

# ORACLE 12c Complete RAC

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## COURSE CONTENT

### Introduction to Grid Infrastructure and Clusterware

- Explain the principles and purposes of clusters
- Describe cluster hardware best practices
- Describe the Oracle Clusterware architecture
- Describe how Grid Plug and Play affects Clusterware

### Oracle Clusterware Architecture

- Clusterware Architecture & components
- VIP's, Scan Listener & GNS concepts
- Clusterware background processes
- Clusterware Startup details

### Flex Clusters

- Flex Cluster architecture and components
- The effect of node failure in a Flex Cluster

### Grid Infrastructure Preinstallation Tasks

#### Grid Infrastructure Installation

- Install Grid Infrastructure
- Verify the installation
- Configure Automatic Storage Management (ASM) disk groups

#### Traditional Clusterware Management

- Demonstrate your Clusterware management proficiency
- Demonstrate Oracle Cluster Registry (OCR) backup and recovery techniques
- Manage network settings
- Describe the scope and capabilities of what-if command evaluation

#### Policy-Based Cluster Management

- Describe the architecture and components of policy-based cluster management
- Administer server categorization
- Administer a policy set
- Activate a policy

### **Troubleshooting Oracle Clusterware**

- Locate the Oracle Clusterware log files
- Gather all log files by using diagcollection.pl
- Enable resource debugging
- Enable component-level debugging
- Enable tracing for Java-based tools
- Troubleshoot the Oracle Cluster Registry (OCR) file

### **ASM Overview & Architecture**

- Automatic Storage Management (ASM) architecture
- Components of ASM

### **Flex ASM**

- Describe the architecture and components of Flex ASM
- Install and configure Flex ASM
- Administer Flex ASM

### **Administering ASM Instances**

- Explain and apply Automatic Storage Management (ASM) initialization parameters
- Manage ASM instances and associated processes
- Monitor ASM

### **Administering ASM Disk Groups**

- Create and delete Automatic Storage Management (ASM) disk groups
- Set the attributes of an existing ASM disk group
- Perform ongoing maintenance tasks on ASM disk groups
- Explain key performance and scalability considerations for ASM disk groups

### **RAC Databases Overview & Architecture**

- Describe the benefits of Oracle RAC
- Explain the necessity of global resources
- Describe global cache coordination

### **Global Resource Management Concepts**

- The need for global concurrency control
- Global Resource Directory
- How global resources are managed
- RAC global resource access coordination
- Global enqueue and instance lock management
- Global buffer cache management

### **Installing and Configuring Oracle RAC**

- Install the Oracle database software

- Create a cluster database
- Perform post-database-creation tasks
- Convert a single-instance Oracle database to RAC

#### **Oracle RAC Administration**

- Use Enterprise Manager Cluster Database pages
- Define redo log files in a RAC environment
- Define undo tablespaces in a RAC environment
- Start and stop RAC databases and instances
- Modify initialization parameters in a RAC environment

#### **Managing Backup and Recovery for RAC**

- The RAC database to use ARCHIVELOG mode and the fast recovery area
- RMAN for the RAC environment

#### **RAC Database Monitoring and Tuning**

- Determine RAC-specific tuning components
- Determine RAC-specific wait events, global enqueues, and system statistics
- Implement the most common RAC tuning tips
- Use the Cluster Database Performance pages
- Use the Automatic Workload Repository (AWR) in RAC
- Use Automatic Database Diagnostic Monitor (ADDM) in RAC

#### **Managing High Availability of Services**

- Configure and manage services in a RAC environment
- Use services with client applications
- Use services with the Database Resource Manager
- Use services with the Scheduler
- Configure services aggregation and tracing

#### **Making Applications Highly Available with Oracle Clusterware**

- Describe the high-availability components of Oracle Clusterware
- Contrast policy-managed and administration-managed databases
- Create an application Virtual IP (VIP)
- Manage application resources

#### **High Availability for Connections and Applications**

- Configure client-side connect-time load balancing
- Configure client-side connect-time failover
- Configure server-side connect-time load balancing
- Use the Load Balancing Advisory (LBA)
- Describe the benefits of Fast Application Notification (FAN)
- Configure server-side callouts
- Configure the server- and client-side ONS
- Configure Transparent Application Failover (TAF)

### **Application Continuity and Transaction Guard**

- Describe the purpose of Transaction Guard and Application Continuity
- Describe the key concepts relating to Application Continuity
- Describe the side effects and restrictions relating to Application Continuity
- Describe the requirements for developing applications that leverage Application Continuity
- Configure Application Continuity

### **Managing Cluster Nodes**

- Perform the prerequisite steps to extend a cluster
- Use addNode.sh to add a node to a cluster
- Delete a node from a cluster

### **Upgrading, Patching Grid Infrastructure and Oracle RAC**

- Describe the types of patches and upgrades available
- Plan for rolling patches and rolling upgrades
- Compare software versions with the active version
- Install a patchset with the Oracle Universal Installer (OUI) utility
- Install a patch with the opatch utility

### **Oracle RAC One Node**

- Perform an online database migration
- Add an Oracle RAC One Node Database to an existing Cluster
- Convert an Oracle RAC One Node database to a RAC database
- Use DBCA to convert a single instance database to a RAC One Node database

### **Multitenant Architecture and RAC**

- Describe the multitenant architecture in a non-RAC environment
- Describe the multitenant architecture in a RAC environment
- Create a RAC multitenant container database (CDB)
- Create a pluggable database (PDB) in a RAC CDB
- Use default CDB and PDB services
- Create PDB services to associate PDB services with server pools
- Drop a pluggable database (PDB) from a RAC CDB