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COURSE OVERVIEWS

O1033 – Oracle 11g Performance Tuning

Course Objectives

The course is designed to introduce students to the full functional range of features and technologies within the Oracle 11g RDBMS needed to optimise and tune SQL statements. This is done through explanation of the different access methods involved and practical based teaching to control the optimal retrieval paths chosen by Oracle.

Where necessary, this involves explanation of Oracle's internal mechanisms, and the supporting hierarchical structures required by a Relational Database.

A practical hands-on course, Oracle 11g SQL Tuning is an essential skill for all Oracle 11g developers and users to ensure that they maximise the performance of the data retrieval components of their business systems.

Who Should Attend

Oracle Analyst/Programmers
Oracle Technicians
Oracle DBA's
Oracle Developers

Prerequisites

PC fundamentals
Oracle SQL
Oracle PL/SQL (recommended)

Duration

2 Days

Course Contents

Introduction
Cause of Performance Problems
Setting Performance Goals
The Tuning Cycle
ORACLE Architecture
Logical Storage Structures
Physical Structures
Memory Structures
The Shared Pool
Processes
Some Administration
Terminology

Design
Data Design Phase
Data Model Design
Online Transaction Processing
Decision Support Systems
Multi-purpose Applications

Optimizing SQL
SQL Processing
Physical Retrieval of Data
Full Table Scan versus Index Reads
Performance Diagnostic Tools
Explain Plan
SQL Trace Facility
TKPROF
Autotrace
Join Methods
Sort/Merge Joins
Nested Loops
Hash Joins
Hash Join Example Data Access Methods

Indexes
Basic Indexes
B-Tree Indexes
Bitmap Index
Comparing B-Tree and Bitmap Indexes
Reverse Key Index
Index-Organised Tables
Invisible index
Creating Monitoring and Maintaining Indexes.

Automatic SQL Tuning
Query Optimizer Modes
Types of Tuning Analysis
Automatic workload repository
SQL Tuning Advisor
SQL Tuning Sets
Top SQL
Identify high-load SQL
Dynamic Performance views

SQL Performance Analyzer
Describe SQL Performance Analyzer process and benefits
Use SQL Performance Analyzer

The Optimizer
The ORACLE Optimizer
SQL statement parsing
Initialisation parameters
Rule Based Optimizer
Cost Based Optimizer
Rule / Cost Comparisons
Choosing an Approach
Multiple WHERE Clauses
Using Indexes for Sorts
Multiple Table Joins
Disabling Indexes
Hints.
Sharing SQL Statements
Sharing Cursors
Adaptive Cursors Sharing
Other SQL Tuning Tips

Gathering Statistics
Analyzing Statistics
DBMS_STATS
Automatic Optimizer Statistics Collection
Histograms
How to Generate Histograms
Statistics

SQL Plan Management
SQL outlines
SQL profiles
SQL Access Advisor
Set up and use SQL plan baseline

Advanced Tuning
Star Queries
Materialized Views
Refreshing Views
Materialized View Logs
SQL Result Cache
Temporary Tables