Oracle Database 12c New Features Part 1: Manage the Multitenant Architecture

Course Summary

Description
The single most important new capability introduced with the Oracle 12c release of the database is that of a multitenant database configuration. With this technology, the Oracle database can be a full participant in a cloud computing-based application architecture. Even a traditional on premise systems architecture can be dynamically and dramatically transformed as a result of these features. Many traditional and new database features are enhanced or introduced when a multitenant database configuration is used.

Objectives
Participants will learn the following topics:

- Understanding the multitenant database architecture
- The business challenges, needs and objectives that are addressed with the architecture
- Creating and connecting to container databases and pluggable databases
- Common and local users along with user security management
- Creating container databases, provisioning pluggable databases and managing multiple database tenants
- Migrating traditional single tenant databases to pluggable databases.
- Managing temporary and permanent storage within container and pluggable databases
- Multitenant backup and recovery strategies, including complete and incomplete recovery at either the container or the pluggable database level, Flashback Database and other sophisticated recovery operations.
- SQL, RMAN and Enterprise Manager Cloud Control support for multiple database tenants
- Resource management and container caging

Topics
- Fundamentals: The Multitenant Database Architecture
- Fundamentals: Creating & Connecting To Multitenant Databases
- Fundamentals: Multitenant Database Security Management
- Provisioning: Provisioning pDBs From pdb$seed
- Provisioning: Additional pDB Provisioning
- Administration: Administering Multitenant Databases
- Administration: Multitenant Storage Management
- Administration: Multitenant Database Backup & Recovery
- Administration: Multitenant Resource Management
- Implementation specialists
- Data center support engineers
- Chief Information Officers (CIO) and other information technology (IT)

Audience
- Database administrators
- Application designers and developers
- Web server administrators
- System administrators
- Implementation specialists
- Data center support engineers
- Chief Information Officers (CIO) and other information technology (IT)

Prerequisites
- Oracle Database 12c: SQL I & II
- Oracle Database 12c: PL/SQL I & II
- Oracle Database 12c: Install & Upgrade Workshop
- Oracle Database 12c: Architecture & Internals
- Oracle Database 12c: Administration Workshop
- Oracle Database 12c: Administration Workshop II - Advanced
- Oracle Database 12c: Resource Manager & Scheduler

Duration
Two to three days

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Course Outline

I. The Multitenant Database Architecture
   A. Cloud Computing Principles
   B. Peering into the Architecture
   C. Multitenant Database Instance
   D. Multitenant Storage Architecture
   E. Multitenant Data Dictionary
   F. Benefits of the Architecture
   G. Challenges of the Architecture

II. Fundamentals: Creating & Connecting To Multitenant Databases
   A. About cDB Capacity Planning
   B. cDB & pDB Creation
   C. Using Oracle Installer
   D. Using DBCA
   E. cDB & pDB Connections
   F. Using SQL*Plus
   G. EM Cloud Control

III. Fundamentals: Multitenant Database Security Management
   A. Multitenant Security, Model
   B. Multitenant Privileges & Roles
   C. Common Users
   D. Local Users
   E. Common & Local Roles & Privileges
   F. Commonly & Locally Defined
   G. Commonly & Locally Granted
   H. Common & Local Profiles
   I. Common & Local Dictionary Access
   J. Multitenant Unified Auditing
   K. Local Audit Policies
   L. Querying The Unified Audit Trail
   M. Common Audit Policies
   N. Auditing Management With EM CC

IV. Provisioning: Provisioning pDBs From pdb$seed
    A. Provision & Decommission pDBs
    B. EM CC Provisioning Prerequisites
    C. pDB File Location Prerequisites
    D. Provision A pDB From pdb$seed
    E. Provision Using SQL
    F. Provision Using EM CC
    G. Post Provisioning Checklist
    H. Drop A pDB
    I. Querying cDB & pDB Metadata

V. Provisioning: Additional pDB Provisioning
    A. Clone A pDB
    B. Unplug & Plug-In A pDB
    C. Migrate A Non-cDB To A pDB
    D. pDB Provisioning Using EM CC
    E. pDB Provisioning Using DBCA

VI. Administration: Administering Multitenant Databases
    A. About Multitenant Administration
    B. cDB Administration
    C. cdb$root Administration
    D. pDB Administration

VII. Administration: Multitenant Storage Management
     A. Manage Permanent Tablespaces
     B. Manage Temporary Tablespaces

VIII. Administration: Multitenant Backup & Recovery
      A. Devising Multitenant Recovery Plan
      B. RMAN Multitenant Usage
      C. RMAN Multitenant Backup
      D. EM CC Multitenant Backup
      E. RMAN Multitenant Recovery
      F. Complete Recovery
      G. Incomplete cDB / pDB Point-in-time Recovery (PITR)
      H. Incomplete Table Point-in-time Recovery (PITR)
      I. Multitenant Flashback Database
      J. EM CC Multitenant Recovery
      K. Multitenant Database Duplication
      L. cDB Duplication
      M. pDB Duplication

IX. Administration: Multitenant Resource Management
    A. About Resource Management
    B. cDB Resource Plans & Directives
    C. pDB Resource Plans & Directives