

# Oracle EBS: Learnings from DBA Diary!

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# Message...

*Do not shy away from exploring the database...*

- Lot of unanswered questions at the EBS application side can be answered at the database. Most performance issues end up in the database.
- Newer releases of databases collect large amount of performance related information.
- Most of the time it is the custom code or incorrect application (profile) options affecting performance...

Troubleshooting  
Performance (*always*  
*Database fault* 😊)



# AWR – Quick Overview

- **Automatic Workload Repository** - Introduced in Oracle 10g
- AWR is automatically installed and enabled, snapshot collection is scheduled
- Information automatically populated by database – but need license to use information.
- Baseline snapshots, compare two time periods, AWR Warehouse
- Use DBA\_HIST\_ views
- Default keeps 7 days information – need to increase to at least a month to help analysis
- Fully integrated in OEM
- Captures resource intensive SQLs, Object usage statistics
- Pay attention to Tablespace & redo I/O, SGA/PGA sizing recommendations!

## Automatic Workload Repository

The Automatic Workload Repository is used for storing database statistics that are used for performance tuning.

### General

Edit

Snapshot Retention (days) **30**  
Snapshot Interval (minutes) **30**  
Collection Level **TYPICAL**  
Next Snapshot Capture Time **Sep 15, 2012 12:00:39 AM**

### Manage Snapshots and Preserved Snapshot Sets

Run AWR Report

Snapshots **1459**  
Preserved Snapshot Sets **2**  
Latest Snapshot Time **Sep 14, 2012 11:30:39 PM**  
Earliest Snapshot Time **Dec 1, 2009 2:30:44 AM**

**@\$ORACLE\_HOME/rdbms/admin/awrrpt.sql, awrsqrpt.sql, awrddrpt.sql**

# The “Dirty” SQL

- High buffer gets – LIO
- Use DBA\_HIST\_SQLSTAT
- Captures the statistics information from V\$SQL
- Tie in the SQL\_ID to DBA\_HIST\_SQLTEXT for SQL statement.
- Tie in the SQL\_ID to DBA\_HIST\_ACTIVE\_SESS\_HISTORY for User id and Program name.
- May also use OEM to find more information on the SQL\_ID.

```
select min(snap_id), min(begin_interval_time) from dba_hist_snapshot  
where begin_interval_time > next_day(sysdate-14, 'SUNDAY');
```

```
select max(snap_id), max(end_interval_time) from dba_hist_snapshot  
where end_interval_time < next_day(sysdate-7, 'SUNDAY');
```

```
SELECT * FROM (  
  SELECT sql_id,  
         module,  
         SUM (nvl(buffer_gets_delta,0)) bget,  
         SUM (nvl(executions_delta,0)) exec,  
         SUM (nvl(cpu_time_delta,0)) cput,  
         SUM (nvl(elapsed_time_delta,0)) elap,  
         SUM (nvl(rows_processed_delta,0)) rowsp,  
         SUM (nvl(sorts_delta,0)) sorts,  
         SUM (nvl(disk_reads_delta,0)) diskread  
  FROM dba_hist_sqlstat  
  WHERE dbid = V_DBID  
         AND instance_number = V_INST  
         AND snap_id between  
             V_SNAP_B and V_SNAP_E  
  GROUP BY module, sql_id  
  --ORDER BY bget/ nvl(nullif(exec,0),1) desc)  
ORDER BY bget desc)  
WHERE ROWNUM < 21
```

# Finding Concurrent Program

- For all EBS standard programs, “MODULE” in AWR (v\$session) is the Concurrent Program Name.
- Details on the program and request run times can be obtained from FND\_CONCURRENT\_PROGRAMS and FND\_CONCURRENT\_REQUESTS using MODULE.

```
SELECT fcpv.Concurrent_Program_Name cpn,
       fcpv.User_Concurrent_Program_Name ucpn,
       fu.user_name || ' [' || substr(fu.description,1,40) || ']' uname,
       COUNT (*) execs
FROM apps.fnd_concurrent_requests fcr,
     apps.Fnd_Concurrent_Programs_VL fcpv,
     apps.fnd_user fu
WHERE (fcr.concurrent_program_id = fcpv.concurrent_program_id
      AND fcr.program_application_id = fcpv.application_id)
      AND fcpv.Concurrent_Program_Name LIKE 'INCOIN' || '%'
      AND fu.user_id = fcr.requested_by
      and fcr.actual_start_date between
          to_date('09/02/2012','dd/mm/yy') and to_date('09/09/12','dd/mm/yy')
GROUP BY fcpv.concurrent_program_name,
         FCPV.USER_CONCURRENT_PROGRAM_NAME,
         fu.user_name || ' [' || substr(fu.description,1,40) || ']'
Order by execs desc;
```

CPN	UCPN	UNAME	EXECS
INCOIN	Import Items	AU[REDACTED] [RDB - USER - Annetmarie van Uden]	651
INCOIN	Import Items	SB[REDACTED] [RDB - Bouman, Corina]	160
INCOIN	Import Items	LJA[REDACTED] [REDACTED]	124

# Perf Issue: Debug and Trace

- Many profiles at site level set to “debug” mode.
- Revealed by large number of I/O against FND\_CONCURRENT\_DEBUG\_INFO and FND\_LOG\_MESSAGES
- Turn off tracing and debugging in production unless troubleshooting an issue
- Few debugs that were enabled:
  - Account Generator:Run in Debug Mode
  - FND: Diagnostics
  - FND: Debug Log Enabled
  - INV:Debug Level
  - WSH: Debug Level

- Concurrent programs running with trace enabled

```
select a.concurrent_program_name ,a.enable_trace
from FND_concurrent_programs a
where a.enable_trace='Y'
```



# Must-have Tools





# SQL Developer & SQL Cl

- Object migration, DDL generation
- Performance tuning, AWR Reports, ASH Reports, SQL Monitoring
- Free!

<http://www.oracle.com/technetwork/developer-tools/sql-developer/downloads/index.html>

SQL Developer 4.2

Version 4.2.0.17.089.1709, Updated April 12, 2017

[Release Notes](#), [Bugs Fixed](#), [New Features](#), [Documentation](#)

Command Line - SQLcl 4.2

April 12, 2017 - Update 4.2.0.17.097.0719

All Platforms

[Learn More](#), [Command-Line Reference](#), [Release Notes](#), [FAQ](#), [Getting Started Video](#)

# ORAchk

- ORAchk - Health Checks for the Oracle Stack (Doc ID 1268927.2)

## Oracle ORAchk Health Checks for the Oracle Stack



### REDUCES RISK

Health checks for most impactful reoccurring problems



### AUTOMATED

Automatic proactive warning of problems before they impact you



### RUNS IN YOUR ENVIRONMENT

No need to send anything to Oracle



### REPORTS VIA EMAIL

Get scheduled health reports sent to you in email



### INTEGRATED

View health check results in the tool of your choice



### DOWNLOADS TO SUIT

Availability in various different download formats to suit your needs

# ORACHk – Database and EBS + EM, IM, PS...

## Oracle Database

- Standalone Database
- Grid Infrastructure & RAC
- Maximum Availability Architecture (MAA) Validation
- Upgrade Readiness Validation
- Golden Gate
- Application Continuity

## Oracle Hardware Systems

- Oracle Solaris
- Oracle Solaris Cluster
- Oracle Systems configuration for Oracle Database, Oracle Middleware & Oracle Applications
- ZFS Storage Appliance
- Oracle Virtual Networking

## E-Business Suite

- Oracle Payables (R12 only)
- Oracle Workflow
- Oracle Purchasing (R12 only)
- Oracle Order Management (R12 only)
- Oracle Process Manufacturing (R12 only)
- Oracle Fixed Assets (R12 only)
- Oracle Human Resources (R12 only)
- Oracle Receivables (R12 only)
- Oracle Customer Relationship Management
- Oracle Project Billing





# EBS Analyzers

- **Get Proactive with Oracle E-Business Suite - Product Support Analyzer Index (Doc ID 1545562.1)**
- **Technical**
  - **EBS Concurrent Processing (CP) Analyzer (Doc ID 1411723.1)**
  - **EBS Database Parameter Settings Analyzer (Doc ID 1953468.1)**
  - **EBS Workflow (WF) Analyzer (Doc ID 1369938.1)**
  - **EBS Reports & Printing Analyzer (Doc ID 1610143.1)**
- **Financial**
- **Manufacturing**
- **Human Resources**
- **Customer Relationship Management**

# DB Initialization Parameter Check

- EBS Database Parameter Settings Analyzer (Doc ID 1953468.1)

## Database Parameter Settings Recommendations Report

Recommendations for Database Parameters			
NAME	VALUE	STATUS	RECOMMENDATIONS
lock_name_space		Pass	Recommended value is not defined.
processes	200	Warning	Recommended value for this is 800 for the # of current active users(500)
sessions	400	Check	You have the recommended value of (2 x processes). But this is set to twice the value of the processes parameter. So it depends on the value of processes parameter. If the value of processes parameter is wrong, the value of sessions should be changed based on the value of processes.
timed_statistics	TRUE	Pass	You have the recommended value. On most platforms, enabling timed statistics has minimal effect on performance.
timed_os_statistics	0	Pass	Recommended value is not defined.
resource_limit	FALSE	Pass	Recommended value is not defined.
license_max_sessions	0	Pass	Recommended value is not defined.
license_sessions_warning	0	Pass	Recommended value is not defined.
cpu_count	8	Pass	Recommended value is not defined.

# EBS Clone Log Parser

- **EBS Clone Log Parser Utility (Rapid Clone 11i,12.0, 12.1)[VIDEO] (Doc ID 1447553.1)**
  - StageDBTier.log
  - StageAppsTier\_.log
  - ApplyDBTier.log
  - ApplyDatabase.log
  - ApplyDBTechStack.log
  - ApplyAppsTechStack.log
  - ApplyAppsTier.log
  - CloneContext.log
  - make\_.log, make.log
  - adconfig.log
  - ohclone.log
  - adcrdb\_.txt
  - NetServiceHandler.log
  - setup\_stubs.log
  - Central/Global oraInventory/logs directory and all sub-directories,
  - for any files with a .err, .log or .txt extension



# Trace Analyzer

- TRCANLZR (TRCA): Using Trace Analyzer Output (Doc ID 2087091.1)

## 224270.1 TRCA Trace Analyzer 11.4.5.8 Report: trca\_e18925.html

TRACE\_FILE\_NAME.trc (225577 bytes)

Total Trace Response Time: 136.624 secs.  
2011-SEP-27 17:17:22.560 (start of first db call in trace 1317140242.560093).  
2011-SEP-27 17:19:39.183 (end of last db call in trace 1317140379.183953).

- [Glossary of Terms Used](#)
- [Response Time Summary](#)
- [Overall Time and Totals](#)
- [Non-Recursive Time and Totals](#)
- [Recursive Time and Totals](#)
- [Top SQL](#)
- [Non-Recursive SQL](#)
- [SQL Genealogy](#)
- [Individual SQL](#)
- [Overall Segment I/O Wait Summary](#)
- [Hot I/O Blocks](#)
- [Gaps in Trace](#)
- [ORA errors in Trace](#)
- [Transactions Summary](#)
- [Non-default Initialization Params](#)
- [Trace Header](#)
- [Tool Data Dictionary](#)
- [Tool Execution Environment](#)
- [Tool Configuration Parameters](#)

Version header,  
Analyzed trace name,  
Trace duration and  
first and last calls in the trace

Report  
Subsections

# SQLD360

- **SQLT Usage Instructions (Doc ID 1614107.1)**
- <https://mauro-pagano.com/2015/02/16/sqlld360-sql-diagnostics-collection-made-faster/>
- SQLd360 is a free tool that provides a 360-degree overview around a SQL statement. The output is a single zip file that allows offline analysis, trend analysis and detailed root-cause investigations.
- SQLd360 doesn't require any installation and can be executed by any user that has access to dictionary views. The tool can be used by DBAs, Developers, SysAdmin, etc to investigate several aspects of the SQL.

# Security Validation

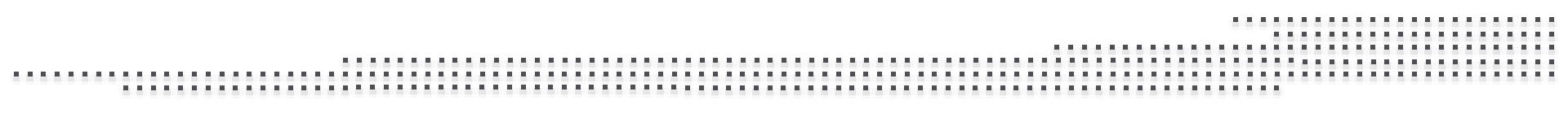
## ■ Security Configuration and Auditing Scripts for Oracle E-Business Suite (Doc ID 2069190.1)

- Check Profile Errors - EBSCheckProfileErrors.sql
- Check Profile Warnings - EBSCheckProfileWarnings.sql
- Check Missing Profiles - EBSCheckProfileMissing.sql
- Check if new Security Features (in 12.2) are enabled - EBSCheckSecurityFeatures.sql
- Check Application Users With Default Passwords - EBSCheckUserPasswords.sql
- Check DB Users With Default Passwords - EBSCheckDBPasswords.sql
- Secure APPLSYSPUB - EBSCheckApplsyspubPrivs.sql
- Migrate to Password Hash - EBSCheckHashedPasswords.sql
- Use Secure Flag on DBC File (Implement Server Security) - EBSCheckServerSecurity.sql
- Enable Application Tier Secure Socket Layer (SSL) - EBSCheckSSL.sql
- Encrypt Credit Card Data - EBSCheckCCEncryption.sql
- Separation of Duties: Review Access To "Sensitive Administrative Pages" - EBSCheckSensitivePageAccess.sql
- Check status of 12.2 security features - EBSCheckSecurityFeatures.sql
- Validate that Forms Block Characters is set correctly - EBSCheckFormsBlockChar.sh
- Turn on ModSecurity - EBSCheckModSecurity.sh

# EBS Audit Scripts

- **Security Configuration and Auditing Scripts for Oracle E-Business Suite (Doc ID 2069190.1)**
  - **Configure DB Auditing**
    - SystemPrivAuditing.sql - Configure System and Privilege auditing for the Database
    - EBSObjectAuditing.sql - Configure Object level auditing per Oracle E-Business Suite guidance
    - Check the Auditing and Logging Settings
    - EBSCheckAuditingSettings.sql - Check the Oracle E-Business Suite profiles and DB configuration settings against the recommended settings
  - **Login and Session Queries**
    - SessLoginResponsibilites.sql - Session query showing current responsibilities and functions, joining in relevant Login rows
    - LoginSessResponsibilites.sql - Login query showing current responsibilities and functions, joining in relevant Login rows (more verbose)
    - v\$session\_by\_Fnd\_User.sql - Query demonstrating population of Oracle E-Business Suite connection tagging context in v\$session
    - v\$session\_last\_sql\_by\_Fnd\_User.sql - Query leveraging Oracle E-Business Suite connection tagging to pull the last SQL out of v\$session by FND User
  - **Page Access Tracking Queries**
    - PAT\_sessions\_by\_date.sql - Query Summary of Page Access Tracking session by date
    - PAT\_sessions\_by\_user.sql - Query Summary of Page Access Tracking sessions by FND user
    - PAT\_session\_flow.sql - Detail page flow for a given user's sessions for the last 30 days
  - **Other Queries**
    - ProfileWhoColumnExample.sql - Example of WHO column joins against the profile values table
    - UnsuccessfulLogins.sql - Query showing unsuccessful logins for local users in Oracle E-Business Suite

# Platform Migration, Archive, Purge, Reorg



# Database Technologies

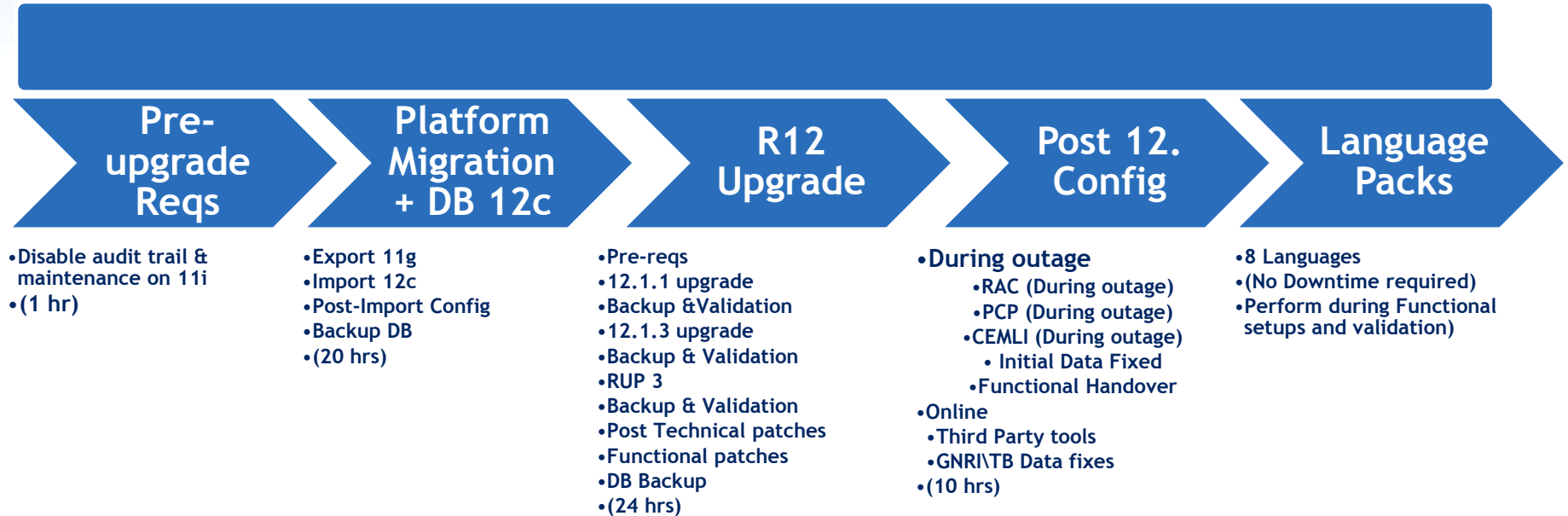
- Platform Migration
  - Datapump Export/Import
  - RMAN Convert
  - Cross platform transportable tablespaces
  - Golden Gate – NO NO!
- Reorg
  - SQL: ALTER TABLE MOVE, ALTER INDEX REBUILD
  - Datapump Export/Import
  - Online operations (limited tables)
- Purge
  - Run purge jobs periodically
- Archive
  - Third party tools
  - Tiered storage
  - Partitioning
  - ADO

# Archive, Purge, Migration, Upgrade!

Component	Source	Target
DB OS	Solaris 10	OEL 6.5
DB Version	11.2.0.3	12.1.0.2
Instance Type	Single	2 Node RAC
HA	Solaris Cluster	Real Application Cluster
EBS Version	11.5.10.2	12.1.3 RUP3
Nodes	1 DB 1 CM 2 Web/Forms 1 Tools	2 DB 2 CM (PCP) 2 Web/Forms 2 Tools
Virtualization	DB & App on Physical	DB on physical, App on VMWare
DB Size	4.5 TB	1.8 TB



# Go-live Timeline



Technical Part – Platform migration, R12 upgrade: 55Hrs

# Standard Purge Programs

- Examples of seeded purge programs:
  - Purge Obsolete Workflow Runtime Data (FNDWFPR)
  - Purge Debug Log and System Alerts (FNDLGPRG)
  - Purge Signon Audit data (FNDSCPRG)
  - Purge Concurrent Request and/or Manager Data (FNDCPPUR)
  - Delete Diagnostic Logs (DELDIAGLOG)
  - Delete Diagnostic Statistics (DELDIAGSTAT)
  - Purge FND\_STATS History Records (FNDPGHST)
  - Page Access Tracking Purge Data (PATPURGE)
  - Purge Obsolete Generic File Manager Data (FNDGFMPR)
  - Summarize and Purge Concurrent Request Statistics (FNDCPCRS)
  - Purge Inactive Sessions (ICXDLTMP)
  - Purge Obsolete ECX Data (FNDECXPR)
- Reducing Your Oracle E-Business Suite Data Footprint using Archiving, Purging, and Information Lifecycle Management (Doc ID 752322.1)

# Indexes [Tables] for Reorg Consideration

- Tables where purge jobs act
  - FND\_CONCURRENT\_REQUESTS
  - FND\_LOGINS
  - FND\_LOGIN\_RESPONSIBILITIES
  - WF\_ITEM\_ATTRIBUTE\_VALUES
  - WF\_ITEM\_ACTIVITY\_STATUSES
  - FND\_STATS\_HIST
  - FND\_LOG\_MESSAGES
- Tables where data is deleted and inserted often
  - MRP, QP Schema Indexes
  - \_INTERFACE tables
- CTXSYS tables
  - DR\$WAITING
  - DR\$PENDING
- MLOG\$ tables
  - If the size is larger
- Custom tables
  - Temporary data
  - Staging data

**The reorg recommendation may be against Oracle's best practice and some experts do not believe reorg adds value. Test in your environment ...**

# Database 12c Upgrade Hiccups



# Adaptive Plans ☹️

- Release 1 (12.1)
  - Option 1
    - Turn off adaptive features by setting **optimizer\_adaptive\_features=FALSE**
    - Do not act on adaptive information collected by setting **optimizer\_adaptive\_reporting\_only=TRUE**
    - Do not set **optimizer\_features\_enable=11.2.0.4** → Bad Idea!
  - Option 2
    - Apply patch 22652097 on top of 12.1.0.2
    - Provides split parameter like in 12.2
    - Turn off Adaptive Statistics (**OPTIMIZER\_ADAPTIVE\_STATISTICS=FALSE**)

# Temp Undo

- Oracle recommended values is TRUE for parameter TEMP\_UNDO\_ENABLED for EBS
- Bug 20301061 ORA-1555 with short duration sqls or possible ORA-600 [kdblkcheckerror] [tmpfile#] [block#] [14508] when temp\_undo\_enabled set to true
- Patch 20301061: ORA-1555 WITH SHORT DURATION SQLS WHEN TEMP\_UNDO\_ENABLED SET TO TRUE

- ORA-1555 with temp\_undo\_enabled=true
- temp undo doesn't use default TEMP space but the one from SYS
- ORA-600 [kdblkcheckerror] [tmpfile#] [block#] [14508]

Example :

alert log has:

Corrupt Block Found

```
CONT = 0, TSN = 394, TSNAME = TEMP2
RFN = 1, BLK = 570496, RDBA = 4764800
OBJN = 0, OBJD = 4764800, OBJECT = , SUBOBJECT =
SEGMENT OWNER = , SEGMENT TYPE =
```

# Unix Stack Size & Listener

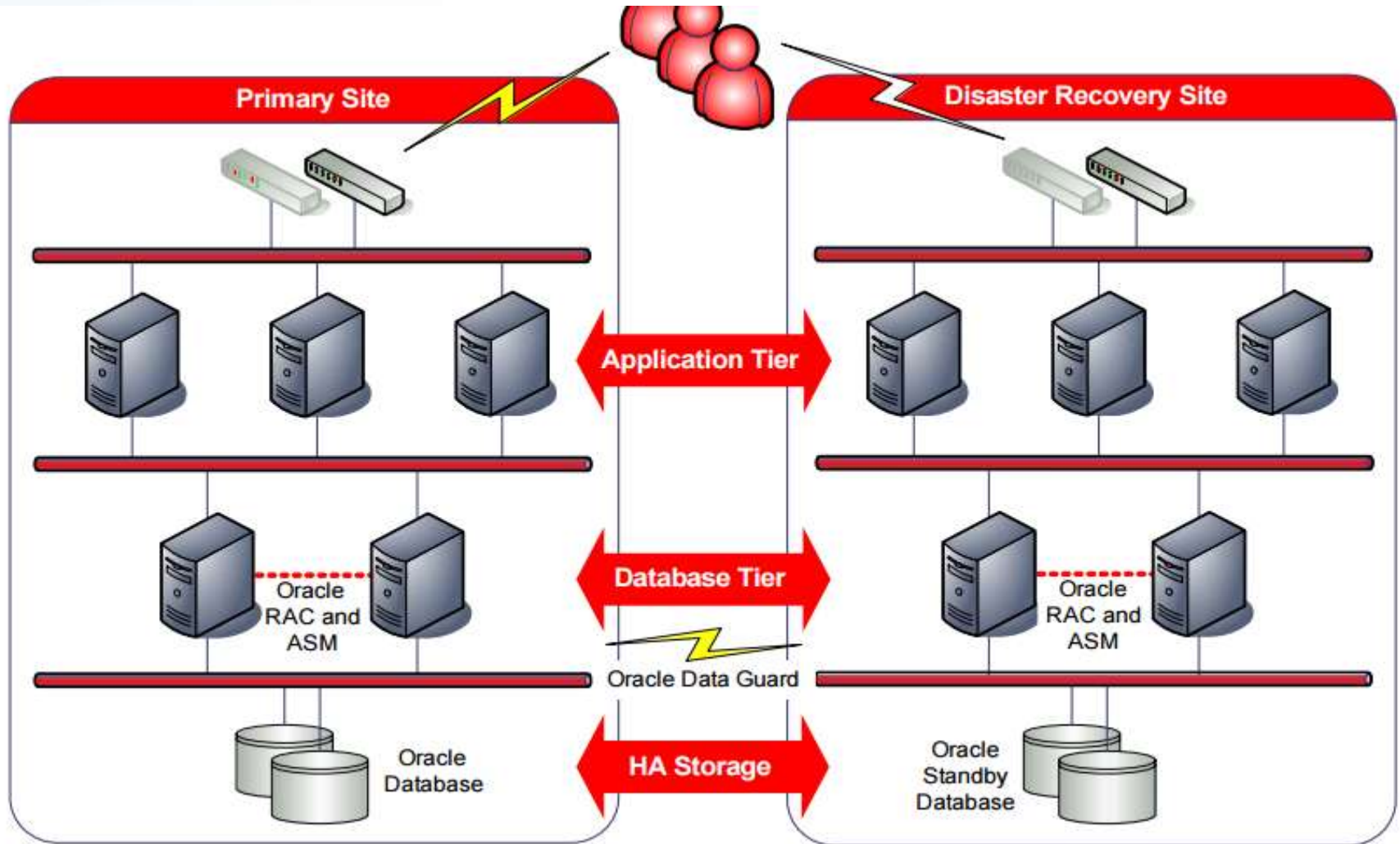
- There are 3 configuration files that can impact the size of the stack for the listener.
  - GRID\_HOME/bin/crsctl
  - GRID\_HOME/bin/oraagent
  - GRID\_HOME/crs/install/s\_crsconfig\_defs
- The file s\_crsconfig\_defs should be modified to set the stack size as desired. The parameter is CRS\_LSNR\_STACK
- However, bug 19398098 should be fixed in 12.1.0.2.161018 so that a modification of
  - the file s\_crsconfig\_defs is not overwritten by the patching process.
- Bug 19398098 CLSR\_LSNR\_STACK is overwritten when a patch is applied - affects listener stack size
- The file crs/install/s\_crsconfig\_defs is overwritten every time when a patch is applied on the system.



# RAC and EBS



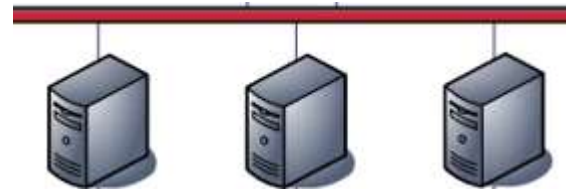
# Oracle EBS – High Availability Architecture



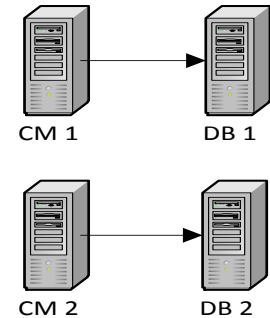
Source: <http://www.oracle.com/technetwork/database/features/availability/298391-132409.pdf>

# Parallel Concurrent Processing

- More than one node to process concurrent requests - distribute concurrent managers across multiple nodes.
- High performance - improve concurrent processing throughput.
- Fault Tolerance - continue running concurrent processes when node fails.
- Adaptability - load-balancing to maximize concurrent processing performance.
- Single Point of Control - administer concurrent managers running on multiple nodes from any node.
- Primary and secondary nodes need not be explicitly assigned. However, you can assign primary and secondary nodes for directed load and failover capabilities.



# Node Affinity



- Direct related workload to same RAC node
- Reduce internode traffic
- Problem when multiple nodes are inserting, querying, updating the same table
- Assign application node to connect to specific database node.
- Send related workload to same application node (and to RAC node)
  - Order Management, Shipping, Contracts, Projects
  - Payroll, HR
  - Financials – GL, AP, PO, FA, AR
- Create dedicate CM Queues with include/exclude specialty rules
- Create Services on DB node
- Not really practical when you have only 2 node RAC!

**Too Much Work!**

**Let's Load Balance Across All Nodes!!**

# EBS Node to RAC Node Database Connection Options

- EBS Node always connect to same RAC node
  - TNS Entry : LOAD\_BALANCE=NO, FAILOVER=NO.
  - Node affinity. Less RAC block transfer between nodes
- EBS Node always connect to same RAC node, and if that RAC node is unavailable, connects to another node.
  - TNS Entry: LOAD\_BALANCE=NO, FAILOVER=YES
  - Less Node affinity.
- EBS Node connection to RAC Node is decided by listener, based on the RAC node load.
  - TNS Entry: LOAD\_BALANCE=YES, FAILOVER=YES
  - No Node affinity
  - Have a good interconnect between RAC nodes (infiniband)

# DB Connection Configuration

- Most Important: Service names in \$TNS\_ADMIN/tnsnames.ora
- DB Parameters:
  - LOCAL\_LISTENER
  - REMOTE\_LISTENER
- EBS Context File Variables:
  - s\_tools\_twotask
    - Forms connections
  - s\_cp\_twotask
    - Concurrent manager connections
  - s\_weboh\_twotask
    - Self service HTML connections
  - s\_apps\_jdbc\_connect\_alias
    - Self service HTML connections

# Profile: Concurrent:TM Transport Type

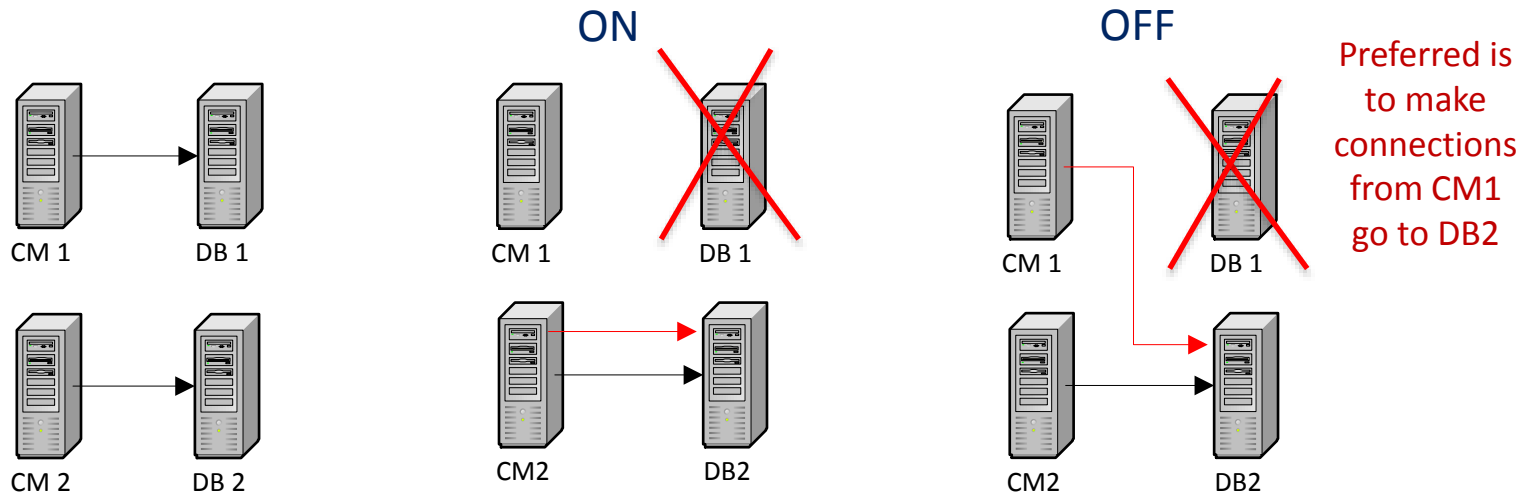
- 11i Default is PIPE, R12 Default is QUEUE
- PIPE: Uses DBMS\_PIPE mechanism
- Recommended Value for RAC – QUEUE: Uses DBMS\_AQ mechanism.
- Non-RAC: Use PIPE for best performance
- PIPE mechanism means that the "client" and the transaction manager must both be on the same database instance to be able to communicate.
- QUEUE means that you communicate via AQ, therefore no more restriction to one instance.
- Using AQ mode, a client connected to any node will be able to access a manager on any other node, so it will not matter at all where their transaction manager runs or what instances they connect to.

*What is the Difference Between PIPE and QUEUE for Profile Concurrent:TM Transport Type ? (Doc ID 458453.1)*



# Profile: Concurrent:PCP Instance Check

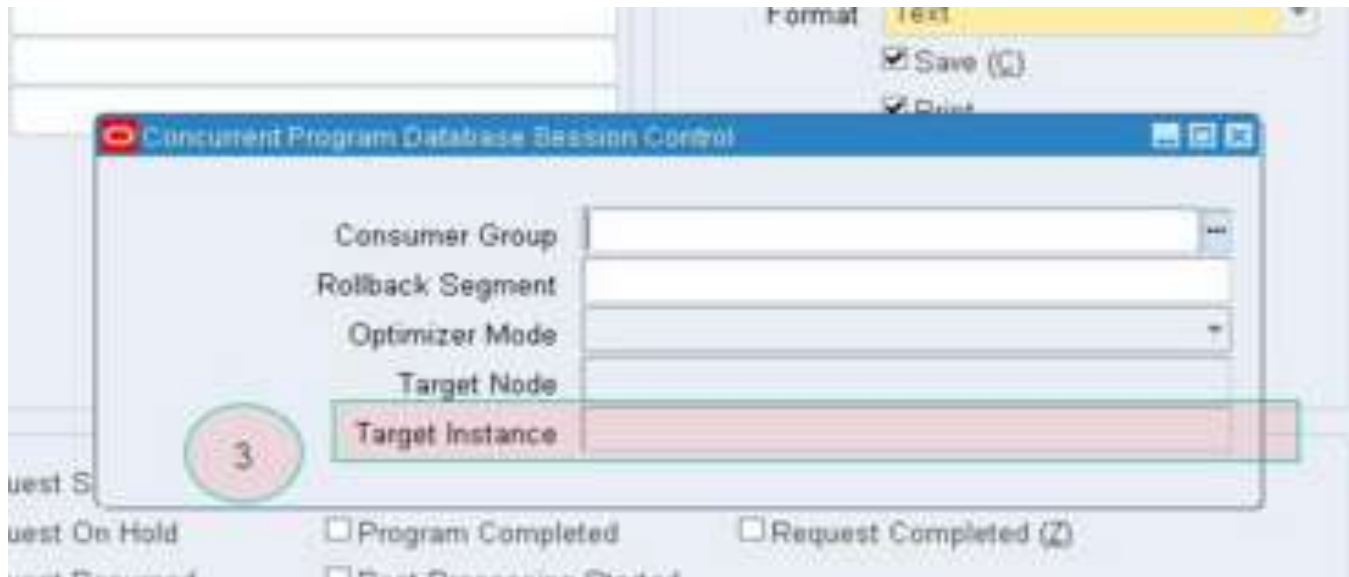
- Default Value: OFF
- ON: CM always connect to same RAC node.
  - In case of database node failure in RAC, Concurrent Managers on the EBS node are moved to a node specified by "Secondary Node" parameter for each concurrent manager.
- Recommendation: OFF
  - s\_cp\_twotask - Connect to entry with Load Balance NO, Failover YES.



Concurrent Processing - How To Ensure Load Balancing Of Concurrent Manager Processes In PCP-RAC Configurations (Doc ID 762024.1)

# Running Concurrent Job on Specific Node

- System Administrator Responsibility > Concurrent > Program > Define > Click 'Session Control'
- To run a concurrent job to run on a specific CM Node
  - Target\_Node
- To run a concurrent job to run on a specific RAC Node
  - Target\_Instance



# TNSNAMES.ORA and AutoConfig

- AutoConfig generates TNSNAMES.ORA file, each time it runs
- Oracle Database default TNSNAMES.ORA location is \$ORACLE\_HOME/network/admin
- Oracle EBS Autoconfig writes TNSNAMES.ORA file to \$ORACLE\_HOME/network/admin/\$CONTEXT\_NAME directory, which is the value for \$TNS\_ADMIN.
- If you update TNSNAMES.ORA with the SCAN customizations, it will be overwritten.
- User defined TNSNAMES.ORA entries must be added to \$TNS\_ADMIN/\${CONTEXT\_NAME}\_ifile.ora file.
- AutoConfig always adds this “ifile” name towards the end of standard TNSNAMES.ORA file.
- Applicable on all nodes – Database and Apps.

# Duplicate TNS Entry Impact

- Since <DBNAME>\_BALANCE entry is standard and is the one used pretty much everywhere in the \$CONTEXT\_FILE, when you customize this entry, add the customized entry to the “ifile”.
- SQL\*Net either reads the file from the bottom (unlikely) or does not stop reading the file when it finds the first entry!
- Autoconfig writes IFILE= entry as the last entry in tnsnames.ora
- Last encountered entry from “ifile” will be the one used!

[http://nocoug.org/Journal/NoCOUG\\_Journal\\_201505.pdf#page=17](http://nocoug.org/Journal/NoCOUG_Journal_201505.pdf#page=17)

- **TNSNAMES.ORA file is read from the bottom up (or Oracle does not stop reading when it finds the first entry; it continues to read until it reaches the bottom) and picks the very last entry if there are duplicate entries.**
- **It does not matter if the duplicate entry is coming from IFILE or the main file.**
- **It does matter where you place the IFILE in the main .ORA files.**

# MRP / ASCP

- Not RAC Friendly
- All programs must run on one database node

*RAC Configuration Setup For Running MRP Planning, APS Planning, Data Collection Processes and Distributed Multi Node Transactions (Doc ID 279156.1)*

- Material Requirements Planning (MRP) processes
- Advanced Planning and Scheduling (APS) Planning processes
- Oracle Demand Planning (ODP) Collect and Pull processes
- Advanced Supply Chain Planning (ASCP) Data Collections processes
- Order Management Available to Promises (OM ATP) Data Collections processes

*The processes use DBMS\_PIPE for inter process (intersession) communication -need to be running on the same node of the database RAC and on the same node of the Application server.*

- Load balancing cannot be used for planning processes.
- Processes hang and are stuck in 'Running Normal' status

# MRP Node Affinity – Options

No Load balance on CM Node, Always Connect to same DB Node.  
Set `s_cp_twotask = <no load balance entry>`

```
ABCPROD_BALANCE = (DESCRIPTION=
  (LOAD_BALANCE=NO)
  (FAILOVER=YES)
  (ADDRESS_LIST=
    (ADDRESS=(PROTOCOL=tcp) (HOST=abcu1-vip) (PORT=1522))
    (ADDRESS=(PROTOCOL=tcp) (HOST=abcu4-vip) (PORT=1522)))
  (CONNECT_DATA=
    (SERVICE_NAME=abcprod)))
```

Load balance on CM Node, Define MRP/ASCP programs to pin to same DB Node.

- System Administrator Responsibility > Concurrent > Program > Define > Click 'Session Control'
  - Target Node (optional)
  - Target Instance

# Service Name in Concurrent Manager

- Additional environment variables for each specific manager
- New in 12.1.3 – apply patch 18803853
  - Bug 4159920
  - MOS note: 1908794.1
  - Patch gives the “Environment” option in 12.1.3 Concurrent Manager
- Available in 12.2 (no patch required)
- Read Yuri’s blog: <https://www.pythian.com/blog/pcp-and-rac/>
- With this patch, easier to achieve node affinity for Concurrent Jobs!
- Very useful for ASCP/MRP/APS processing.



Important Patch for  
EBS 12.1 on RAC!

Thank you!

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