

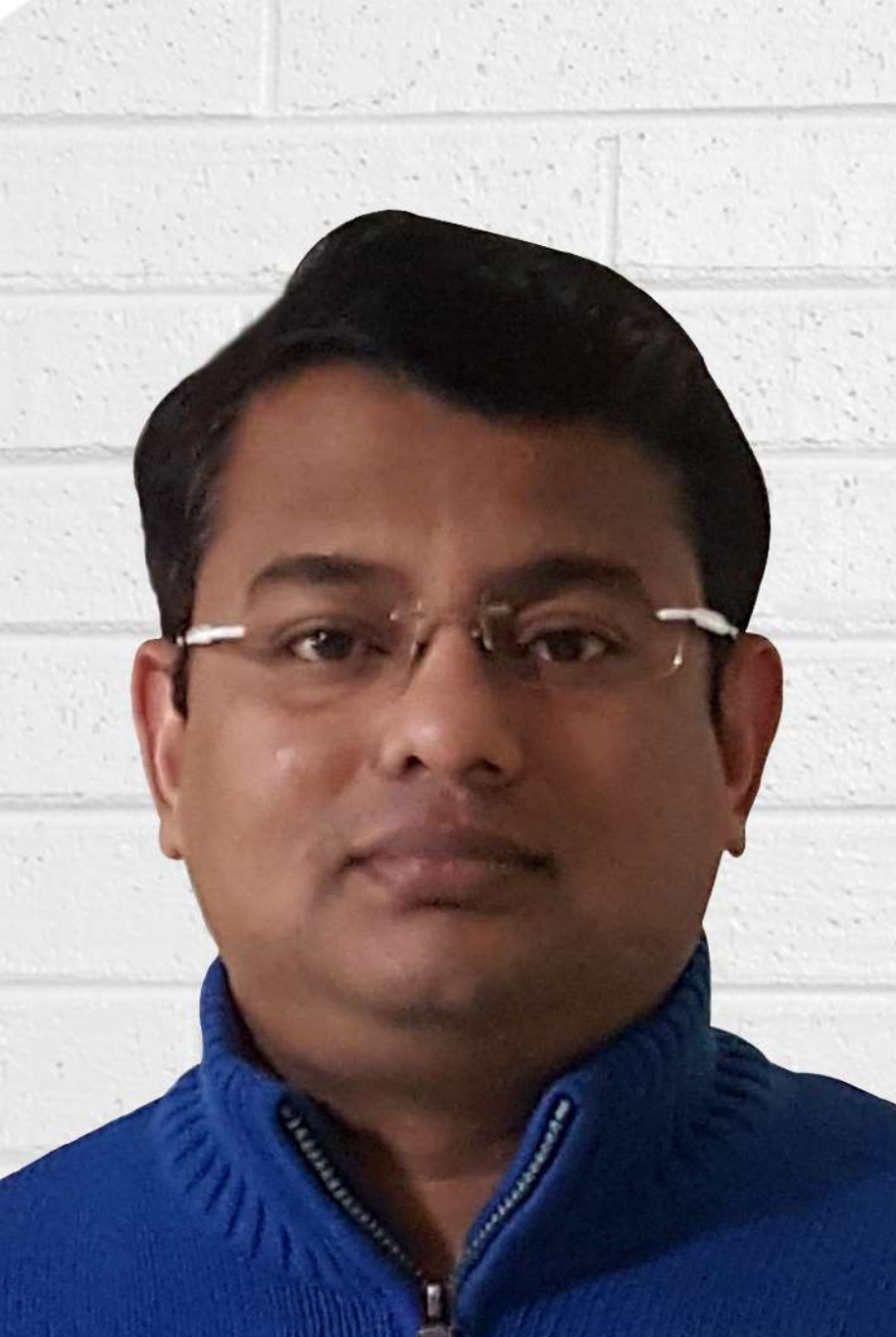
Taming the Beast: Optimizing Oracle EBS for Radical Efficiency



Presenter

Mahesh Vanapalli, Sr. Applications DBA

- ⤴ Bachelor's Degree in Computer Science and Engineering from Graduate of Nagarjuna University
- ⤴ More than 16 year's experience in IT
- ⤴ Technical background in
 - Implementing and supporting Oracle Applications with VLDB
 - Global implantations and complex solutions across industry sectors
 - Oracle EBS
 - Oracle EPM
 - Golden Gate
 - OBIEE



Who is Datavail?

Our Range of Data Services

Project Services



Health Checks & Assessments



Upgrades



Data Migration



OBIEE & Hyperion Consulting

Operational Managed Services



24x7 In-Office Coverage



Monitoring & Incident Response w/ SLAs



Service Requests (Patch, Modify, etc.)



Multi-factor Monitoring



Proactive Services (Health, Tune)



Structured Service Review

Data Development Services



Development, Tuning, Automation



Data Warehouse Build & Optimize



DevOps (Deploy & Automate)

How Clients say we are Different

Talent



- ▲ Largest data specialist firm in North America
- ▲ Senior resources in 32 states and 4 countries
- ▲ Attrition rate in India less than 2% per quarter

Investment



- ▲ \$80 million in capital raised: IP, acquisitions, delivery model & capabilities expansion

IP-Enabled



- ▲ A core component of Datavail's strategy has been – and will continue to be – developing and applying IP to all our service offerings

ISO 27001



All India locations ISO 27001 Certified

Other Security:

- ▲ PCI SAQ-D, Self Assessment
- ▲ U.S. – EU Safe Harbor Framework Certification Mark
- ▲ Type II SSAE16 / SOC1 - Type II SOC2
- ▲ Executed and adhere to numerous HIPAA Business Associate Agreements
- ▲ US only delivery models for ITAR controlled data

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Bose QuietComfort Noise
Canceling **Headphones**.

Mention you attended our
presentation for an additional entry.



Agenda

- ⤴ Why are we here – history of EBS
- ⤴ What do we mean by optimize?
 - Quick wins to add life to your EBS environment
- ⤴ What stops you from optimizing?
 - Performance Tuning
 - The Basics
- ⤴ The 5S Approach
- ⤴ What you can do to get ready for the Cloud now
- ⤴ Outside of EBS, things you can do
- ⤴ Summary

Why Optimize EBS?

Why Did We Embark with EBS in the First Place?



Cost savings



Better controls



Reduce technical complexity



Manage by exception,
not every transaction



Automation of
simple tasks

In the End it Was About....

- ⤴ You have built TRUST, in the system, and the data
- ⤴ Over time:
 - Slow Down
 - Manual work arounds
 - No longer models your current business processes
 - Old data we don't use anymore
- ⤴ We don't have to rebuild it, we can restore it

What Do We Mean by Optimize?

- ⤴ We need to tame the beast, to get the power back
- ⤴ But it's a bit fuzzy because
 - No one-way to optimize,
 - No perfect end state
 - Environment is constantly changing
 - People use it differently
- ⤴ We know that! That is how we got here in the first place

What Stopped Us?

- ⤴ We focused on getting it started, not keeping it running
- ⤴ We built a great car, and deferred gas, maintenance, changing the tires etc.
- ⤴ It's alive, and moving, and needs care and feeding
- ⤴ It served its purpose, but it changed, we changed and we didn't stay in sync
- ⤴ Costs money
- ⤴ Fear of patching – impact to critical business processes
- ⤴ You have day jobs and can't keep up with EBS, you need a partner

At Its Core, It's About Performance Tuning

At Its Core, It's About Performance Tuning

- ⤴ Tuning means more than re-writing SQL for EBS
 - We don't always have access to the code
- ⤴ The process of Performance Tuning can be categorized into four areas



Performance
Analysis



Code
Optimization



Load
Balancing



Altering Parameters /
Changing Processes

At Its Core, It's About Performance Tuning

Performance Analysis

- ⤴ Collect data, lots of it
- ⤴ Understand what is working, and what is not
- ⤴ Identify bottlenecks and where to focus the most effort
 - Do I fix the longest running process/query
 - Or optimize the query that runs the most
 - Or the query that stopped running altogether



Code Optimization

- ⤴ Actually fixing the offending code, configurations
- ⤴ Aims to make things faster, more reliable, accuracy
- ⤴ Rebuild trust
- ⤴ The best explain plan 5 years ago may not be now



At Its Core, It's About Performance Tuning

Load Balancing

- ⤴ Sharing the workload
- ⤴ You may have the horse-power you need, but some horses are running faster than others
- ⤴ Specialization of work allows for optimal configurations
- ⤴ Spread out high CPU services



Altering Parameters/Changing Processes

- ⤴ Business change, and we need to change systems to mirror the new processes
- ⤴ Applications also change, data grows and characteristics change
- ⤴ New functionality in patches



Performance Tuning

– The Basics

Performance Tuning – The Basics

Initialization Parameters

- ⤴ At the application, middle and DB tiers
- ⤴ Memory is your friend, if you have enough

IO

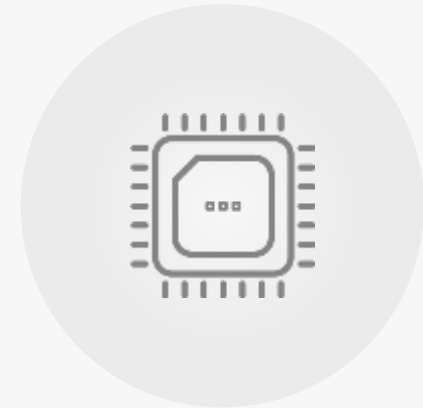
- ⤴ Data grows and moves
- ⤴ Large datasets don't perform like small datasets
- ⤴ Full table scans worked great with 100 rows of data
- ⤴ Run-a-way processes consuming needlessly
- ⤴ Perhaps more horses can breathe life back into that batch job
- ⤴ Look at different access methods for different disks
(I'm bringing back the RAID conversation)



Performance Tuning – The Basics

CPU

- ⤴ More users, more data, longer queries, more reports
- ⤴ Look to reduce number of times a job runs
- ⤴ Perhaps rewrite a query?
- ⤴ Data Archival
- ⤴ Hardware could also help
- ⤴ You may need more SGA/PGA than you did 5 years ago



Memory

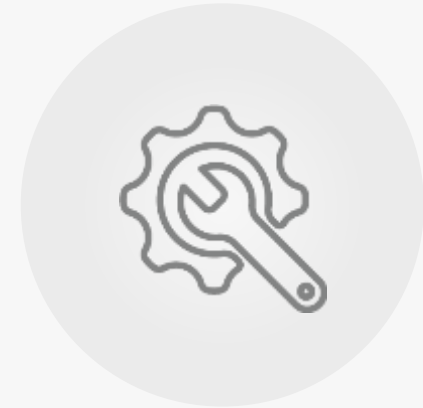
- ⤴ Faster than disk, but only if you allocate enough of it
- ⤴ Disk thrashing due to insignificant memory may make things worse



Performance Tuning – The Basics

Configuration Details

- ⚠ Redo logs – waiting for a redo log or the archiver, stops everything
- ⚠ IO contention of high used files, perhaps move them somewhere colder



Concurrency

- ⚠ Are you stepping on yourself?
- ⚠ Locking tables or other resources



Datavail's 5S Approach

Datavail's 5S Approach

⤴ Most Performance tuning is done at the(poll)

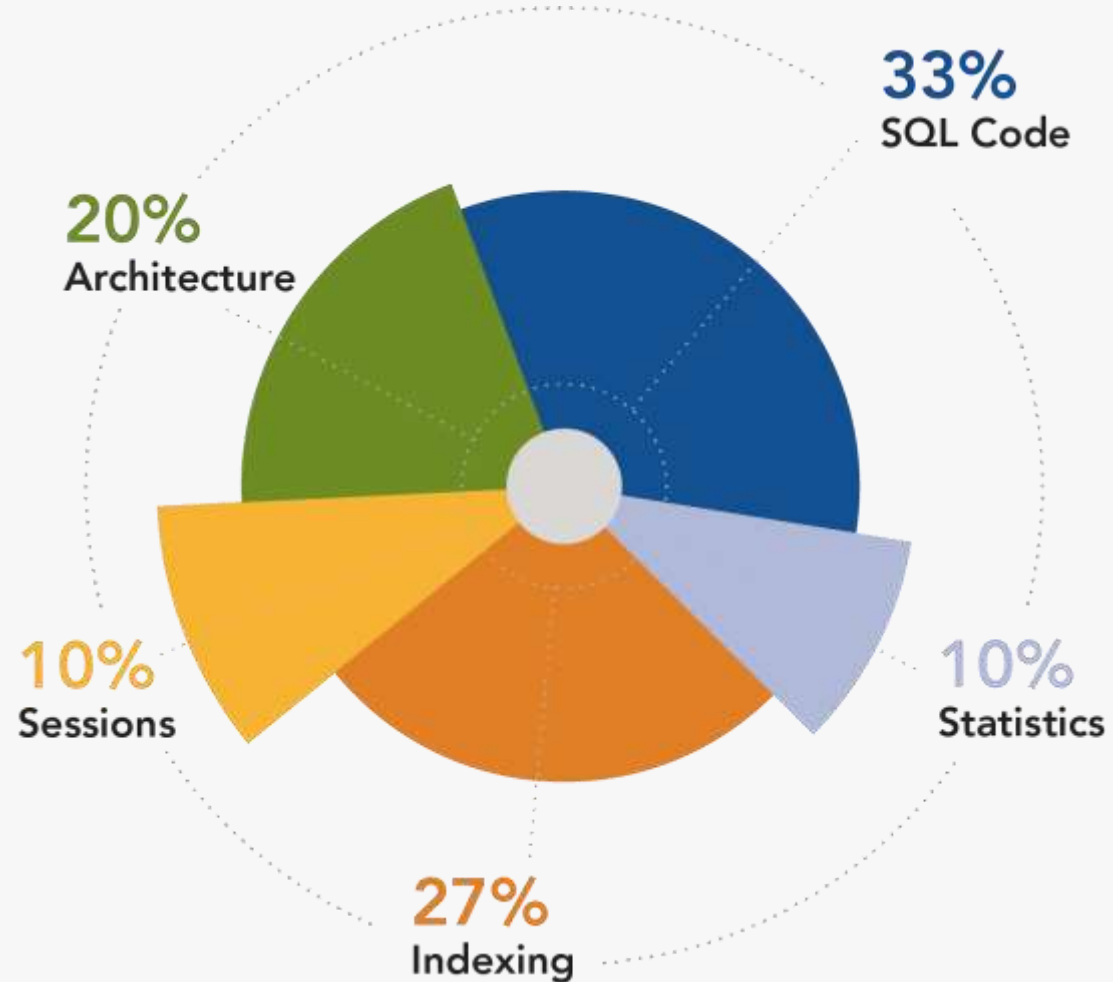
- Hardware
- Data Structures
- Initialization Parameters
- SQL Code
- Running Statistics
- Indexing

⤴ Yes it is SQL – when you can access it

Datavail's 5S Approach

Most common performance tuning issues:

- SQL Code
- Indexing
- Architecture
- Sessions
- Statistics



Datavail's 5S Approach

The 5 S's are

- 1 SQL Code
- 2 Statistics
- 3 Space/Indexing
- 4 Sessions
- 5 Scheduled Process



Datavail's 5S Approach



SQL Code

- ⤴ Look at join conditions, peaks and bottlenecks
- ⤴ Full table scans of larger tables
- ⤴ Bind variables
- ⤴ /*+ Hints */



Statistics

- ⤴ Your data has changed, if your stats say you have 100 rows, and you have 100 million, the optimized is going to mess up
- ⤴ On select tables and indexes
- ⤴ On all tables and indexes



Space and Indexing

- ⤴ Quickest way to be a hero
- ⤴ Add an index, reports goes from 10 hours to 10 seconds
- ⤴ But perhaps too many indexes on a table are slowing down inserts and deletes



Sessions

- ⤴ Are users blocking each other?
- ⤴ Scanning the same data?
- ⤴ Poor queries from developers in production?
- ⤴ Abandoned sessions

Scheduled Processes



- ⤴ The right schedule can make all the difference
- ⤴ Optimize data when no one is using it
- ⤴ Backups, first thing to check
- ⤴ Can you remove jobs no longer needed, or change the order
- ⤴ Parallel processes can spawn an army of zombies waiting on one object

Case Studies

Case Study: Global Digital Commerce Company

Problem

- ⬆ Customer was working on migrating one of their acquired entities from SAP to Oracle EBS 12.2 which was very critical to complete within the time lines due to legal compliance requirements.
- ⬆ Customer was not able to complete their conversion work as part of this migration activity within the approved downtime given by the business leaders.
- ⬆ Business transactions (navigating in order entry form, critical report, etc.) were running slow causing business impact; could not meet SLAs
- ⬆ A handful of SQLs were taking time - running very long or being executed millions of times.
- ⬆ Consolidated SQL run time was high.



Case Study: Global Digital Commerce Company

Datavail Solution

- Ⓐ Identified the problem area's by drilling down and performing detailed analysis.
- Ⓐ Created the right indexes which helped long running SQL and reduced runtime drastically.
- Ⓐ Tuned database memory parameters and parallel configuration so that programs/business actions could use the database resources more efficiently with good response time.
- Ⓐ Tuned concurrent managers by increasing the number of processes for standard manager, optimizing the queue time which helped to use CPU more efficiently on the EBS concurrent manager node, and improved overall concurrent program performance.
- Ⓐ Decreased the check frequency as concurrent manager processes were using high CPU by frequent polling
- Ⓐ Utilized the hardware resources very efficiently – Removed resources from less loaded EBS environment and added hardware resources to EBS environments where there was resource shortage.



Case Study: Global Digital Commerce Company

Results

- ⬆ Customer was able to complete their conversion activity within the approved downtime given by the business leaders
- ⬆ Critical business transactions (which are performed by many number of users and multiple times in one day) performance improved
- ⬆ End user satisfaction increased

Case Study: Fortune 500 Fast Food Chain

Problem

- ⬆ Client had poor performance in their HR Employee Termination Statistic Report.
- ⬆ Report needed to be run regularly, but was taking almost ten hours to complete – unsustainable.
- ⬆ By executing our performance tuning strategy, runtime was reduced to just 25 minutes.



Case Study: Fortune 500 Fast Food Chain

Datavail Solution

- ^ Identified the problem area's by drilling down and performing detailed analysis.
- ^ One particular SQL run time was high.
- ^ Created the right indexes which helped long-running SQLs and frequently-run SQLs (which are running millions of times)
- ^ Reduced the conversion program time by 60%

Case Study: Fortune 500 Fast Food Chain

Results

- ⬆ Execution time reduced from 11.5 seconds to .005 seconds
- ⬆ Based on an average of 3,000 executions per day the runtime went from 9.5 hrs. to 25 minutes



- ⤴ You can bring life back into your EBS environment with a little care and attention
- ⤴ Performance Tuning
 - The 5S Approach
 - SQL Code
 - Statistics
 - Space/Indexing
 - Sessions
 - Scheduled Process
- ⤴ Bring a specialist that understands EBS, and can tame that beast.



Q&A

Mahesh Vanapalli

Sr. Applications DBA

 mahesh.vanapalli@datavail.com

 www.datavail.com



Thank you



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