Nuvola
Consulting Group

Why to upgrade to 12c

By Deiby Gómez

OTN Tour 2016 Uruguay, Perú, Argentina, Guatemala, Colombia

DEIBY GOMEZ

- Oracle ACE *since 2013*
- Oracle ACE Director *since 2015*
- Presidente del Grupo de Usuarios de Oracle de Guatemala
- Speaker en OTN '13, '14, '15, '16; Oracle Open World USA, Brasil; Collaborate.
- Director of Support Quality en Latin American Oracle Users Group Community (LAOUC)
- Co-fundador de OraWorld Team *(Suiza, India, Brasil, Francia, Guatemala) @oraworld_team*
- Oracle Certified Master 11g **(OCM 11g)**
- Oracle Certified Master 12c **(OCM 12c)**
- SELECT Journal Editor's Choice Award 2016 *(Las Vegas, IOUG)*

GOUG

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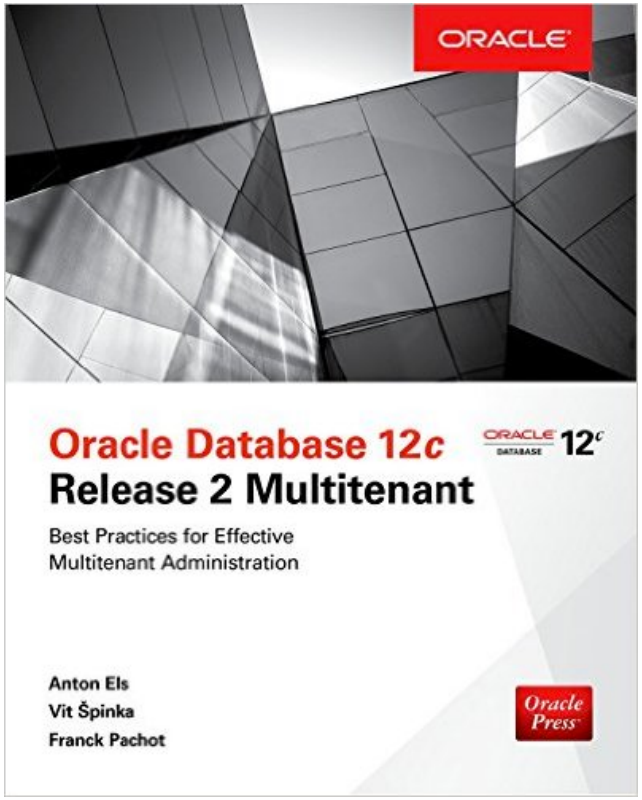

Pre-order in Amazon!

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NUVOLA, S.A.

Nuvola Consulting Group

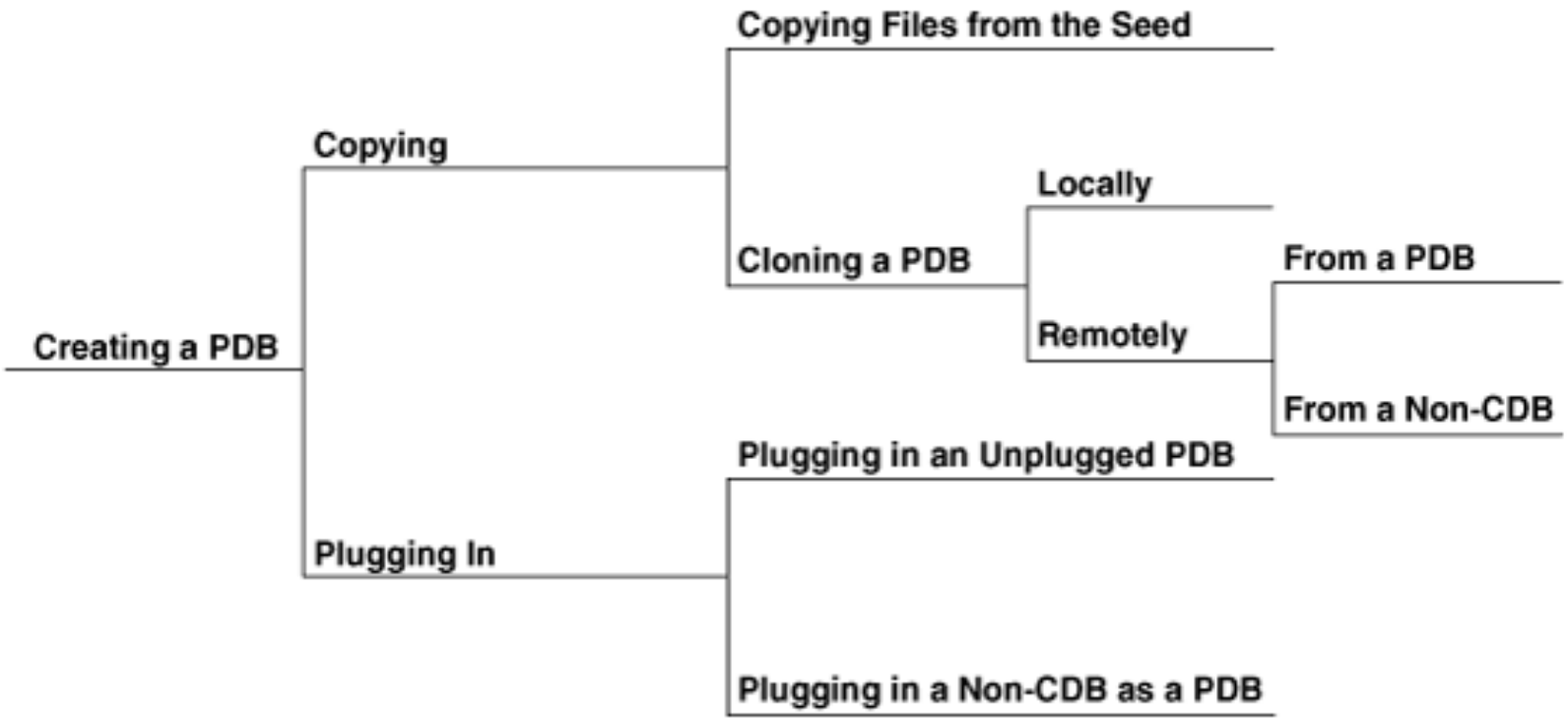
www.nuvolacg.com

- Certificaciones del equipo:
  - Oracle Linux Certified Implementation Specialist
  - Oracle Database 11g Administrator Certified Professional **(OCP 11g)**
  - Oracle Database 12c Administrator Certified Professional **(OCP 12c)**
  - Oracle Database 11g Administrator Certified Master **(OCM 11g)**
  - Oracle Database 12c Administrator Certified Master **(OCM 12c**)
  - Oracle Service Oriented Architecture Infrastructure Implementation Certified Expert
  - Oracle Certified Expert, Oracle **Exadata** X3 and X4 Administrator
  - Oracle **RAC** 11g and Grid Infraestructure Administrator
  - Oracle Real Application Clusters 12c Certified Implementation Specialist
- Soporte y Consultoría:
  - Bases de Datos Oracle.
    - Upgrades & Migraciones
  - Exadata
  - Oracle Cloud
  - Middleware
- Cursos de Administración de Productos Oracle

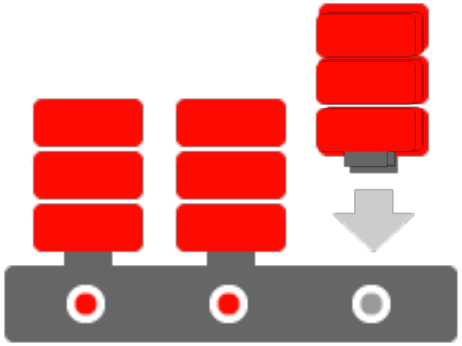
¿Qué beneficios obtienes?

Provisioning

- Sub-set Cloning
- No Data Cloning



Provisioning



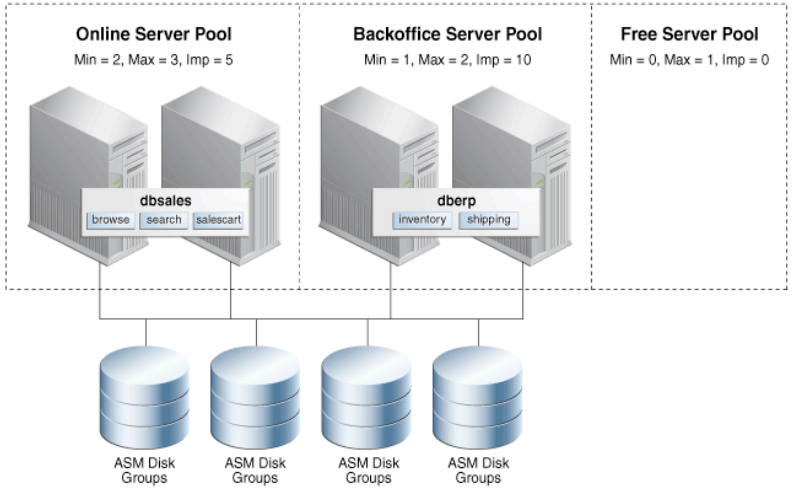
Perfect for cloud

- Provide Databases as a Services
- Provide Schema as a Services
- Available in Amazon RDS
- Available in Oracle Public Cloud
- In-Memory Processing (useful when **scaling memory up**)
- In-Memory Database (useful when **scaling memory up**)
- Full database caching (useful when **scaling memory up**)
- Perfect for Data **Storage Tiering** matches with Cloud Storage Costs
- Security

Policy-Managed Databases

Advantages:

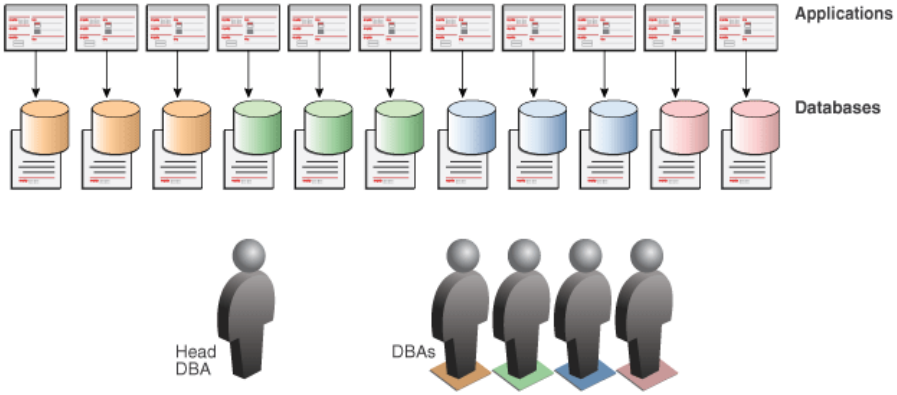
- Server Failure Tolerance
- Automatic Server relocation
- Cluster Consolidation
- Cluster Scalability (Horizontally and Vertically)

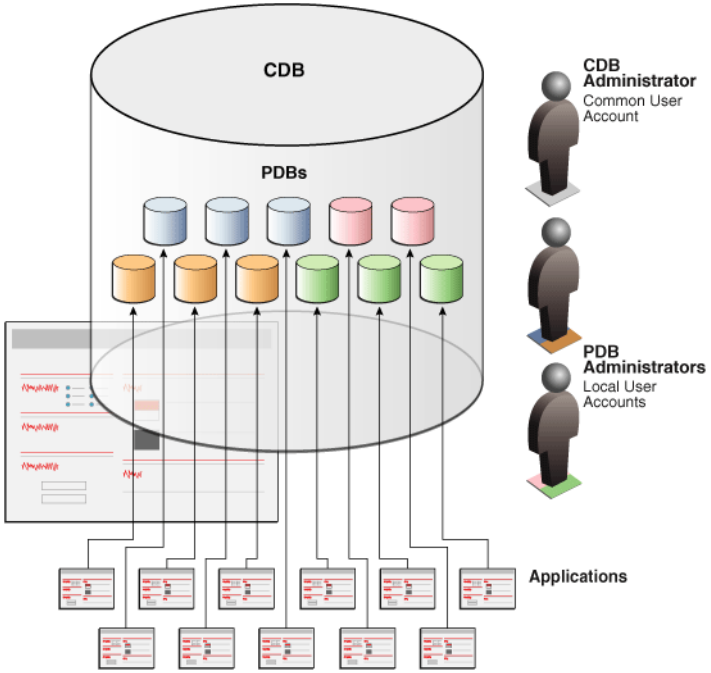


Enhanced in 12c

- More Server Attributes
  - Server Categorization
  - Policy sets
  - Server Allocation based on:
    - CPU
    - Memory
    - Node Role
- Library of Policy Definitions
- Quality of Service (QoS) unified with Policy-based Cluster Management

Consolidation

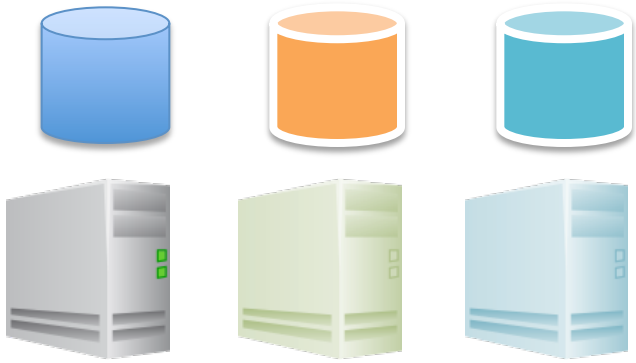


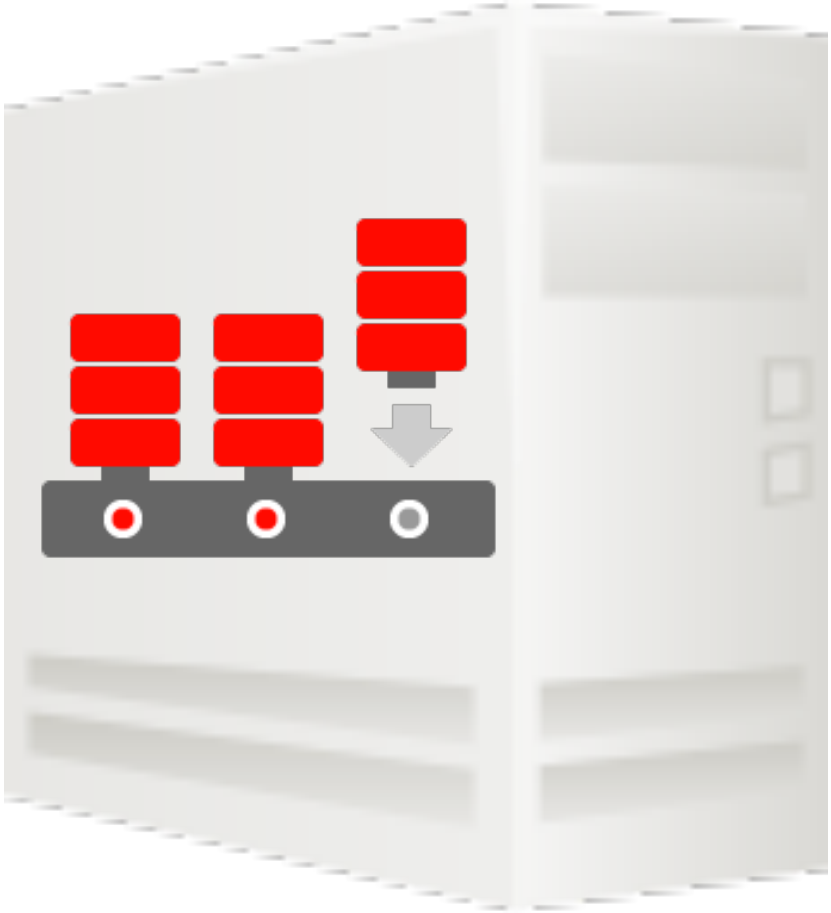


- **Database Consolidation**

**duplicating Memory and Processes

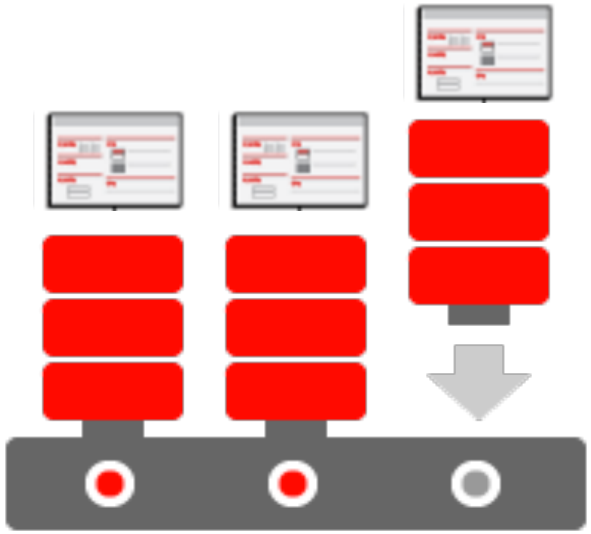
Consolidation





- Database Consolidation
- **Server Consolidation**
  - Instance Caging
  - Database Resource Manager

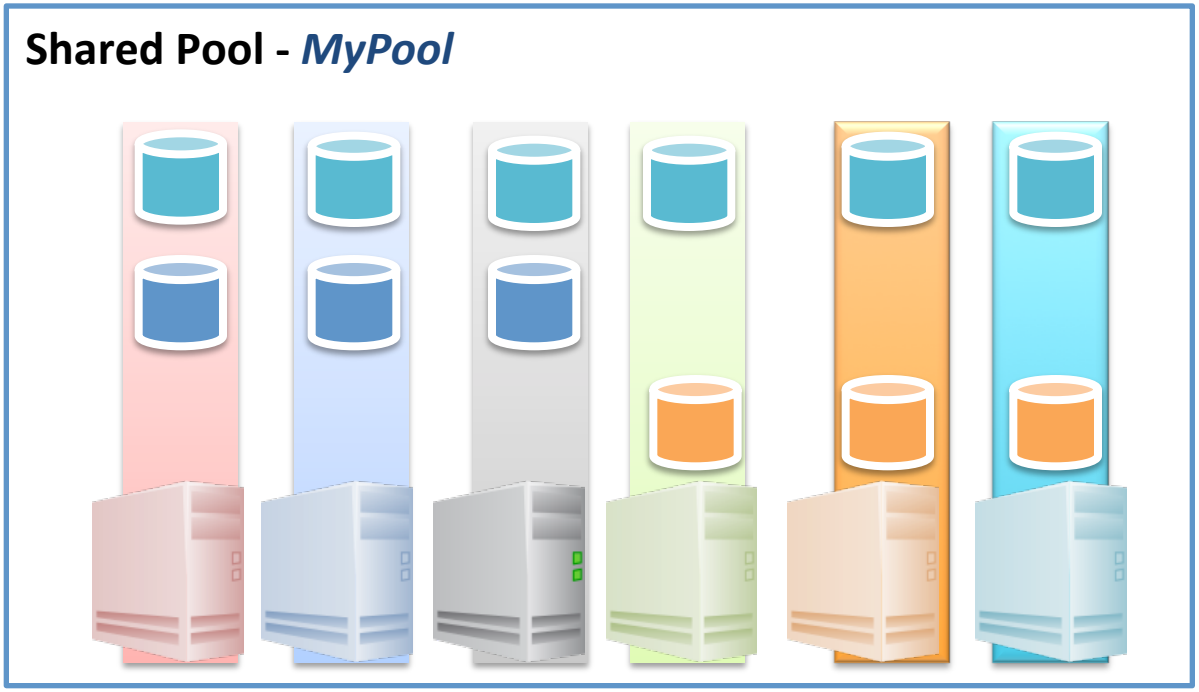
Consolidation



- Database Consolidation
- Server Consolidation
- **Schema Consolidation collisions**

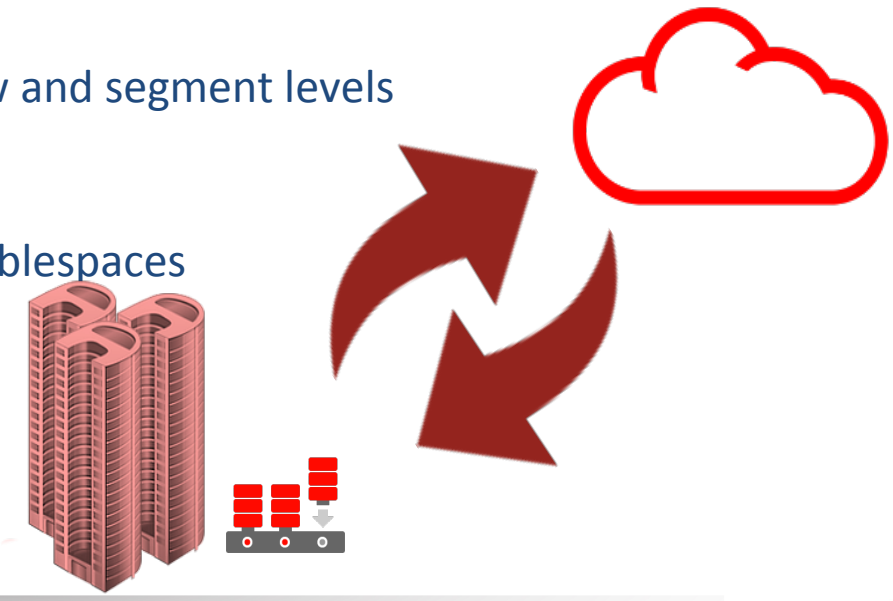
Consolidation

- Database Consolidation
- Server Consolidation
- Schema Consolidation
- **Cluster Consolidation**



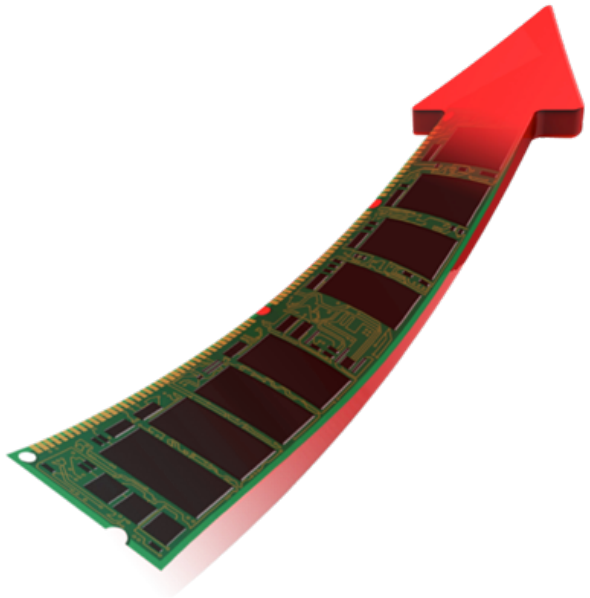
Data movement

- Plug-out there, Plug-in here
- Move data across Containers with Different versions
- From Cloud to On-Premise
- From On-Premise to Cloud
- Duplicate now uses Backupsets
- Move Datafiles online
- Online Move Partition
- Information Lifecycle Management (ILM)
  - Heat Map
  - Query timestamps at the row and segment levels
- Full Transportable Database
  - The Best of Data Pump
  - The best of Transportable Tablespaces
  - cross-platform
  - cross-Endianness
  - cross-version



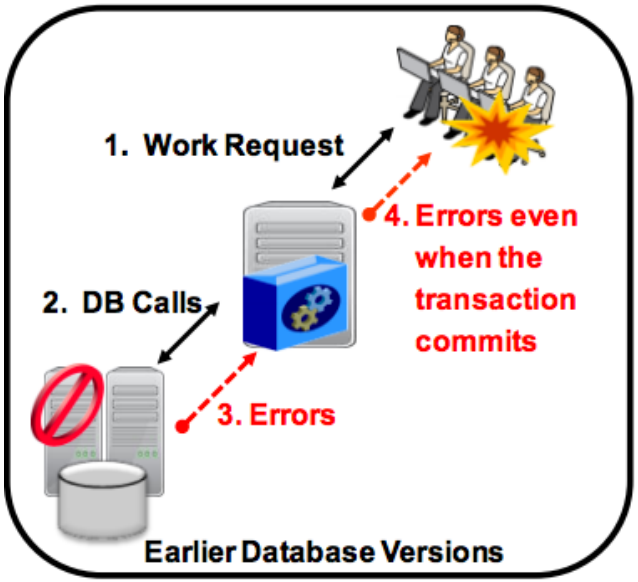
In-memory Features

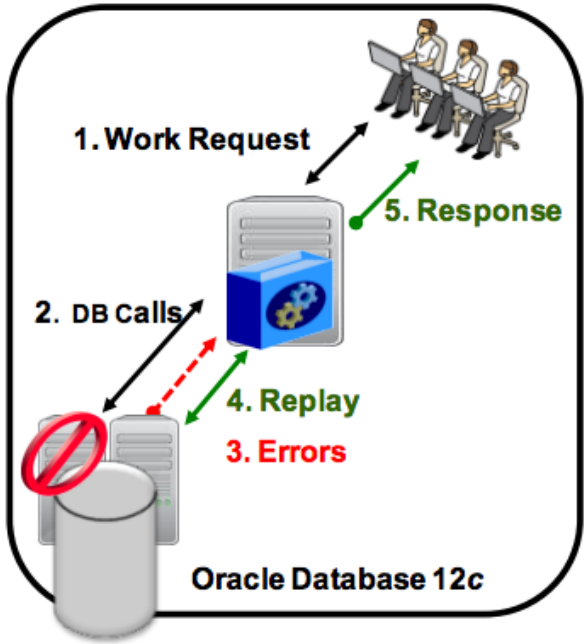
- In-Memory Column Store
- In-Memory Storage Index
- In-Memory Joins
  - Bloom Filters
- In-Memory Scan
- In-memory aggregation
- Full Database Caching
- Big Table Caching



Application continuity

- Masks outages from end users and applications
- The application can continue where that database session left off
- It rebuilds the Session
  - session states
  - cursors
  - Variable
- It tries to re-execute it





FLEX ASM

- It Provides High Availability
- Configurable to meet our needs
- It doesn't depend of Flex Cluster
- Easy to Configure
- Dedicated ASM Network

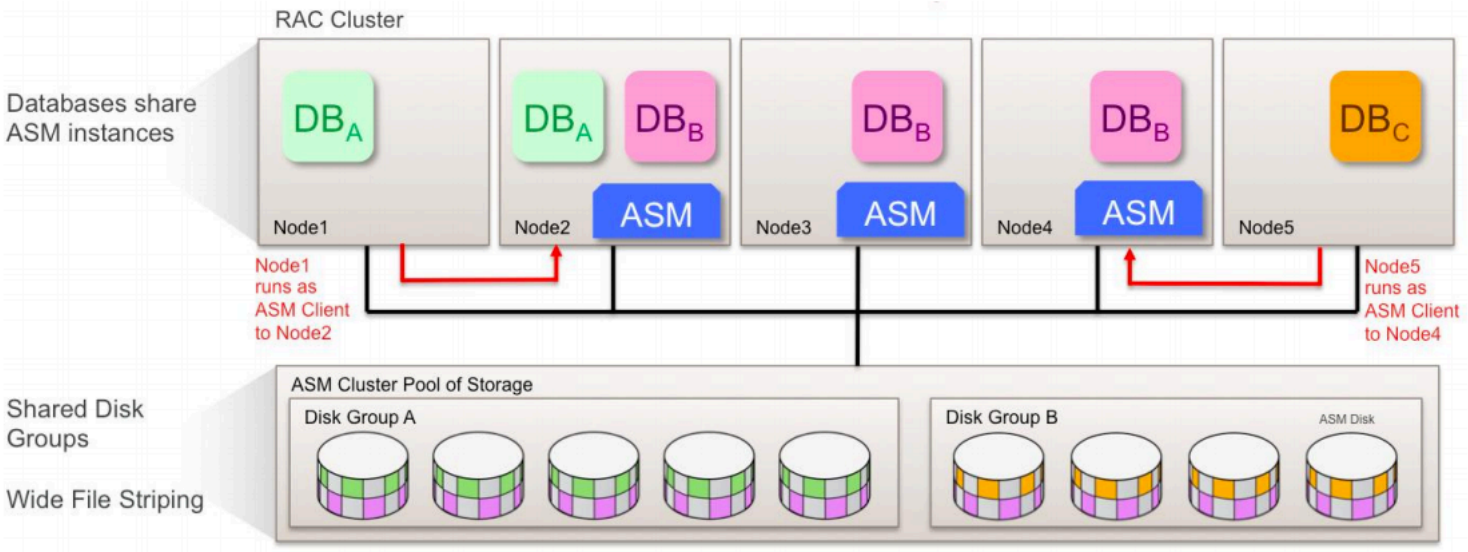
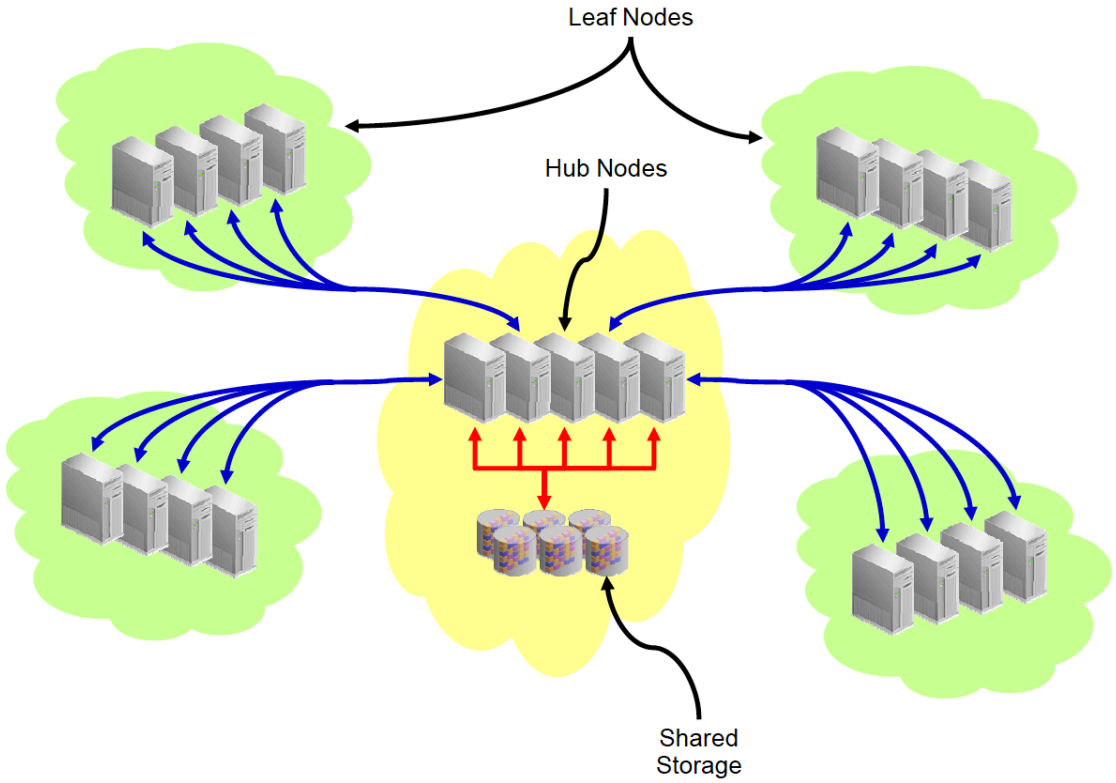


Figure 4: Flex ASM

FLEX CLUSTER

- Node Scalability
- Less Interconnect Traffic
- Automatic Leaf Nodes relocation
- Node Eviction decreased



Easy Upgrade & Migration

- Plug out from old Version of Container Database
- Plug into new Version of Container Database
  - Copy
  - Move
  - No-Copy
  - By Clone
- Upgrade process by Phases
- Pre-Upgrade Script
- Parallel Upgrade (up to 40% faster)
- Upgrade all in one
- Upgrade with Restore Point
- And many good upgrade features coming in 12cR2!

Predictive Tasks- What-if command

crsctl eval

- Adding, deleting and modifying server pools
- Adding servers to and deleting servers from a server pool
- Relocating a server from one server pool to another
- Removing a server from the cluster
- Enabling a specific management policy

srvctl -eval

- Adding, starting, stopping, modifying and relocating databases
- Adding, starting, stopping, modifying and relocating services
- Adding, modifying and removing server pools
- Relocating a server from one server pool to another

```
$ crsctl eval start resource resource1 -n server1
Stage Group 1:
--------------------------------------------------------------------------------
Stage Number        Required        Action
--------------------------------------------------------------------------------
       1               Y            Resource 'resource1' (1/1) will be in state
                                    [ONLINE] on server [server1]
                       N            Resource 'resource2' (1/1) will be in state
                                    [ONLINE | INTERMEDIATE] on server [server1]
       2               Y            Resource 'resource3' (1/1) will be in state
                                    [ONLINE | INTERMEDIATE] on server [server1]
```

Scalability

- Node Scalability– **Flex Cluster**
- Cluster Scalability– **Server Pools**
- Database Scalability– **Multitenant**
- Workload Scalability– **Oracle Cloud**
- Workload Scalability– **In Memory**

HIGH AVAILABILITY

- Session failure tolerance - **Application Continuity**
- ASM instance failure tolerance– **Flex ASM**
- Server failure tolerance – **Server Pool**
- Service failure tolerance – **Server Pool**
- Database Instance failure tolerance – **Server Pools**
- Predictive Tasks **– What if**

Cost-saving

- Less time-to market – **Provisioning**
- Less Storage Costs **– ILM**
- Less Storage Costs **- Compression**
- Less Servers by consolidation **– Multitenant**
- Less Memory and CPU wasted by consolidation – **Multitenant**
- Less time to process (times is money!) **– In-Memory**
- Less DBA billable time – Multitenant **(Many database as one)**
- Less Downtime **– Online features, faster upgrade.**
- Less money on creating TEST, QA, DEV envs **- Provisioning**

Others

- Oracle Support 11gR2 Finished January, 2016
- Oracle Support 11gR2 Extended will end on 2018
- Non-Container is being deprecated
- LMS and Cloud offers

Oracle Database Releases

Release	GA Date	Premier Support Ends	Extended Support Ends	Sustaining Support Ends
12.1	Jun 2013	Jul 2018	Jul 2021	Indefinite
11.2	Sep 2009	Jan 2015	Jan 2018	Indefinite
11.1	Aug 2007	Aug 2012	Aug 2015	Indefinite
10.2	Jul 2005	Jul 2010	Jul 2013	Indefinite
10.1	Jan 2004	Jan 2009	Jan 2012	Indefinite
9.2	Jul 2002	Jul 2007	Jul 2010	Indefinite
8.1.7	Sep 2000	Dec 2004	Dec 2006	Indefinite

Why to upgrade?

+ Provisioning
+ Perfect for cloud
+ Scalability
+ Consolidation
+ Data movement
+ In-memory Processing
+ Application continuity
+ High Availability
+ Easy Upgrade & Migration
+ Cost-saving
+ Support predictive tasks
+ A lot of companies are already there

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