

OEM User Defined Policies IT/DES focus on OOW 2009



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openlab Minor Review Meeting 2009

24 November 2009

Carlos Garcia
Manuel Guijarro

- Our Grid Control Environment
 - Our Challenge
 - Grid Control Solution
 - User Defined Policies – Use Case
-



Our EM Grid Control Environment

MONITORED TARGETS: ~ 1500
192 INSTANCES (53 RAC DBS)
223 HOSTS

Maximum Availability Architecture

Agent versions:

- 10.2.0.2, 10.2.0.3
- 10.2.0.4, 10.2.0.5

- Solaris and Linux (32&64 bit)
- Secure agent upload
- Hardware load balancer



Hardware Load Balancing

Users (https)

- OMS version 10.2.0.5
- Linux RHEL 4 (64 bits)
- 8CPU (2.33GHz) - 16Gb RAM



Management Server



Management Server

EMREP service

- 2-Node RAC (load balanced)
- RDBMS 10.2.0.4
- RedHat Linux 4 (64-bit)
- NetApp NAS storage



RAC node



Repository Database



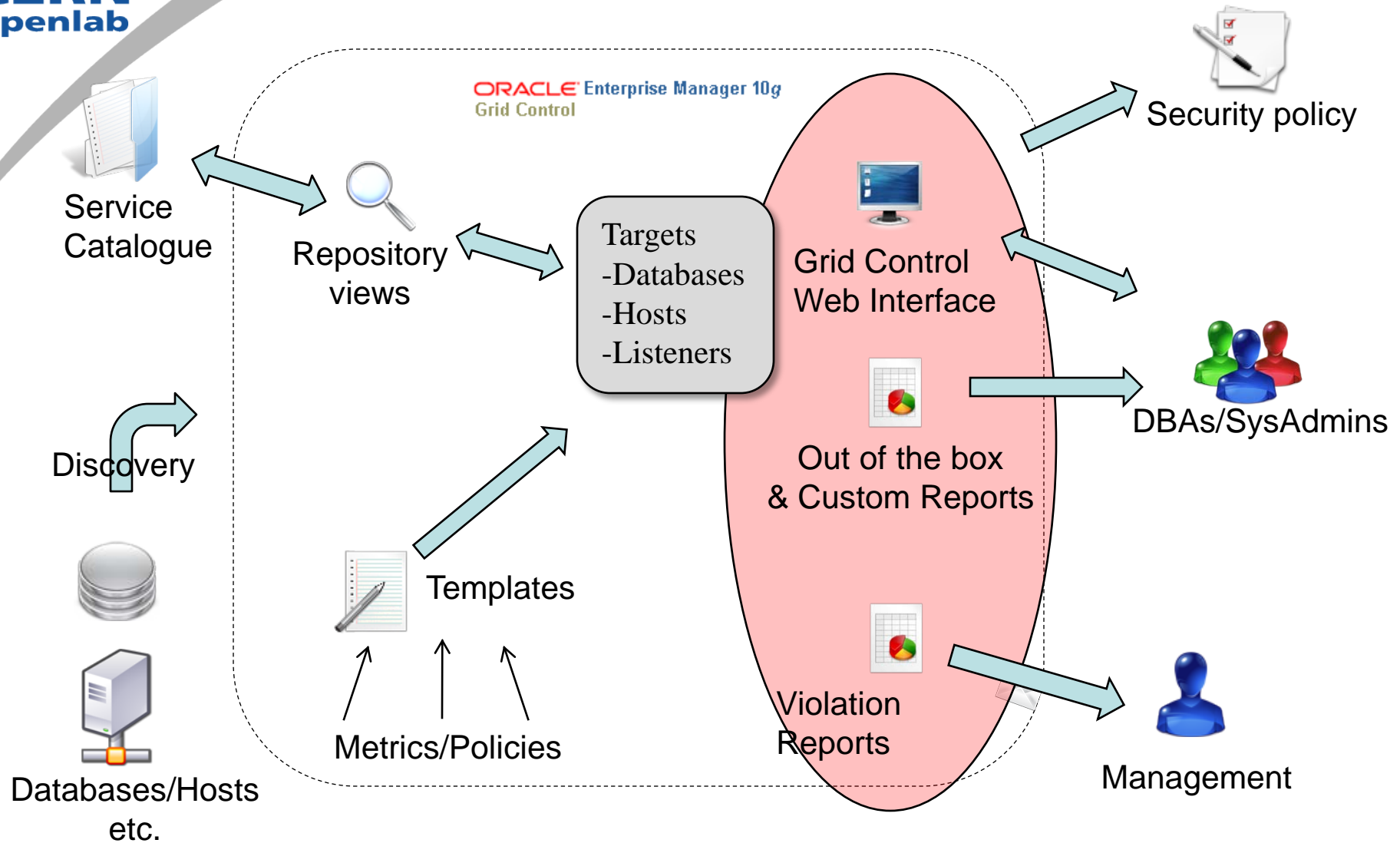
RAC node



Our Challenge

- Minimize cost of monitoring growing architecture
 - Provide timely, standardized access to meaningful information
 - Enable pro-active management & problem avoidance
 - Identify and remove configuration exceptions
-

Grid Control Solution





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User Defined Policies - Use case

- User Defined Metric Objective: Monitor the last RMAN backup timestamp for all databases
 - User Defined Policy Objective: Check that the metric has been successfully applied
-



How To (1) – Using User Defined Policies

ORACLE Enterprise Manager 10g
Grid Control

Home Targets Deployments Alerts **Compliance** Jobs Reports
Setup Preferences Help Logout

Enterprise Manager Configuration | Management Services and Repository | Agents

Monitoring Templates >

View Monitoring Template: Age of RMAN backups

OK

General **Metric Thresholds** Policies Access



View All metrics

Metric	Comparison Operator	Warning Threshold	Critical Threshold	Corrective Actions	Collection Schedule	Details
Age of datafile backup	>	96	96	None	Every 12 Hours	Details
Age of redolog backup	>	6	12	None	Every 1 Hour	Details

TIP Empty Thresholds will disable alerts for that metric.

General **Metric Thresholds** Policies Access

OK

How To (2) – Using User Defined Policies



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Policies: Library

[Violations](#) | [Library](#) | [Associations](#) | [Errors](#)

The following table lists all the policies and where they are currently in-use.

Page Refreshed Jul 22, 2009 11:27:36 AM MEST

Category Policy [Advanced Search](#)

|

[Select All](#) | [Select None](#)

Select	Policy	Severity	Category	Type	Description	Owner	Used in Monitoring Templates	Used by Targets	Edit
<input type="checkbox"/>	Default Permanent Tablespace Set to a System Tablespace	Warning	Storage	Database Instance	Checks if the DEFAULT_PERMANENT_TABLESPACE database property is set to a system tablespace	<SYSTEM>	0	37	
<input type="checkbox"/>	Default Permanent Tablespace Set to a System Tablespace	Warning	Storage	Cluster Database	Checks if the DEFAULT_PERMANENT_TABLESPACE database property is set to a system tablespace	<SYSTEM>	1	71	
<input type="checkbox"/>	RMAN datafile backup metric exists	Warning	Security	Database Instance		SYSMAN	2	97	
<input type="checkbox"/>	Users with Permanent Tablespace as Temporary Tablespace	Informational	Storage	Cluster Database	Checks for users using a permanent tablespace as the temporary tablespace	<SYSTEM>	1	71	
<input type="checkbox"/>	Users with Permanent Tablespace as Temporary Tablespace	Informational	Storage	Database Instance	Checks for users using a permanent tablespace as the temporary tablespace	<SYSTEM>	0	37	
<input type="checkbox"/>	Weblogic Performance Pack Enabled	Critical	Configuration	Oracle WebLogic Managed Server	This Policy verifies whether BEA WebLogic Server Performance Pack is enabled or not.	<SYSTEM>	0	0	

TIP Policies provided by Oracle are owned by <SYSTEM>. They cannot be exported or deleted.

Related Link

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How To (3) – Using User Defined Policies



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Violations Library Associations Errors

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Violations Library Associations Errors

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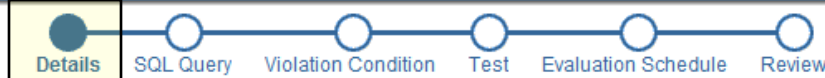


How To (4) – Using User Defined Policies

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Edit Policy: Details

Cancel Step 1 of 6 Next

Name **RMAN datafile backup metric exists**

Target Type **Database Instance**

Severity **Warning**

Category **Security**

Description **Policy checks for the existence of the RMAN datafile backup metric**

Impact of Violation **Metric is not installed so we have no alert if backups fail silently**

Recommendation **Apply the monitoring metrics template to this target**

Details Link

Enter a fully qualified URL to a web site that will offer additional information to support this policy definition. The link is represented by an information icon next to the description and can be verified by clicking on this icon in the Test step.

Cancel Step 1 of 6 Next

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How To (5) – Using User Defined Policies

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Details

SQL Query

Violation Condition

Test

Evaluation Schedule

Review

Edit Policy: SQL Query

Enter a valid SQL query that returns column data to be verified.

Cancel

Back

Step 2 of 6

Next

* SQL Query

```
select target_guid as TARGET_GUID, 1 "VALUE" from  
mgmt$target_metric_settings  
where collection_name='Age of datafile backup'  
and target_type='oracle_database'
```

One of the select columns must be target_guid. Do not end the statement with a semi-colon (;)

Validate SQL

* Non-Compliant Message

Policy RMAN datafile backup metric exists is non-compliant.

* Compliant Message

Policy RMAN datafile backup metric exists is compliant.

Cancel

Back

Step 2 of 6

Next

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How To (6) – Using User Defined Policies

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Edit Policy: SQL Query

Enter a valid SQL query that returns column data

* SQL Query

select target_guid as TARGET_GUID, 1 "VALUE"
from mgmt\$target_metric_settings
where collection_name='Age of datafile
backup'
and target_type='oracle_database'
union
select target_guid as TARGET_GUID, 0 "VALUE"
from mgmt\$target where
target_type='oracle_database'
and target_guid not in (select target_guid
from mgmt\$target_metric_settings
where collection_name='Age of datafile
backup'
and target_type='oracle_database')

* Non-Compliant Message Policy RMA

* Compliant Message Policy RMA

Home | Targets

```
select target_guid as TARGET_GUID, 1 "VALUE"  
from mgmt$target_metric_settings  
where collection_name='Age of datafile  
backup'  
and target_type='oracle_database'  
union  
select target_guid as TARGET_GUID, 0 "VALUE"  
from mgmt$target where  
target_type='oracle_database'  
and target_guid not in (select target_guid  
from mgmt$target_metric_settings  
where collection_name='Age of datafile  
backup'  
and target_type='oracle_database')
```

Back Step 2 of 6 Next

Back Step 2 of 6 Next

How To (7) – Using User Defined Policies

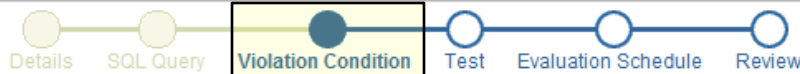


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Edit Policy: Violation Condition

Enter the violation test to be evaluated.

[Cancel](#) [Back](#) [Step 3 of 6](#) [Next](#)

SQL Query

Number of Key Columns

SQL select statement returns data in key-column order, where first n columns returned represent compound keys.

Condition

To check for violations, select a column name that was specified in the SQL statement above, and set the comparison operator and value to be tested. A violation is triggered if the condition returns false. If a more complex condition is needed, select SQL condition type and enter a SQL WHERE expression. If default parameters are used in the sql expression, they can be customized during target association.

Condition Type Threshold SQL

Threshold			
Column Name	Data Type	Comparison Operator	Default Value
VALUE	Number	=	0

[Cancel](#) [Back](#) [Step 3 of 6](#) [Next](#)

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How To (8) – Using User Defined Policies

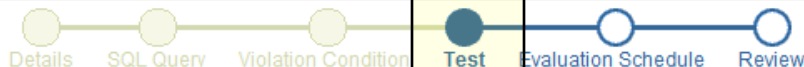
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Edit Policy: Test

Run a test evaluation against a single test target. Test results will be rendered below.

(OPTIONAL) Click Next to skip test.

* Target



Run Test

[Cancel](#) [Back](#) [Step 4 of 6](#) [Next](#)

[Cancel](#) [Back](#) [Step 4 of 6](#) [Next](#)

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Results

General

Severity **Warning**

Compliance Score (%) **76**

Importance **Normal**

Category **Security**

Description **Policy checks for the existence of the RMAN datafile backup metric**

Violations

VALUE	Date Tested ▾
	0 07-Aug-2009 12:30:30 MEST

View policy results



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Other Examples – Using User Defined Policies

- Monitor if DB auditing is enabled
- Monitor if the audit data management procedure has been applied or if the login auditing trigger is enabled
- Monitor if the truncate audit procedure exists



Conclusion (I): Cost benefits

- Example:
 - Without Grid Control:

Monitoring task (EM policy)	Time consumed
Time spent in a task per database per month	$1 \text{ task} \times 5 \text{ mins} \times 1 \text{ month} \times 1 \text{ db}$ $= 5 \text{ mins/month}$
Time spent in checking a task for all the databases	$1 \text{ task} \times 5 \text{ mins} \times 1 \text{ month} \times 100 \text{ db}$ $= 8 \text{ hours/month}$
Time spent in checking all tasks for all the database	$8 \text{ hours} \times 20 \text{ tasks}$ $= 166 \text{ hours/month}$

Conclusion => 1 post (FTE) just to check policies!!!!!!!

Conclusion (II): Cost benefits

- Example:
 - With Grid Control:

Monitoring task (EM policy)	Time consumed
Time spent in the initial effort in setting up: <ul style="list-style-type: none">✓ The User Defined Metric✓ The User Defined Policy	It takes a few hours each. No overhead in re-running the policy.
Conclusion => The post (FTE) can invest the time in taking new projects without increasing costs	



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Conclusion (III): Increased productivity

- Furthermore... Grid control reduces manpower needs by:
 - Providing centralized access to meaningful information
 - Enforcing compliance with our standards
 - Decreasing time consumed by daily operations
 - Reducing downtime by pro-active monitoring
 - Assisting DBAs in their tuning and performance improvement tasks
 - ...and all with little additional effort even for a constantly expanding IT infrastructure
-



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Oracle OpenWorld 2009

- Carlos Garcia Fernandez
- Manuel Guijarro Plaza
- Nilo Segura Chinchilla



- OOW 2009: General Overview
- Attended sessions
- Personal meetings



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OOW 2009: General Overview

- 40000+ attendees (too big)
- 5 days long
- ~2000 presentations (sessions+keynotes)
- Very fruitful personal meetings (jrockit, VM..)
- Many commercial and product managers


- OEM
- Virtualization
- WebLogic VE / Jrocket
- Exadata/RAC
- Performance

Session focused on OEM Configuration Management Pack with a couple of 15 min success stories (including CERN's)

Configuration Management Pack

Doing more with less

Knowing What You Have	Standardizing Configurations	Configuration Compliance	Detecting Configuration Changes
<p>Asset Discovery</p> <p>Automated Inventory</p> <p>HW/SW Configurations</p> <ul style="list-style-type: none"> • Operating Systems • Hardware • Database • Packaged Apps <p>Configuration Search</p> <p>Relationships</p>	<p>Drift Analysis</p> <p>Config Comparison</p> <ul style="list-style-type: none"> • Across the stack • Across lifecycles • Baseline & Gold Std • 1-to-1, 1-to-Many <p>Drift Reconciliation</p>	<p>Proactive Checks</p> <p>Policy Management</p> <p>Out-of-the-Box Policies</p> <p>User-Defined Policies</p> <p>User-Defined Groups</p> <p>Compliance Dashboard</p>	<p>Real-time Monitoring</p> <p>Real-time Detection</p> <ul style="list-style-type: none"> • Who, What and When <p>Compliance Framework</p> <ul style="list-style-type: none"> • SOX, PCI, CoBIT ... <p>Change Reconciliation</p> <ul style="list-style-type: none"> • Authorized vs Unauthorized



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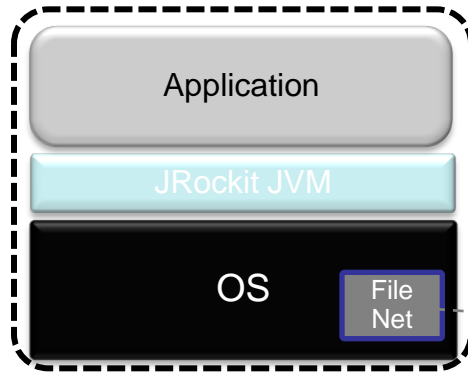
Personal meetings

- WLS-VE
- OVM

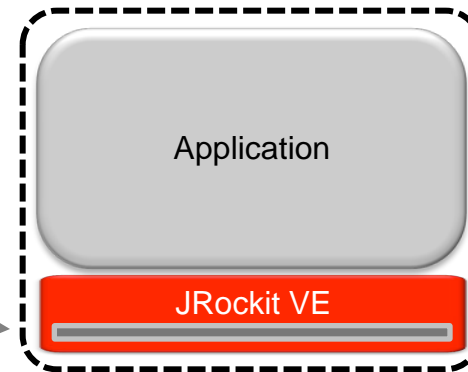


JRokit VE: Removing the OS and Creating a More Efficient Software Stack

VM with Standard Guest OS

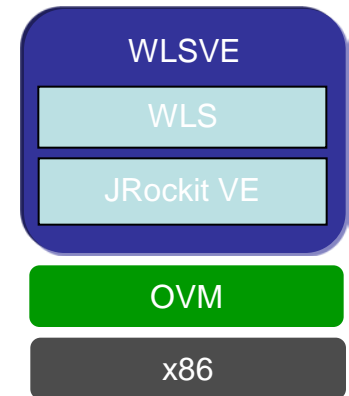


VM with JRokit VE



- ~1GB -> ~2 MB
- Improved performance
- Simplified configuration
- Increased security
- Customized to run single Java process
- No shell access allowed
- Headless

- WebLogic Server Virtual Edition
 - Virtual machine containing WLS and JRockit VE
 - Designed to run on Oracle VM, without an operating system
 - Users can create their own virtual machine images containing WLSVE and their domains and applications
- JRockit VE
 - JRockit VE is the JRockit JVM extended so it can run directly on virtual hardware, and optimized for running Java on OVM and x86 hardware
- JRVE Image Tool
 - Create and edit the virtual machine images



- License to OVM through WLS-VE Early bird program (expected 1 year long validity)
- Offered to collaborate with Credit Suisse
- Offered to participate in Jrockit Flight Recorder Early bird program
- Testing program already arranged

- 9-13 Nov. OVM installation and testing
 - 10th Nov. @ 16h00 OVM training
- 19-20 Nov. JRVE & WLS experts at CERN
- 10th Dec. Results sharing with the Product Manager and Credit Suisse

- Roadmap: Releases 2.2 & 3
- Oracle VM Templates
 - State University of New York (7 OVM hosts with 50+ VMs iSCSI storage)
- Virtualize with Oracle VM
- RACs on Oracle VM (interesting live demonstration based in templates)
- OVM @ Mercado Libre
 - 37.8 millions users / 320 servers
 - Reduction: 4:1 power 50:1 storage 4:1 cooling

- Explained CERN's Fabric Management Infrastructure
- Creation of templates with Oracle VM Template Builder
- Provisioning using OEM

- Monica Marinucci
- Andrew Bulloch
- Andy Oppenheim
- Tuva Palm
- Madhup Gulati

-Presentation as well as all feedback provided to Oracle, has been perceived as a very useful exercise and CERN has been thanked for that.

-Currently CERN's participation in 11.2 DB and Fusion Middleware is being studied.

-More in next meeting at UKOUG.



OOW 2009 – Questions?

