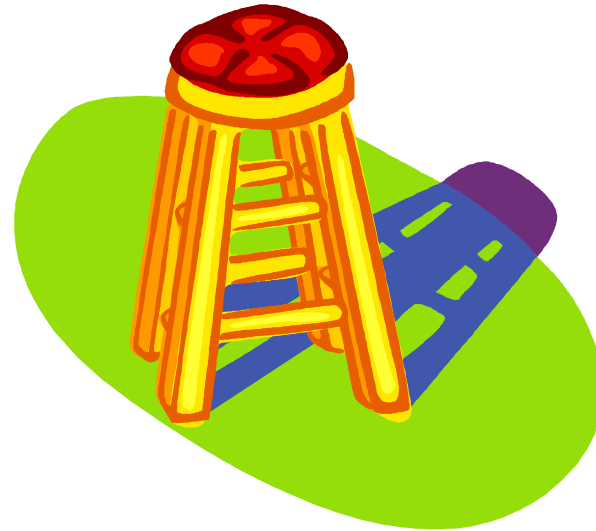
Background

The Challenge to the DBA

- You could be the world's best database DBA
- Without knowing some most important “extra stuff”
 - Performance could be really bad
 - You'll be miserable
- Let's talk about some of the “extra stuff”
- Providing good performance is about more than “just” being a good technologist

The 4-Legged Stool

1. Operating Support
2. Configuration
3. Application Efficiency
4. Process



Leg 1 – Operating Support

- Gathering Statistics
- Pinning
- Purging

Leg 1 – Operating Support Gathering Statistics

- Dbms_stats unsupported for E-Business
 - Doesn't know about fnd_histogram_cols
 - Defines certain table/column histogram requirements
- Must run some form of fnd_stats
 - FNDGSCST (Concurrent Job to Gather Schema Stats)
- Newer options to run based on staleness, great
- In my experience, 10% sample level inadequate

Leg 1 – Operating Support

Pinning frequently used objects

- Many customers have shared_pool problems
 - ORA-04031 or similar errors, killer latching
- \$FND_TOP/sql/ADXGNPIN.sql pins too much
- Certain “SYS” owned list, too little
- execute sys.dbms_shared_pool.keep for
 - Packages, triggers, sequences
 - V\$db_object_cache.loads or executions >= &threshold
- Let pinned sum(v\$db_object_cache.sharable_mem) =
5% of shared_pool

(This will give you a couple of hundred objects pinned)

Leg 1 – Operating Support Purge Tables

- FNDCPPUR – Concurrent Request purge
- FNDWFPR – Workflow Purge
- FNDSCPRG – Sign-on Audit Purge
- ...

I once had a customer

- \$\$\$B business
- \$US500M plant crawled to a halt
- truncate table bom.bom_explosion_temp;
- *monitor/reorg temp, interface-type tables*

Leg 2 - Configuration Software Levels

- The Apps are tested with certain release combinations
 - Thou shalt use only certified release combinations
- The Apps, Database, and stack are maintained
 - Don't fall too far behind with maintenance
 - Don't be "bleeding edge" either
 - But any change should be carefully tested
- Speaking of change, what's the compromise?
 - Constant...
 - Never...
 - Q1 and Q3 – functional; Q2 and Q4 - technical

Leg 2 - Configuration Database

- The init.ora has certain mandatory settings for CBO stability
 - No room for creativity here
 - Ref Metalink note
 - 216205.1 for Release 11i
 - 396009.1 for Release 12
- Redo logs
 - Often, there's a volume of redo
 - 1GB redo logs, don't be shy
 - Don't let the Apps log-switch to death

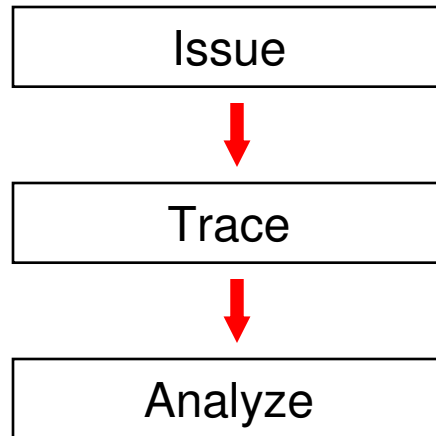
Leg 2 - Configuration Application

- Be aware that decisions about
 - How many APPL_TOP's to have where
 - How many languages to supportWill impact patching times and maintenance windows
- Need to keep it simple?
 - Negotiate with the business on number of languages
 - Keep Conc Mgr's on middle tier?
- Use tools
 - Oracle's own
 - Patching assistants
 - APPL_TOP OS synch's

Leg 2 - Configuration Architecture

- Is your single instance ok – can you Keep It Simple?
- Is your business ok with maintenance downtime?
- Does the business really know what its requirements are
 - To RAC or not to RAC?
- Does your infrastructure meet business requirements for
 - Continuity?
 - Scalability?
 - Disaster Recovery?
- Do you need MAA for E-Bus?

Leg 3 – Application Efficiency The Case of a Slow Transaction



- 1. The task is its own problem*
- 2. The task is a victim of some culprit causing a bottleneck*

Leg 3 – Application Efficiency

All the Usual Transactional Suspects

Perform all the normal application SQL tuning tasks

- Logical reads
- Physical reads
- Logical/physical approx 1
 - Likely full table scans
 - Missing index on some flexfield? Custom table?
 - Fixable just with the new index, no code change?
- Too much parsing
 - Literals not binds
- Single row processing
 - Use array processing

Leg 3 – Application Efficiency

But don't lose Macro sight of the Forest for the Trees

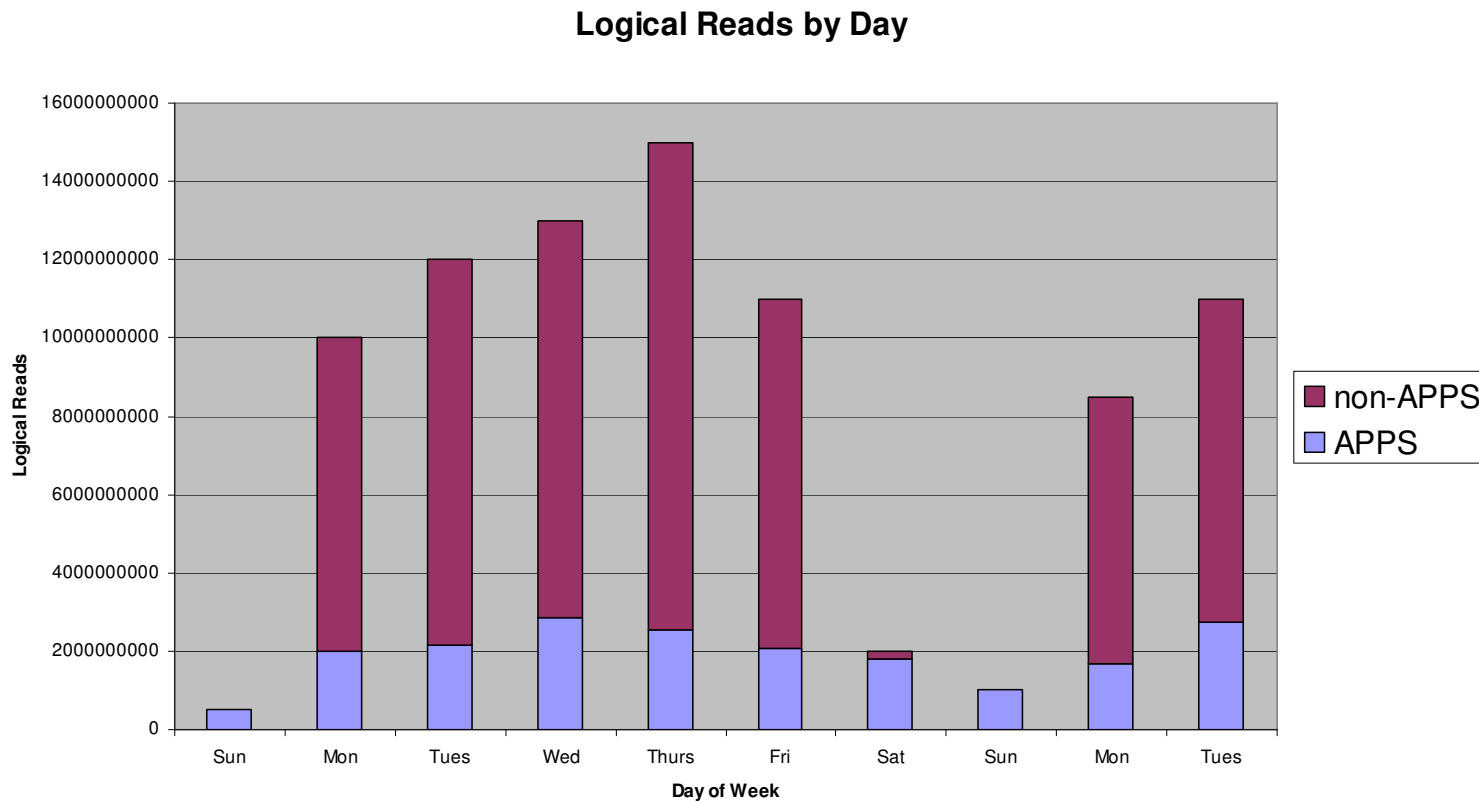
I once had a customer with “Slow online response time”

- “Single node install”
- 2 dual-core CPU's on the server
- 2 dozen'ish online users
- Gazillion alerts and other batch jobs and reports
- 40 Standard Concurrent Managers
- Hyper-batch

I once had a customer with “The Whole EBS System is Slow”

- Every day, ad-hoc reporting used 80% of server resources
- Hyper-“non-APPS” reporting workload (Cognos)

“The Whole EBS System is Slow”



- Every day, ad-hoc reporting used 80% of server resources
- Hyper-“non-APPS” reporting workload (Cognos)

Leg 3 – Application Efficiency

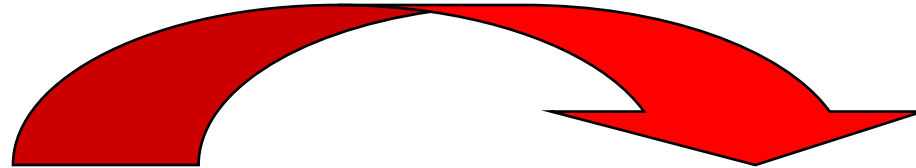
How do you Deal with All the Possibilities?

Through a process – Workload Analysis and Management

- Measure all work, durations, costs, login times
- “What ran when for how much?”
- Slice and dice the data – summaries, details
- Look for expected work, unexpected work, outliers
- Log, research issues
 - Rogue, expensive SQL jobs
 - Too much ad-Hoc
 - Batch with bad input parameters
 - Too much batch during onlines
 - ...
- Research, trace, respond, adjust

Leg 4 – Process

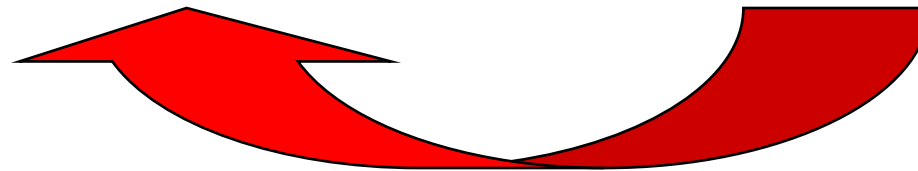
It's Easy to Stay Heads-down with the Technology



Business

Technology

*But then get caught in
constant "React" mode*



*You need a way to
Close the Loop*

Leg 4 – Process

It all Begins with Issue Management

I once visited a very large project to help with performance problems

- fulltime team of 3 performance engineers
- took 3 days to compile an issues list from “flaming emails”
- don’t let this happen to you

Leg 4 – Process Issue Management

- Capture
- Validate *Requirements/ Service Levels*
- Categorize
- Prioritize
- Assign
- Analyze *Root Cause Analysis - Don't throw money at a problem until you know what the problem is*
- Track
- Close

Once you can Measure, you can Manage

But Now We're talking at a Process, not Technical, level

Leg 4 – Process With Issue Management in Place

You have the data to suggest

- Change management needs to get “better”
- Release management needs to get “better”
- Training needs to get “better”
- Reporting/communication improve
- Reaction becomes proaction

Before you know it, you've implemented the core of ITIL

Without an expensive, prolonged, formal ITIL implementation

Summary – the 4-Legged Stool of Good E-Business Database Performance

- Operating Support
- Configuration
- Application Efficiency and WAM
- Process



Questions???

Thank You!
