

Automating Oracle RAC Deployment and Implementing MegaGrid Using Oracle EM Provisioning Pack



Kai Yu
Sr. System Engineer Consultant
Dell Inc

Agenda

- ❖ **Introduction**
- ❖ **Automate RAC Deployment**
- ❖ **Easy Scale up and Down RAC**
- ❖ **MegaGrid Implementation POC**
- ❖ **QA**



Introduction

Kai Yu

**Senior System Engineer Consultant
Dell Database Solutions Engineering**

Specialized in architecting and engineering solutions on Oracle RAC and Oracle E-Business Suite

Dell Oracle Database Solutions Engineering: Integrating, validating, bundling, and sustaining Dell's Oracle DB and RAC solutions, based on Dell PE servers, and Dell | EMC storage.



Automate RAC Deployment

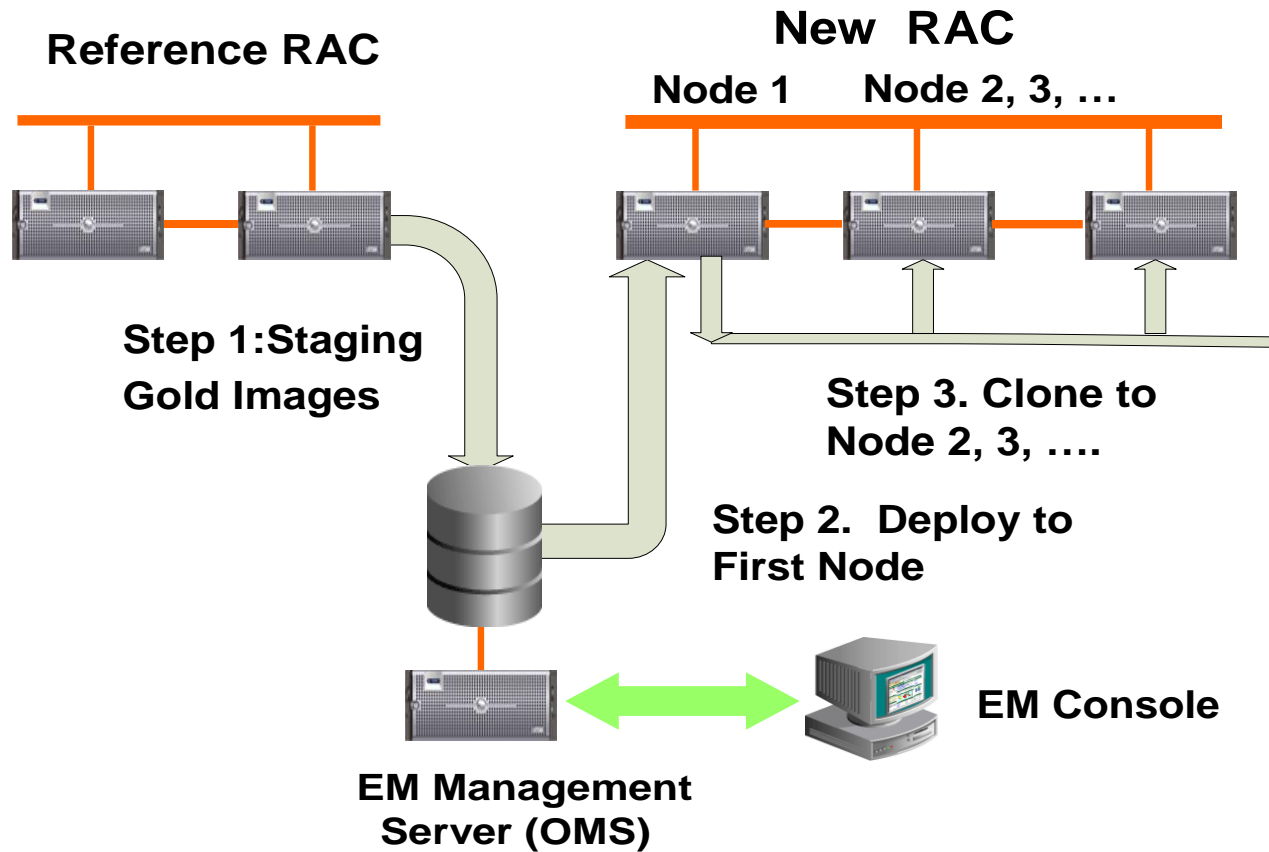
- **New Challenges for Deployment and Provisioning**
 - Quick deployment of Oracle service at low cost
 - Deploy using tested and patched gold images
 - An ability to response demands in short order
- **EM Grid Control Provisioning Pack**
 - Deployment procedures for provisioning and patching
 - A Gold Images Based Deployment Method:
 - Provision RAC from gold images
 - Gold images are staged from a tested and patched reference RAC
 - Provide the ability to simply scale up and scale down the cluster

Automate RAC Deployment

- **A Gold Image Based Deployment Method**
 - **Software Images: Oracle DB, Clusterware, OS and others third part softwares**
 - **Software Library : a repository to store certified software images**
 - **Out-box deployment procedures:**
 - **Best practices to accomplish provisioning and patching**
 - **A set of steps that are orchestrated by EM**
 - **Licensed under EM provisioning pack**
 - **Provisioning procedures**
 - **Patching procedures**
 - **Can be copied and then customized**
 - **RAC deployment: CRS and RAC Software**

Automate RAC Deployment

Gold Image Deployment for Clusterware



Automate RAC Deployment

- Upload the Software Images
 - Create the software Library
 - Create the components from a reference RAC

Oracle Enterprise Manager (KAI) - Create Component: Configure - Mozilla

File Edit View Go Bookmarks Tools Window Help

http://emdemo.us.dell.com:4889/em/console/provision/components/create

Back Forward Reload Stop Search Print

Home Bookmarks Red Hat, Inc. Red Hat Network Support Shop Products Training

General Provisioning

Describe Configure Review


Create Component: Configure

Cancel Save Back Step 2 of 3 Next

Parent **Components**

Type **Oracle Clusterware Clone**

Configure the new Component.

* Host 
The fully qualified domain name of the host where the Oracle home is located.

* Home Location
Click the image next to the host field to select an Oracle Home.

* Username

* Password
Enter the username and password for the for the host.

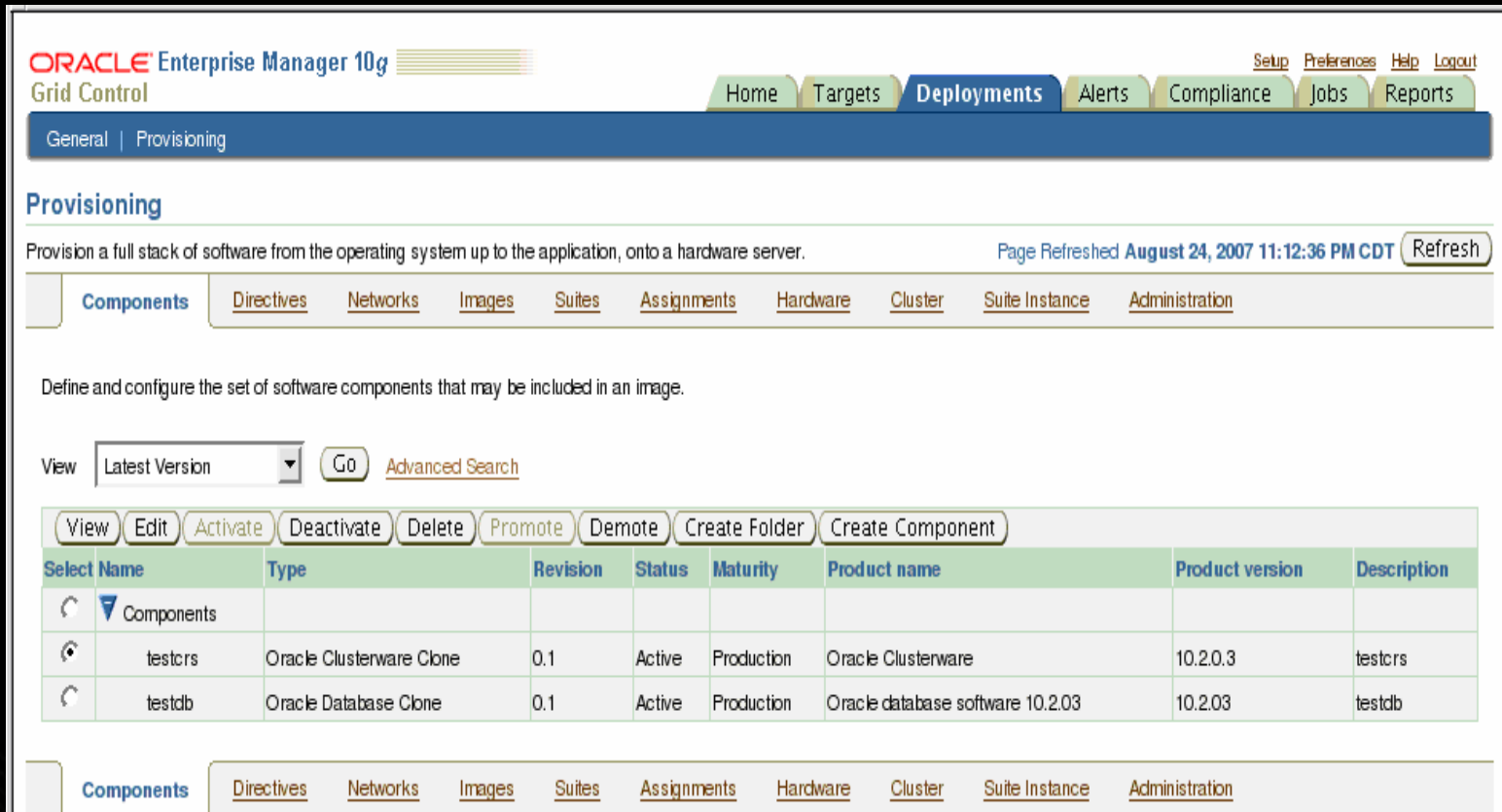
* Working Directory
Enter a working directory on the host in which you have permissions to write.

Files to Exclude
Enter a comma-separated list of files to exclude (for example *.dbf;.log).



Automate RAC Deployment

- Upload the Software Images
 - CRS software image
 - Oracle RAC software images



The screenshot shows the Oracle Enterprise Manager 10g Grid Control interface. The top navigation bar includes links for Home, Targets, Deployments, Alerts, Compliance, Jobs, and Reports. The main content area is titled "Provisioning" and contains a table of software components. The table has columns for Name, Type, Revision, Status, Maturity, Product name, Product version, and Description. Two components are listed: "testcrs" (Oracle Clusterware Clone) and "testdb" (Oracle Database Clone). The interface also includes a search bar and various action buttons like View, Edit, Activate, Deactivate, Delete, Promote, Demote, Create Folder, and Create Component.

ORACLE Enterprise Manager 10g
Grid Control

Setup Preferences Help Logout

Home Targets Deployments Alerts Compliance Jobs Reports

General | Provisioning

Provisioning

Provision a full stack of software from the operating system up to the application, onto a hardware server. Page Refreshed August 24, 2007 11:12:36 PM CDT Refresh

Components Directives Networks Images Suites Assignments Hardware Cluster Suite Instance Administration

Define and configure the set of software components that may be included in an image.

View Latest Version Go Advanced Search

View Edit Activate Deactivate Delete Promote Demote Create Folder Create Component

Select	Name	Type	Revision	Status	Maturity	Product name	Product version	Description
⊖	Components							
⊕	testcrs	Oracle Clusterware Clone	0.1	Active	Production	Oracle Clusterware	10.2.0.3	testcrs
⊕	testdb	Oracle Database Clone	0.1	Active	Production	Oracle database software 10.2.03	10.2.03	testdb

Components Directives Networks Images Suites Assignments Hardware Cluster Suite Instance Administration



Automate RAC Deployment

- **Deploy the First Node of a New Cluster**
 - Install Oracle enterprise agent on all nodes
 - Clone the CRS to node 1 and establish the RAC

Cluster Cloning Modes

A clustered home may be cloned to either form a new cluster or to extend the source cluster. If extending the source cluster, the Oracle home location and Oracle home name will be taken to be the same as the source.

Clone to a new cluster

New Oracle Home Location:

New Oracle Home Name:

New Cluster Name:

OCR Location:

Voting Disk Location:

Extend the source cluster

Source Oracle Home Location:

Source Oracle Home Name:

Source Host:

Existing Member Nodes:

Source Cluster Name:

Destination Node Specification

Enter the destination hosts and the respective node names.

Host	Public Node Name	Private Node Name	VIP
<input type="text" value="k66850n1.us.dell.com"/>	<input type="text" value="k66850n1"/>	<input type="text" value="k66850n1-pri"/>	<input type="text" value="k66850n1-vip"/>



Automate RAC Deployment

- Deploy the First Node of a New Cluster
 - Specify the pre and post clone actions.
 - Setup “sudo” for OS user to run root.sh and “pre” and “post” cloning scripts.

The screenshot shows the Oracle Enterprise Manager 10g Grid Control interface. The top navigation bar includes 'Home', 'Targets', 'Deployments', 'Alerts', 'Compliance', 'Jobs', and 'Reports'. The 'Deployments' tab is active, and the 'Pre/Post Scripts' step is highlighted in the process flow. The main content area is titled 'Clone Oracle Home: Pre/Post Scripts' and contains the following sections:

Clone Oracle Home: Pre/Post Scripts
These steps will help customizing the cloning operation.
These target properties can be used in the following parameters.

Name	Description
%emd_root%	Target Agent Home Location
%perlbin%	Location of perl binary used by Agent
%oracle_home%	Oracle Home Location
%targetName%	Host

Pre-Cloning Operation
This script or host command will be executed before the cloning operation on each destination.

Execute
Script/Command:
 Use sudo

Running root.sh
This script or host command will be executed, with sudo privileges, after the cloning operation on each destination. For this, the username/password supplied in the previous page must have sudo privileges.

Execute
 If you do not run root.sh, some functionality may not be available. If you do not run it as part of the clone operation, any user with sudo privileges can manually run it later.
Script/Command:

Post-Cloning Operation
This script or host command will be executed after the cloning operation on each destination.

Execute
Script/Command:
 Use sudo

At the bottom of the page, there are navigation buttons: 'Cancel', 'Back', 'Step 5 of 7', and 'Next'. The footer contains copyright information: 'Copyright © 1996, 2007, Oracle. All rights reserved. Oracle, JD Edwards, PeopleSoft, and Reltek are registered trademarks of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.'



Automate RAC Deployment

- Deploy the First Node of a New Cluster
 - Deployment status check

Job Activity | Job Library

Job Run: CLONE CRS HOME. CLUSTER NAME: CRS 8/26/07 11:58 AM

Page Refreshed Aug 26, 2007 12:19:25 PM CDT [Delete Run](#) [Edit](#) [View Definition](#)

Summary

Status	Succeeded	Type	Clone Oracle Clusterware Home
Scheduled	Aug 26, 2007 11:58:09 AM (UTC-05:00)	Owner	SYSMAN
Started	Aug 26, 2007 11:58:09 AM (UTC-05:00)	Description	Clone software library to destinations: /opt/oracle/oracle/product/10.2.0/crs (10gCRSHome) on k66850n1.us.dell.com
Ended	Aug 26, 2007 12:06:22 PM (UTC-05:00)		
Elapsed Time	493 seconds		
Notification	No		

Clone Oracle Home Results

Host	Oracle Home Location (Name)	Status	Telnet
k66850n1.us.dell.com	/opt/oracle/oracle/product/10.2.0/crs (10gCRSHome)	✓ Succeeded	telnet

Targets:

Status:

[Expand All](#) | [Collapse All](#)

Name	Targets	Status	Started	Ended	Elapsed Time (seconds)
Execution: k66850n1.us.dell.com	k66850n1.us.dell.com	Succeeded	Aug 26, 2007 11:58:09 AM (UTC-05:00)	Aug 26, 2007 12:06:22 PM (UTC-05:00)	493
Task: Pre-requisites	k66850n1.us.dell.com	Succeeded	Aug 26, 2007 11:58:11 AM (UTC-05:00)	Aug 26, 2007 11:58:25 AM (UTC-05:00)	14
Task: Copy From SwLib	k66850n1.us.dell.com	Succeeded	Aug 26, 2007 11:58:25 AM (UTC-05:00)	Aug 26, 2007 12:00:47 PM (UTC-05:00)	142
Task: Execute Pre Script	k66850n1.us.dell.com	Succeeded	Aug 26, 2007 12:00:47 PM (UTC-05:00)	Aug 26, 2007 12:01:07 PM (UTC-05:00)	19
Step: Update Oracle Clusterware Clone Home	k66850n1.us.dell.com	Succeeded	Aug 26, 2007 12:01:12 PM (UTC-05:00)	Aug 26, 2007 12:03:05 PM (UTC-05:00)	113
Task: Execute Root Script	k66850n1.us.dell.com	Succeeded	Aug 26, 2007 12:03:05 PM (UTC-05:00)	Aug 26, 2007 12:05:42 PM (UTC-05:00)	157
Task: Execute Post Script	k66850n1.us.dell.com	Succeeded	Aug 26, 2007 12:05:42 PM (UTC-05:00)	Aug 26, 2007 12:06:02 PM (UTC-05:00)	19
Step: Register Oracle Clusterware Target	k66850n1.us.dell.com	Succeeded	Aug 26, 2007 12:06:07 PM (UTC-05:00)	Aug 26, 2007 12:06:11 PM (UTC-05:00)	4
Step: Refresh Host Config	k66850n1.us.dell.com	Succeeded	Aug 26, 2007 12:06:12 PM (UTC-05:00)	Aug 26, 2007 12:06:22 PM (UTC-05:00)	10

[Delete Run](#) [Edit](#) [View Definition](#)



Automate RAC Deployment

- Clone CRS to other nodes
 - Clone CRS from node1 to other nodes

General | Provisioning

Source Home Source Settings **Product Settings** Destinations Pre/Post Scripts Schedule More

Clone Oracle Home: Product Settings

Product **Oracle Clusterware 10.2.0.3.0** Cancel Back Step 3 of 7 Next

Cluster Cloning Modes

A clustered home may be cloned to either form a new cluster or to extend the source cluster. If extending the source cluster, the Oracle home location and Oracle home name will be taken to be the same as the source.

Clone to a new cluster

New Oracle Home Location

New Oracle Home Name

New Cluster Name

OCR Location

Voting Disk Location

Extend the source cluster

Source Oracle Home Location

Source Oracle Home Name

Source Host

Existing Member Nodes

Source Cluster Name

Destination Node Specification

Enter the destination hosts and the respective node names.

Host	Public Node Name	Private Node Name	VIP
<input type="text" value="k66850n2.us.dell.com"/>	<input type="text" value="k66850n2"/>	<input type="text" value="k66850n2-pri"/>	<input type="text" value="k66850n2-vip"/>



Automate RAC Deployment

- RAC CRS verification:

- crsctl check crs

CSS appears healthy

CRS appears healthy

EVM appears healthy

- ./olsnode

k66850n1

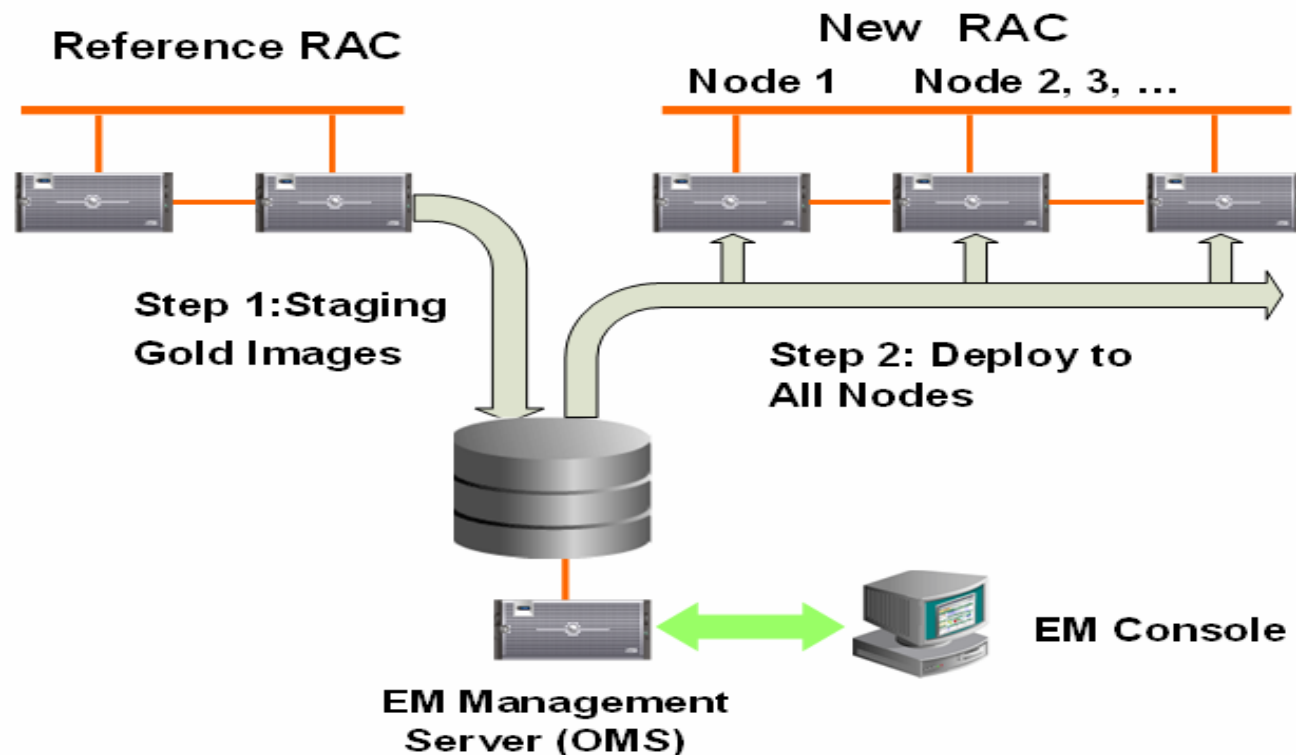
k66850n2

```
oracle@k66850n1:/opt/oracle/oracle/product/10.2.0/crs/bin
[oracle@k66850n1 bin]$ ./crs_stat -t
Name                Type                Target              State              Host
-----
ora....0n1.gsd      application          ONLINE             ONLINE             k66850n1
ora....0n1.ons      application          ONLINE             ONLINE             k66850n1
ora....0n1.vip      application          ONLINE             ONLINE             k66850n1
ora....0n2.gsd      application          ONLINE             ONLINE             k66850n2
ora....0n2.ons      application          ONLINE             ONLINE             k66850n2
ora....0n2.vip      application          ONLINE             ONLINE             k66850n2
[oracle@k66850n1 bin]$ srvctl status nodeapps -n k66850n1
VIP is running on node: k66850n1
GSD is running on node: k66850n1
PRKO-2016 : Error in checking condition of listener on node: k66850n1
ONS daemon is running on node: k66850n1
[oracle@k66850n1 bin]$ srvctl status nodeapps -n k66850n2
VIP is running on node: k66850n2
GSD is running on node: k66850n2
PRKO-2016 : Error in checking condition of listener on node: k66850n2
ONS daemon is running on node: k66850n2
[oracle@k66850n1 bin]$
```



Automate RAC Deployment

Gold Image Deployment for Database Software



Automate RAC Deployment

- **Deploy RAC Database Software**
 - Clone RAC Oracle Home from Software Library to RAC nodes

The screenshot shows the Oracle Enterprise Manager 10g Grid Control interface. The top navigation bar includes 'Home', 'Targets', 'Deployments', 'Alerts', 'Compliance', 'Jobs', and 'Reports'. The 'Deployments' tab is active, and the 'General' sub-tab is selected. A progress bar indicates the current step is 'Source Home'.

Clone Oracle Home: Source Home

Select the Oracle home you want to clone. You may choose an appropriate source type to get the list of Oracle Homes available for that type. Restricting the criteria may help you narrow down your search.

View Source Type: Search:

Select	Name	Description	Platform	Products
<input type="radio"/>	testcrs	testcrs	Red Hat Enterprise Linux AS release 4 (Nahant Update 4)	Oracle Clusterware 10.2.0.3.0
<input checked="" type="radio"/>	testdb	testdb	Red Hat Enterprise Linux AS release 4 (Nahant Update 4)	Oracle Database 10g 10.2.0.3.0

Buttons:



Automate RAC Deployment

- Deploy RAC Database Software
 - Specify the target servers information

Oracle Enterprise Manager (SYSMAN) - Clone Oracle Home: Product Settings - Mozilla

File Edit View Go Bookmarks Tools Window Help

Back Forward Reload Stop http://emdemo.us.dell.com:4889/em/console/ecm/cloneHome/cloneWiz_Soi Search Print

Home Bookmarks Red Hat, Inc. Red Hat Network Support Shop Products Training

Source Home Source Settings **Product Settings** Destinations Pre/Post Scripts Schedule More

Clone Oracle Home: Product Settings

Product **Oracle Database 10g 10.2.0.3.0** Cancel Back Step 3 of 7 Next

Cluster Cloning Modes

A clustered home may be cloned to either form a new cluster or to extend the source cluster. If extending the source cluster, the Oracle home location and Oracle home name will be taken to be the same as the source.

Clone to a new cluster

New Oracle Home Location

New Oracle Home Name

Extend the source cluster

Source Oracle Home Location

Source Oracle Home Name

Source Host

Existing Member Nodes

Destination Node Specification

Enter the destination hosts and the respective node names.

Host	Public Node Name
k66850n1.us.dell.com	k66850n1
k66850n2.us.dell.com	k66850n2



Easy Scale up and Down RAC

- **Scale up by extending a cluster: Option 1**
 - Install enterprise manager agent on the new server
 - Clone CRS to the new server
 - Clone Oracle database software to the new server
 - Add an instance to the database:

The screenshot shows the Oracle Enterprise Manager 10g Grid Control interface. The top navigation bar includes 'Home', 'Targets', 'Deployments', 'Alerts', 'Compliance', 'Jobs', and 'Reports'. Below this is a secondary navigation bar with 'Hosts', 'Databases', 'Application Servers', 'Web Applications', 'Services', 'Systems', 'Groups', and 'All Targets'. The main content area is titled 'Add Instance: Host' and shows a progress indicator with three steps: 'Cluster Credentials', 'Host', and 'Review'. The 'Host' step is currently active. Below the progress indicator, there is a text input field for 'Name of the Database Instance to be added' with the value 'db94'. To the right of this field are buttons for 'Cancel', 'Back', 'Step 2 of 3', and 'Next'. Below the input field, there is a paragraph of text: 'The following list of hosts have database software installed and are currently configured for this cluster. Select a host to which you want to add a database instance. This host should have access to the shared storage used by this database.' Below this text is a table with the following data:

Select	Host	Existing Database Instances
<input type="radio"/>	bnode1	
<input type="radio"/>	bnode2	db92
<input type="radio"/>	bnode3	db93
<input checked="" type="radio"/>	bnode4	
<input type="radio"/>	bnode5	
<input type="radio"/>	bnode6	

At the bottom left, there is a tip: 'TIP You can clone an Oracle Home to host where Database Software is not installed. Clone Oracle Home: [Clone Oracle Home](#)'.



Easy Scale up and down RAC

– Scale up RAC Database, Option 2:

- Deployments Tab → Deployment Procedure Manager: RAC Provisioning Procedure → One Click Extend Cluster Database:

ORACLE Enterprise Manager 10g
Grid Control

Home Targets **Deployments** Alerts Compliance Jobs R

General | Provisioning

Deployment Procedure Manager

Procedures Procedure Completion Status Recycle Bin

Deployment procedures are best practices provided by Oracle for various Provisioning and Patching tasks. Procedures created by Oracle cannot be edited, but can be extended using 'Create Like', so that you can customize the procedure to fit your environment. For more details click Help.

Search Text Fields [Advanced Search](#)

|

Select	Procedure	Type	Description	Last Modified By	Version	Last Updated
<input checked="" type="radio"/>	One Click Extend Cluster Database	RAC Provisioning	This procedure will extend an existing cluster database to a set of new nodes. Clusterware and Oracle Database will be extended and configured by the procedure. i	Oracle	3.3	Jul 31, 2007 6:14:...
<input type="radio"/>	Oracle Clusterware / RAC Provisioning For Windows	RAC Provisioning	This procedure assists in installing/cloning and configuring a cluster database (a Real Application Cluster - RAC database) on a selection of hosts as specified by the Oracle Database Oracle Clusterware and Oracle Real Application Clusters Installation Guide. i	Oracle	3.3	Jul 31, 2007 5:12:...



Easy Scale up and down RAC

– Scale up RAC Database, Option 2:

- Select the database to be extended
- Select the new server and fill the server information
- Submit the RAC extend Job

Extend Real Application Clusters

Select Real Application Clusters (RAC)

Select the Oracle Real Application Clusters (RAC) you wish to extend. The Clusterware and Automatic Storage Management (ASM) will also be extended if these do not already exist.

Search

[Expand All](#) | [Collapse All](#)

Select	Name	Member Nodes	Oracle Home	Platform	Product
<input type="checkbox"/>	Available Cluster Databases				
	Previous 1 - 5 of 10				
<input type="radio"/>	db5.us.dell.com (2)	bnode6, bnode5	/opt/oracle/product/10.2.0/db_1	Red Hat Enterprise Linux AS release 4 (Nahant Update 5)	Oracle Database 10.2.0.3.0
<input checked="" type="radio"/>	db6.us.dell.com (2)	bnode6, bnode5	/opt/oracle/product/10.2.0/db_1	Red Hat Enterprise Linux AS release 4 (Nahant Update 5)	Oracle Database 10.2.0.3.0
<input type="radio"/>	db7.us.dell.com (3)	bnode4, bnode5, bnode6	/opt/oracle/product/10.2.0/db_1	Red Hat Enterprise Linux AS release 4 (Nahant Update 5)	Oracle Database 10.2.0.3.0
<input type="radio"/>	db8.us.dell.com (3)	bnode4, bnode5, bnode3	/opt/oracle/product/10.2.0/db_1	Red Hat Enterprise Linux AS release 4 (Nahant Update 5)	Oracle Database 10.2.0.3.0
<input type="radio"/>	db9.us.dell.com (4)	bnode2, bnode3, bnode4, bnode1	/opt/oracle/product/10.2.0/db_1	Red Hat Enterprise Linux AS release 4 (Nahant Update 5)	Oracle Database 10.2.0.3.0
	Next				

[Reference host options - \(bnode6\)](#)

Select New Nodes

Select the destination hosts and enter the respective Virtual Node Names.

Host	Private Node Name	Private IP (Optional)	Virtual Node Name	Virtual IP (Optional)	Working Directory	Remove
bnode7	<input type="text" value="bnode7-priv"/>	<input type="text" value="10.1.17.94"/>	<input type="text" value="bnode7-vip"/>	<input type="text" value="155.1.18.90"/>	<input type="text" value="/tmp"/>	<input type="button" value="Remove"/>

[Hide Options](#)



Easy Scale up and down RAC

– Scale down RAC Database :

- Deployments Tab → Deployment Procedure Manager:
RAC Provisioning Procedure → Delete/Scale down Oracle Real Application Clusters
- Select the node name to delete

Select	Procedure	Type	Description	Modified By	Version	Last Updated
<input checked="" type="radio"/>	One Click Extend Cluster Database	RAC Provisioning	This procedure will extend an existing cluster database to a set of new nodes. Clusterware and Oracle Database will be extended and configured by the procedure. i	Oracle	3.3	Jul 31, 2007 6:14:07 AM
<input type="radio"/>	Oracle Clusterware / RAC Provisioning For Windows	RAC Provisioning	This procedure assists in installing/cloning and configuring a cluster database (a Real Application Cluster - RAC database) on a selection of hosts as specified by the Oracle Database Oracle Clusterware and Oracle Real Application Clusters Installation Guide. i	Oracle	3.3	Jul 31, 2007 5:12:32 AM
<input type="radio"/>	Oracle Clusterware / RAC Provisioning For UNIX	RAC Provisioning	This procedure assists in installing/cloning and configuring a cluster database (a Real Application Cluster - RAC database) on a selection of hosts as specified by the Oracle Database Oracle Clusterware and Oracle Real Application Clusters Installation Guide. i	Oracle	3.3	Jul 31, 2007 5:12:31 AM
<input checked="" type="radio"/>	Delete/Scale down Oracle Real Application Clusters	RAC Provisioning	This procedure deletes nodes from Oracle Real Application Clusters in order to scale down the cluster or completely delete the cluster. i	Oracle	3.3	Jul 31, 2007 5:12:29 AM
<input type="radio"/>	Oracle Clusterware / RAC Provisioning For Windows	RAC Provisioning	This procedure assists in installing/cloning and configuring a cluster database (a Real Application Cluster - RAC database) on a selection of hosts as specified by the Oracle Database Oracle Clusterware and Oracle Real Application Clusters Installation Guide. i	Oracle	2.0	Dec 29, 2006 8:34:25 AM
<input type="radio"/>	Oracle Clusterware / RAC Provisioning For UNIX	RAC Provisioning	This procedure assists in installing/cloning and configuring a cluster database (a Real Application Cluster - RAC database) on a selection of hosts as specified by the Oracle Database Oracle Clusterware and Oracle Real Application Clusters Installation Guide. i	Oracle	2.0	Dec 29, 2006 8:34:18 AM
<input type="radio"/>	One Click Extend Cluster Database	RAC Provisioning	This procedure will extend an existing cluster database to a set of new nodes. Clusterware and Oracle Database will be extended and configured by the procedure.	Oracle	2.0	Dec 29, 2006 8:34:14 AM



MegaGrid Implementation POC

- **MegaGrid: Deploy Large Clusters of Grid**
 - Concept from an Oracle, Dell , EMC joint project
 - Provide various server, storage resources as services
 - Allow provisioning on demand
 - A POC project in Dell DB/Apps Lab: 8 nodes, 10 different applications/10 DBs

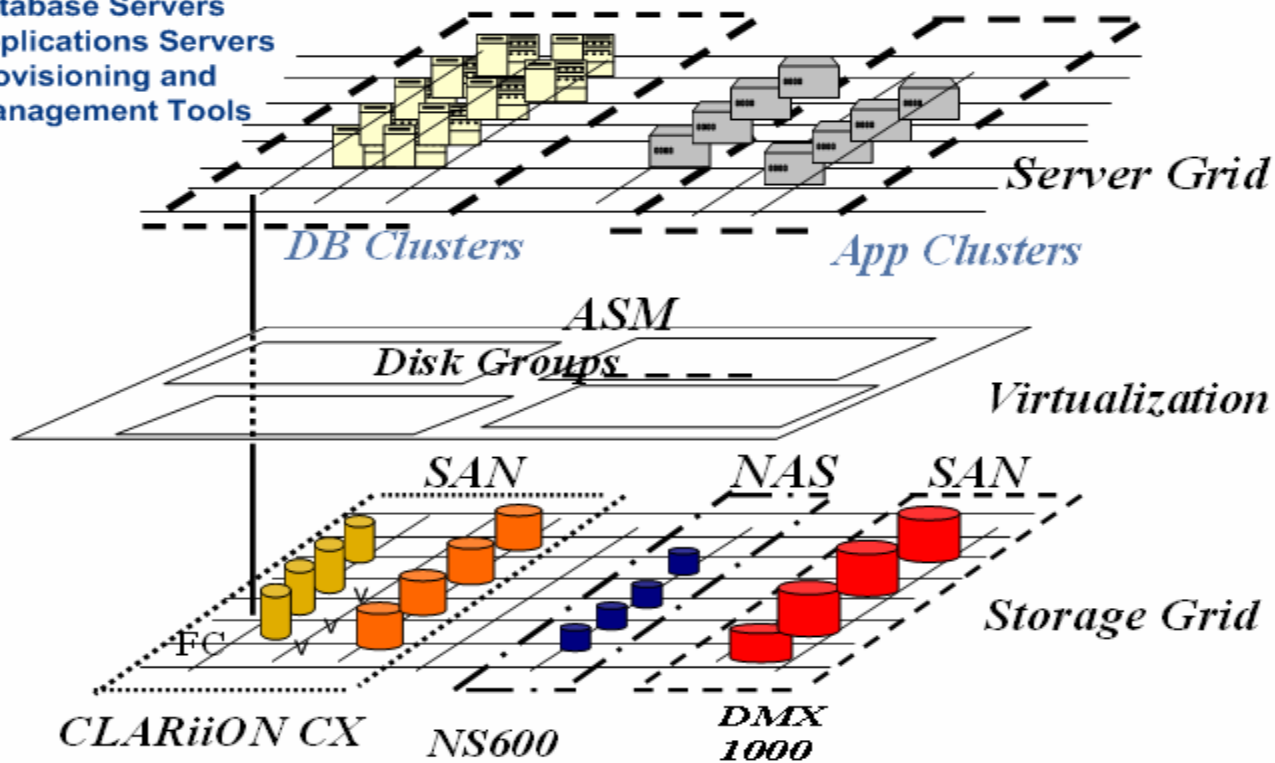
- **Oracle 10g Features for Grid Computing**
 - Clustering technology
 - Database services
 - Automatic Storage Management
 - Oracle Enterprise Manager Grid Control
 - Load balancing



MegaGrid Implementation POC

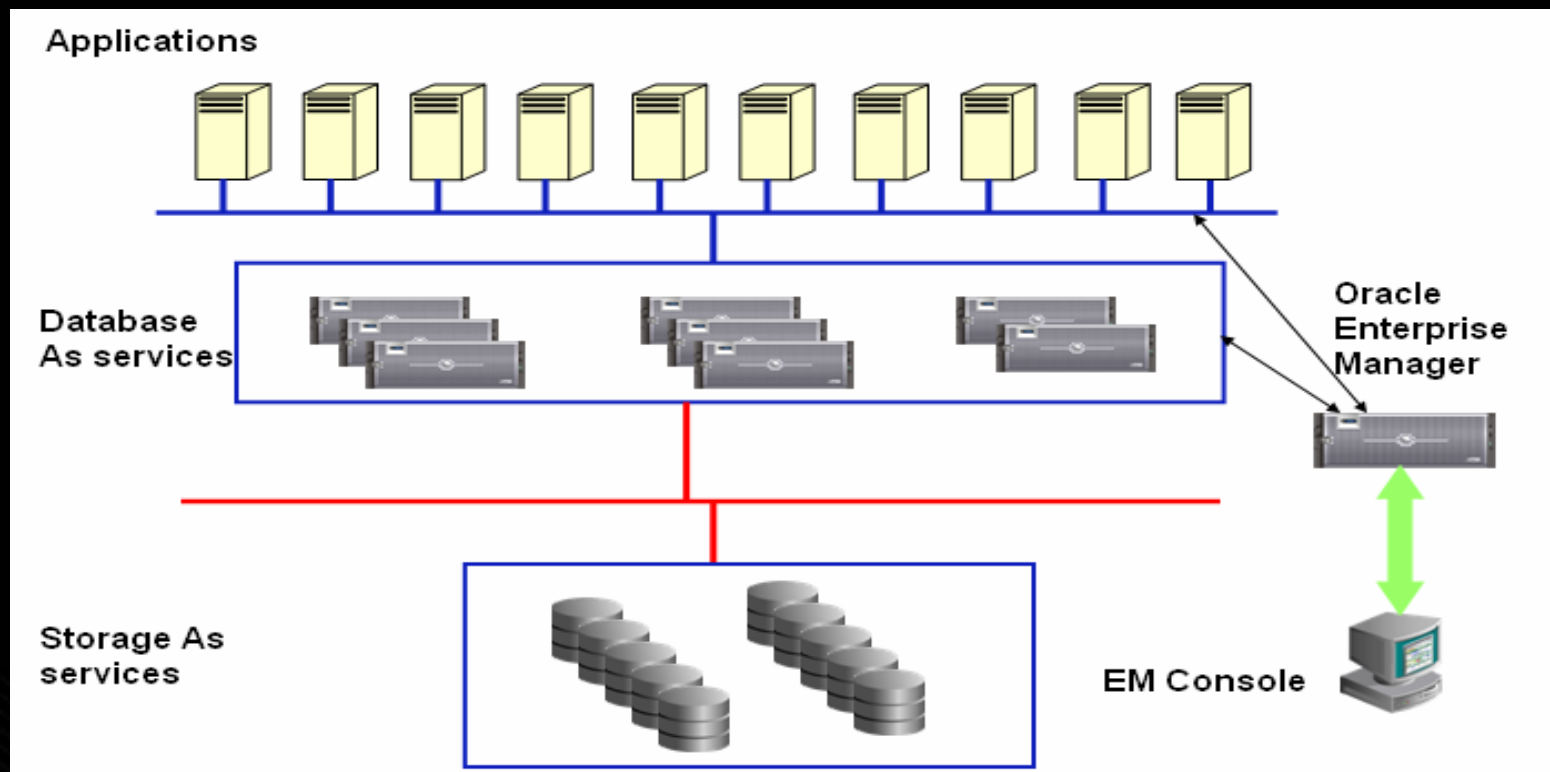
MegaGrid Architecture

- Storage
- Database Servers
- Applications Servers
- Provisioning and Management Tools



MegaGrid Implementation POC

- **Goal: Deploy Large Clusters of Grid**
 - Deploy 10 databases on a single 8 node RAC
 - Provides database as a services for 10 Applications running on 20 Applications servers
 - Allow provisioning of additional nodes on demand



MegaGrid Implementation POC

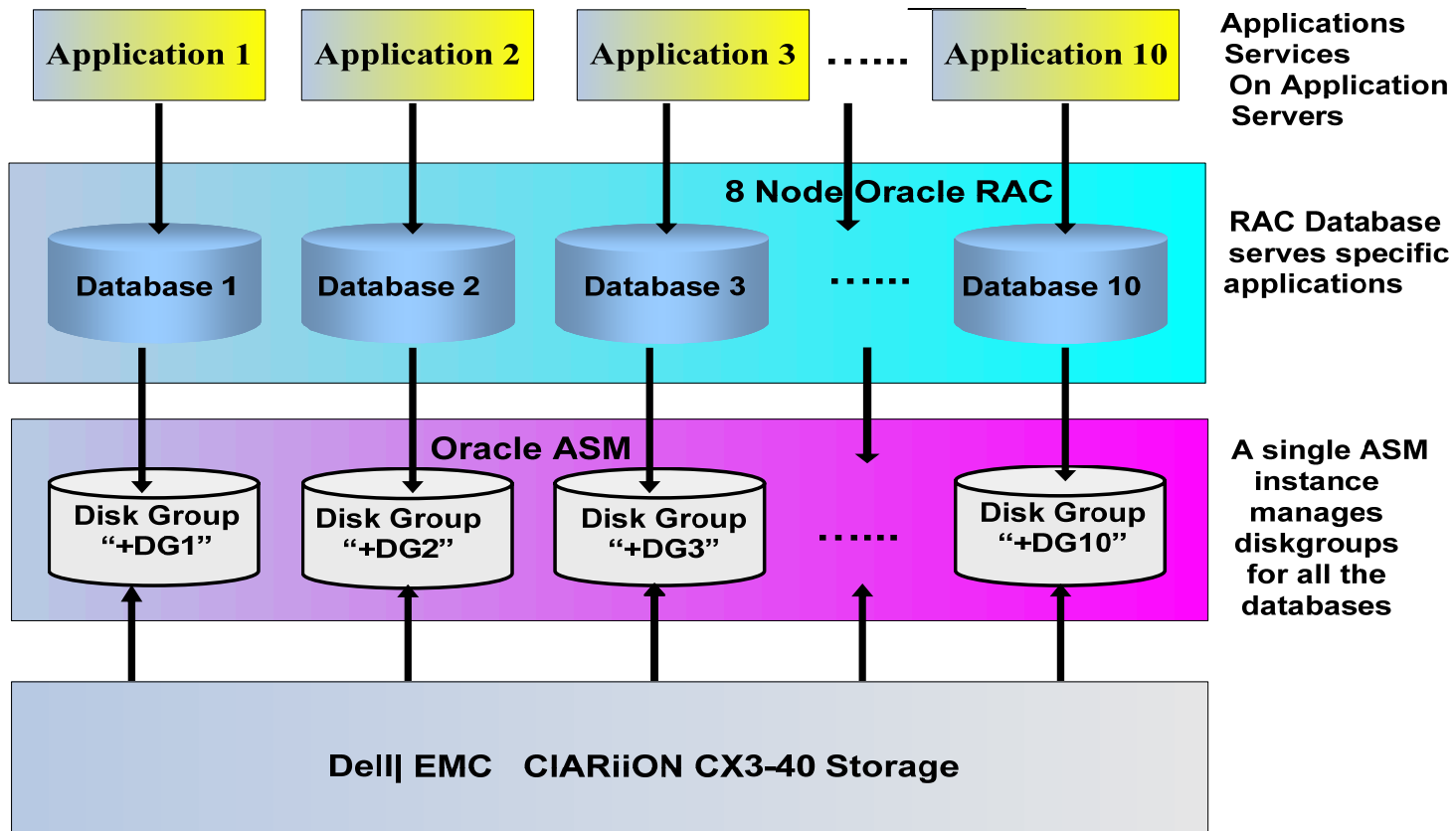
▪ Implementation Architecture

- A single 10g RAC cluster on 8 Dell PE servers
- 10 databases share a single RAC
- Number of Instances per database by demand
- All databases access the shared EMC CX3-40 storage through ASM; each database has its own diskgroup
- Each RAC node has a full access on all the shared LUNs
- RAC Deployment/extension by EM Provisioning Pack
 - Prepare a new server (OS, network, access to the shared storage, EM agent)
 - Scale up the RAC to a new server
- DB Instance relocation, addition and deletion by EM
 - Add instance to a RAC database
 - Drop instance from a RAC database



MegaGrid Implementation POC

Implementation Architecture



MegaGrid Implementation POC

MegaGrid Database Instance Map								
DB name	NODE1	NODE2	NODE3	NODE4	NODE5	NODE6	NODE7	NODE8
DB1	1	2	3					
DB2		1	2	3				
DB3			1	2	3			
DB4				1	2	3		
DB5						1	2	3
DB6	3						1	2
DB7	2	3						1
DB8		1	2	3				
DB9					3	3	3	
DB10					1	2	3	



MegaGrid Implementation POC

ORACLE Enterprise Manager 10g
Grid Control

Setup Preferences Help Logout
Home Targets Deployments Alerts Compliance Jobs Reports

Hosts | Databases | Application Servers | Web Applications | Services | Systems | Groups | All Targets

Databases

Page Refreshed Sep 26, 2007 7:39:18 PM CDT

Search [Advanced Search](#)

Select	Name	Type	Status	Alerts	Policy Violations	Compliance Score (%)	Version	Sessions: CPU	Sessions: I/O	Sessions: Other	Instance CPU (%)
<input type="radio"/>	db1.us.dell.com	Cluster Database		0 4	21 29 7	89	10.2.0.3.0	n/a	n/a	n/a	n/a
<input type="radio"/>	db10.us.dell.com	Cluster Database		0 3	21 28 7	89		n/a	n/a	n/a	n/a
<input type="radio"/>	db2.us.dell.com	Cluster Database		0 3	20 28 6	89		n/a	n/a	n/a	n/a
<input type="radio"/>	db3.us.dell.com	Cluster Database		0 3	20 28 6	89	10.2.0.3.0	n/a	n/a	n/a	n/a
<input type="radio"/>	db4.us.dell.com	Cluster Database		0 3	20 29 6	88		n/a	n/a	n/a	n/a
<input type="radio"/>	db5.us.dell.com	Cluster Database		0 2	16 19 4	88		n/a	n/a	n/a	n/a
<input type="radio"/>	db6.us.dell.com	Cluster Database		0 1	8 10 2	91	10.2.0.3.0	n/a	n/a	n/a	n/a
<input type="radio"/>	db9.us.dell.com	Cluster Database		0 0	12 10 2	85	10.2.0.3.0	n/a	n/a	n/a	n/a
<input type="radio"/>	emrep.us.dell	Database Instance		0 2	10 11 4	91	10.1.0.4.0	.06	0		1.5



MegaGrid Implementation POC

Instances

Name <small>▲</small>	Status	Alerts	Policy Violations	Compliance Score (%)	ADDM Findings	ASM	Sessions: CPU	Sessions: I/O	Sessions: Other	Instance CPU (%)
db1.us.dell.com db11		0 3	4 9 2	91	0	+ASM1 bnode1	.03	0	0	.43
db1.us.dell.com db12		1 2	4 9 2	91	0	+ASM2 bnode2	.02	0	0	.3
db1.us.dell.com db13		0 1	4 9 2	91	7	+ASM3 bnode3	0	0	0	0

Instances

Name <small>▲</small>	Status	Alerts	Policy Violations	Compliance Score (%)	ADDM Findings	ASM	Sessions: CPU	Sessions: I/O	Sessions: Other	Instance CPU (%)
db2.us.dell.com db21		0 1	4 9 2	91	0	+ASM2 bnode2	0	0	0	.02
db2.us.dell.com db22		0 1	4 9 2	91	0	+ASM3 bnode3	0	0	0	.01
db2.us.dell.com db23		0 1	4 9 2	91	0	+ASM4 bnode4	0	0	0	.01

Instances

Name <small>▲</small>	Status	Alerts	Policy Violations	Compliance Score (%)	ADDM Findings	ASM	Sessions: CPU	Sessions: I/O	Sessions: Other	Instance CPU (%)
db3.us.dell.com db31		0 2	4 9 2	91	0	+ASM3 bnode3	0	0	0	.01
db3.us.dell.com db32		0 1	4 9 2	91	0	+ASM4 bnode4	0	0	0	.01
db3.us.dell.com db33		0 2	4 9 2	91	0	+ASM5 bnode5	0	0	0	0



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Q&A

THANK YOU