

Advanced RAC Training –Week 1

Note that this is just an outline. While I try to stick with the outline, I update the course materials frequently to reflect version changes, recently encountered major bugs etc.

Considerations for RAC

Why should you consider RAC?

Why should you not consider RAC?

Critical elements for successful conversion to RAC

- Application affinity
- Application workload issues
- Concurrency issues

Extended RAC - Introduction

Concepts

Basic concepts about RAC

Cache Fusion Introduction

SCN: Propagation and impact

Troubleshooting critical background processes

Roles of various background processes

Tuning background processes

Troubleshooting background processes using OS utilities

Clusterware

GI process introduction

Process startup

Resource, details, and dependencies etc

Log file analysis

ASM

Introduction to ASM

Disks, headers, disk groups, and files

Kfed to review disk headers

Pitfalls of ASM redundancy

ASM and multipathing

Asm files, db files, and aliases

Internals of ASM

SGA parameters

Asmcmd – examples, demos etc

Rebalancing issues – adding disks, removing disks, etc

ASM performance review

Cache Fusion internals

Resources, locks, and more

GC transfer examples such as single block reads, 2-way, and 3-way reads

Understanding cache fusion internals to effectively troubleshoot in RAC

Demos for GC transfer examples

Global Resource Directory

Learn about default block Mastering scheme and Dynamic Re-mastering concepts

Detect and troubleshoot DRM issues
How to avoid GRD freeze with effective DRM setup

GC performance analysis using performance counters

Introduction to GV\$ views
Troubleshooting GC performance using gv\$ views and performance statistics
Deep review about LMS internals using OS utilities
Review LMS effectiveness using performance counters
Understanding workload patterns using performance counters
Use GV\$ views to understand RAC performance
How to identify SQL statements suffering and causing GC performance issues?

Troubleshooting GC performance using RAC wait events.

Learn about various RAC wait events such as gc cr grants, gc cr block 2-way, 3-way
, gc cr block busy, gc cr block congested, log file sync, gcs log flush sync, gc buffer busy etc
Troubleshooting performance issues using RAC wait events.
Probing ASH data to uncover hidden performance issues
How to review AWR report for RAC specific issues?

Object tuning and troubleshooting

Issues with Node affinity
General partitioning for RAC
Concurrency issues with heavy insert workload
Hash partitioned indexes
Hash partitioned tables
Freelists, freelist groups, and ASSM
Reverse key indexes
Sequences, cache, and order
Library cache lock, library cache issues in RAC due to heavy DDL