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Oracle Database 11g: Performance Tuning

Introduction

This lesson introduces the Performance Tuning course objectives and agenda

Performance Tuning Overview

- Write appropriate tuning goals

- Apply the tuning methodology Identify common tuning problems

- Log a performance Service Request with Oracle Support

Basic Tuning Tools

- Monitoring tools overview

- Enterprise Manager V$ Views,

- Statistics and Metrics Wait Events

Using Statspack

- Install Statspack

- Create Statspack snapshots

- Generate Statspack reports

- Identify the major sections of the Statspack report

Using Automatic Workload Repository

- Managing the Automatic Workload Repository Create AWR

- Snapshots Generate AWR reports

- Create snapshot sets and compare

- periods Generate ADDM reports

- Generate ASH reports

- Real Time SQL Monitoring

Using AWR Based Tools

- Automatic Maintenance Tasks

- ADDM Performance Monitoring

- Active Session History

Defining Problems

- Defining the Problem

- Top SQL Reports

- ADDM Tuning Session

- Performance versus Business Requirements

- Performance Tuning Resources & Filing a Performance

  Service Request

Using Metrics and Alerts

- Metrics, Alerts, and Baselines

- Limitation of Base Statistics & Typical Delta Tools Benefits

  of Metrics

- Viewing Metric History Information & using EM to View Metric Details Statistic Histograms & Histogram Views

- Database Control Usage Model & Setting Thresholds

Using Baselines

- Comparative Performance Analysis with AWR Baselines Automatic Workload Repository Baselines

- Moving Window Baseline

- Baselines in Performance Page Settings & Baseline Templates AWR Baselines & Creating AWR Baselines.

- Managing Baselines with PL/SQL & Baseline Views Performance Monitoring and Baselines & Defining Alert Thresholds Using a Static Baseline

Identifying Problem SQL Statements

- SQL Statement Processing Phases & Role of the Oracle Optimizer Identifying Bad SQL, Real Time SQL Monitoring What Is an Execution Plan? Methods for Viewing Execution Plans & Uses of Execution Plans

- DBMS_XPLAN Package: Overview & EXPLAIN PLAN Command Reading an Execution Plan, Using the V$SQL_PLAN View & Querying the AWR SQL*Plus AUTOTRACE & SQL Trace Facility

- How to Use the SQL Trace Facility Generate an Optimizer Trace

- Reducing the Cost

Using SQL Performance Analyzer

- Real Application Testing: Overview & Use Cases SQL Performance

- Analyzer: Process & Capturing the SQL Workload Creating a SQL

- Performance Analyzer Task & SPA DBMS_SQLTUNE.CREATE_TUNING_TASK Comparison Report & Comparison Report SQL Detail.

SQL Performance Management

- Maintaining SQL Performance and Optimizer Statistics & Automated

- Maintenance Tasks Statistic Gathering Options & Setting Statistic Preferences

- Restore Statistics

- Deferred Statistics Publishing

- Automatic SQL Tuning SQL Tuning Advisor

- Using the SQL Access Advisor

- SQL Plan Management

Using Database Replay

- The Big Picture & System Architecture

- Capture & Replay Considerations

- Replay Options & Analysis

- Packages and Procedures

- Data Dictionary Views: Database Replay

Tuning the Shared Pool

- Shared Pool Architecture & Operation

- The Library Cache & Latch and Mutex

- Diagnostic Tools for Tuning the Shared

- Pool Avoiding Hard & Soft Parses

- Sizing the Shared Pool & Avoiding Fragmentation

- Data Dictionary Cache & SQL Query Result Cache

- Large Pool & Tuning the Large Pool.

Tuning the Buffer Cache

- Oracle Database Architecture: Buffer Cache Database

- Buffers Buffer Cache Tuning Goals and Techniques

- Buffer Cache Performance Symptoms & Solutions

- Automatically Tuned Multiblock Reads

Tuning PGA and Temporary Space

- SQL Memory Usage & Performance Impact SQL Memory Manager

- Configuring Automatic PGA Memory & Setting PGA_AGGREGATE_TARGET Initially

- Monitoring & Tuning SQL Memory Usage PGA Target Advice Statistics & Histograms

- Automatic PGA and Enterprise Manager & Automatic PGA and AWR Reports

- Temporary Tablespace Management: Overview & Monitoring Temporary Tablespace

- Temporary Tablespace Shrink & Tablespace Option for Creating Temporary Table

Automatic Memory Management

- Oracle Database Architecture, Dynamic SGA & Memory

- Advisories Increasing the Size of an SGA Component

- Behavior of Auto-Tuned & Manually Tuned SGA Parameters

- Using the V$PARAMETER View & Resizing SGA_TARGET Disabling

- Configuring & Monitoring Automatic Shared Memory Management (ASMM)

Tuning Segment Space Usage

- Space and Extent Management & Locally Managed Extents How Table Data Is Stored & Anatomy of a Database Block Minimize Block Visits

- The DB_BLOCK_SIZE Parameter

- Small & Large Block Size: Considerations

- Migration and Chaining, Shrinking Segments & Table Compression Tuning I/O

- I/O Architecture, File System Characteristics, I/O Modes & Direct I/O Enterprise Manager

- Stripe and Mirror Everything Using RAID

- I/O Diagnostics

- Database I/O Tuning

- What Is Automatic Storage Management?

* Syllabus Can be modified Based on your requirement

For More visit : https://www.traininginbangalore.com/performance-tuning-training-in-bangalore/

Assessments

- **Objective Assessments**

    -- Syntactical based

    -- Scenario based

    Note: At least 2 objective based assessments in each module

- **Hands On – Practical Assessments**

    -- Scenario based

    Note: At least 2 Hands on assessments in each module

Assignments

- **Hands On – Practical Assignments**

    Note: At least 4 Hands on assignments in each module

Tasks – Home Work

- **Regular tasks on each module**

    Note: Tasks are focused more to improve self learning

Resume Support & Interview Preparation

- **Work on one or two mini projects**

- **Discuss and convert the current working project into Performance Tuning Based project to add in resume & to explain Performance Tuning Based experience in interviews**