

ORACLE®

Deep Dive into Engineered Systems management with Oracle Enterprise Manager 13c



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Sriram Vrinda
Senior Product Manager
Database Manageability

Christian Bilien
Global head of data infrastructures,
SOCIETE GENERALE
Sep 20, 2016

Accelerate Your
Digital Transformation
in the Cloud

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Program Agenda

- 1 Exadata Monitoring in EM 13c
- 2 Discovery
- 3 Deployment
- 4 Diagnostics
- 5 Oracle Big Data Appliance: Monitoring & Management
- 6 Customer Testimonial - SOCIETE GENERALE

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Introduction

NEW:
Always On
Monitoring



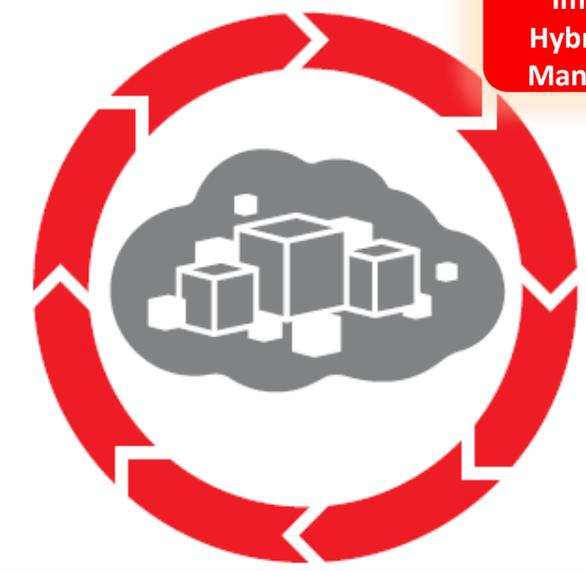
**Superior Enterprise-Grade
Management**

NEW:
Infrastructure
Management



**Integrated Cloud Stack
Management**

NEW:
Improved
Hybrid Cloud
Management



Complete Cloud Lifecycle Management

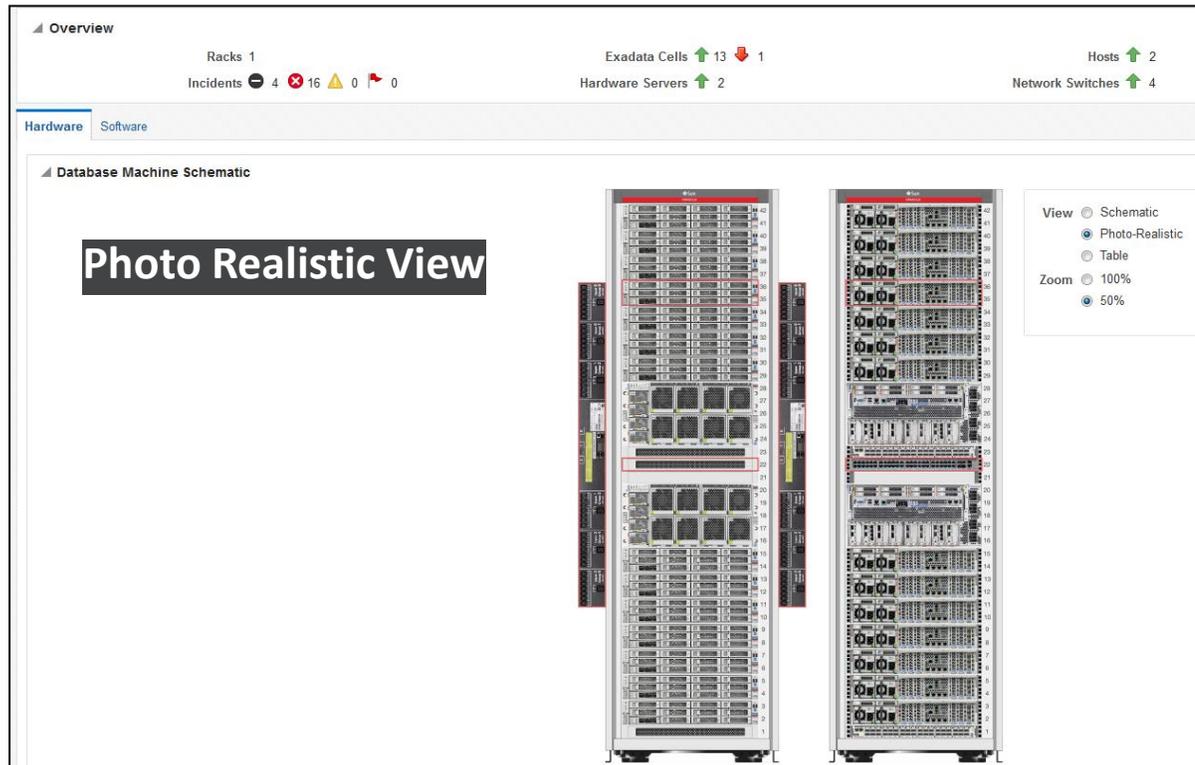
Scalable, Secure

Optimized, Efficient

Agile, Automated

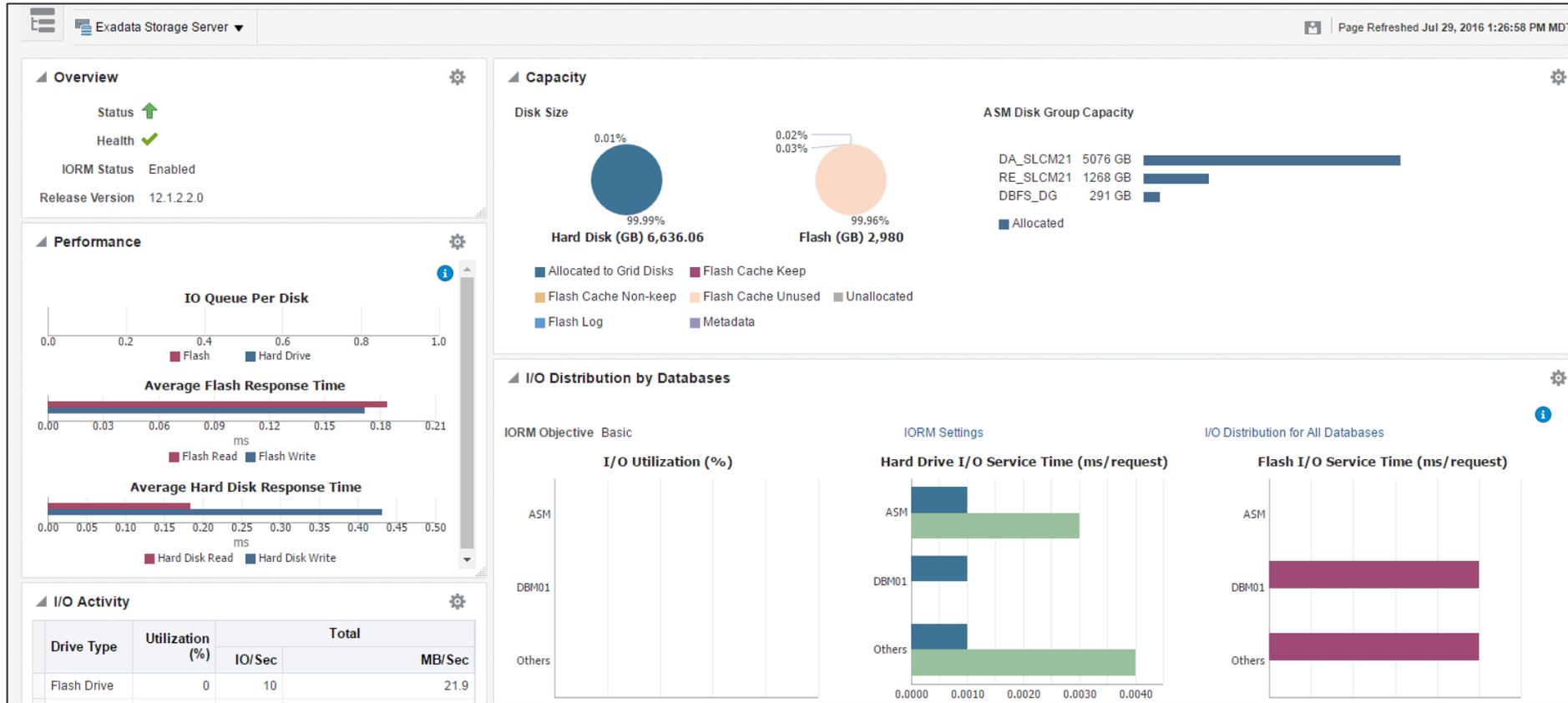
Exadata Management

Unified Hardware and Software View



- Hardware view
 - Schematic of cells, compute nodes and switches
 - Hardware components views and alerts
 - Photo-realistic schematic
 - Integrated with Ops Center
- Software/system view
 - Performance, availability, usage by databases, services, clusters
 - Software alerts DB, Cluster, ASM
 - Topology view of DB systems/clusters
- Configuration view
 - Version summary of all components along with patch recommendations

Storage Cell Management

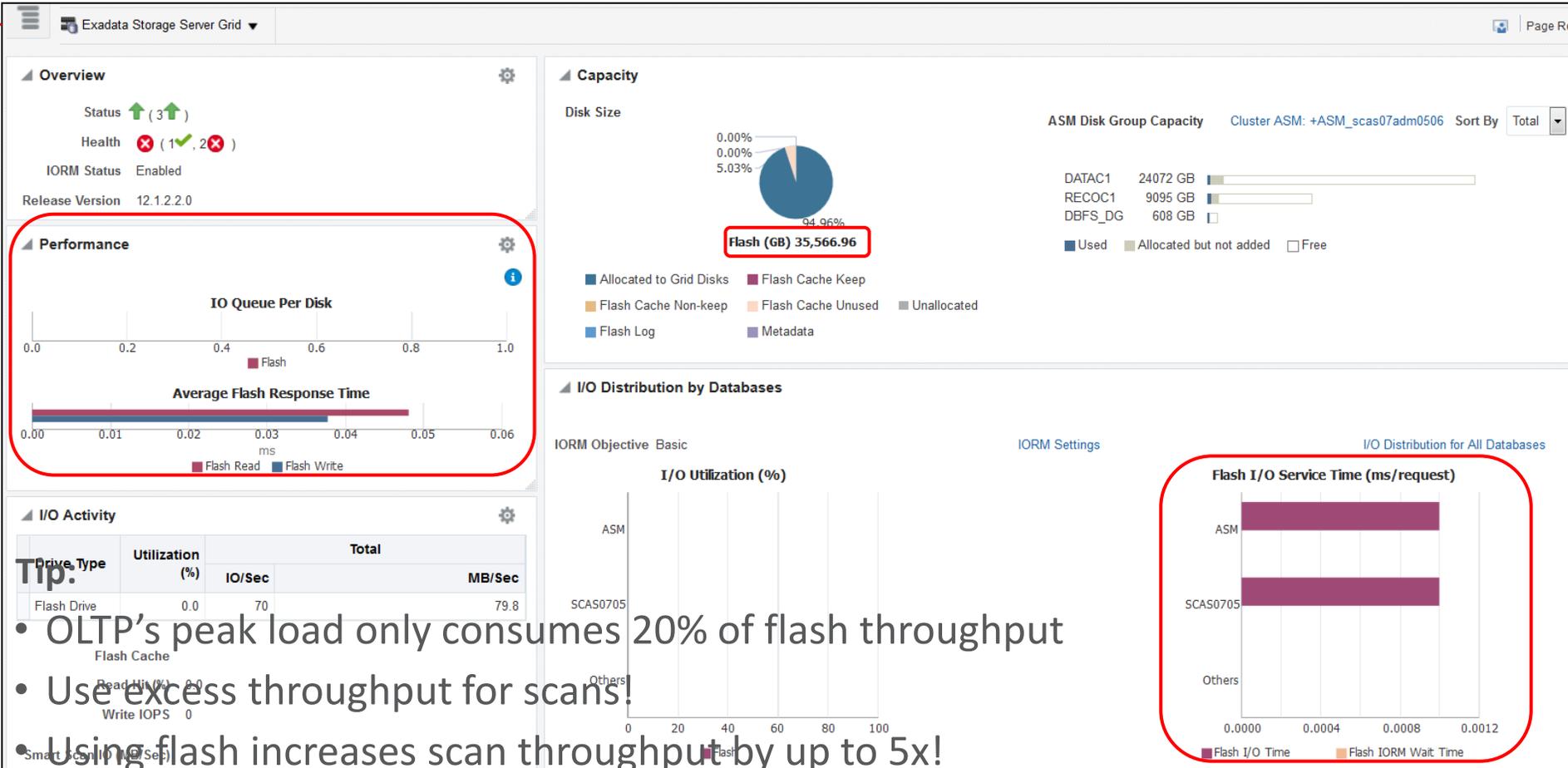


- Storage Cell monitoring and administration support
 - Cell Home page and performance pages
 - Actions supported: Run cellcli/Exacli, setup IORM

Monitor “Extreme Flash” Configuration

From Target Navigation Icon → Exadata Storage Server Grid

1. Target Navigation Icon →



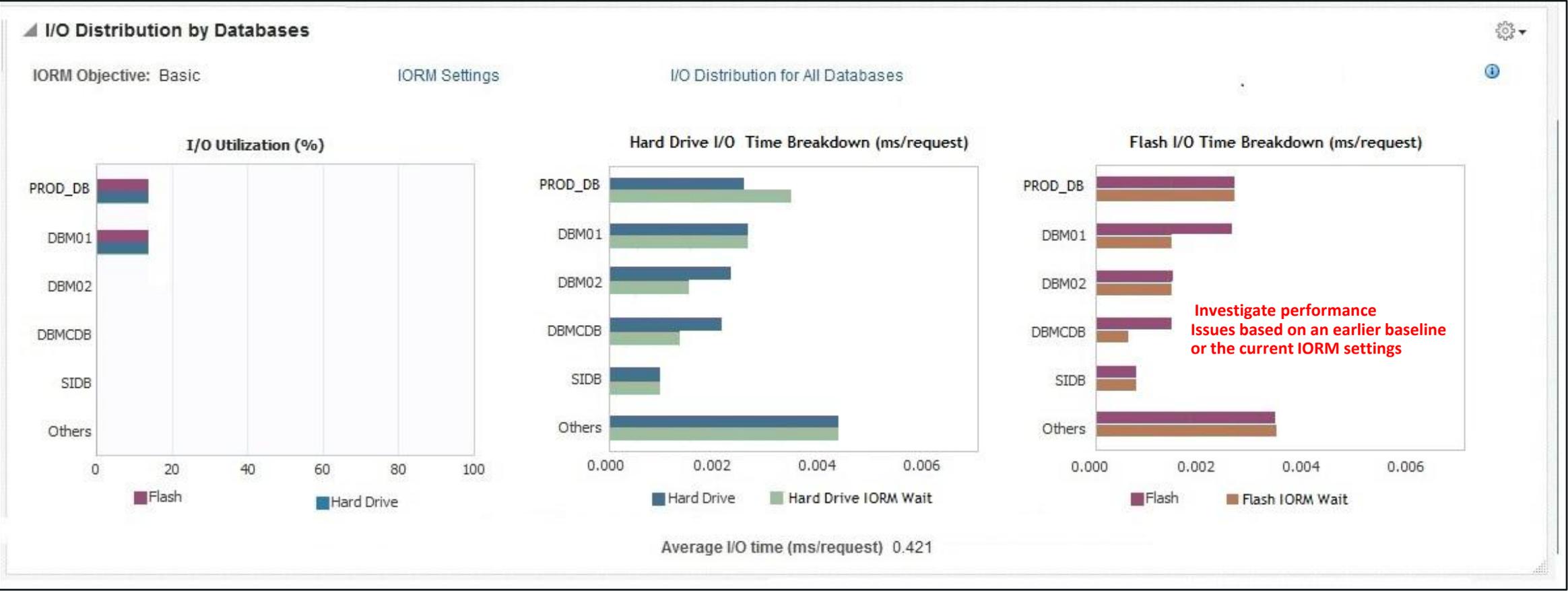
2. Perf. Section for Flash Read & Write →

3. Note only Flash Disk Size →

4. Monitor Flash IO service time →

New charts on Cell and Grid Home page, Performance page

Cell and Grid Home page, Performance page

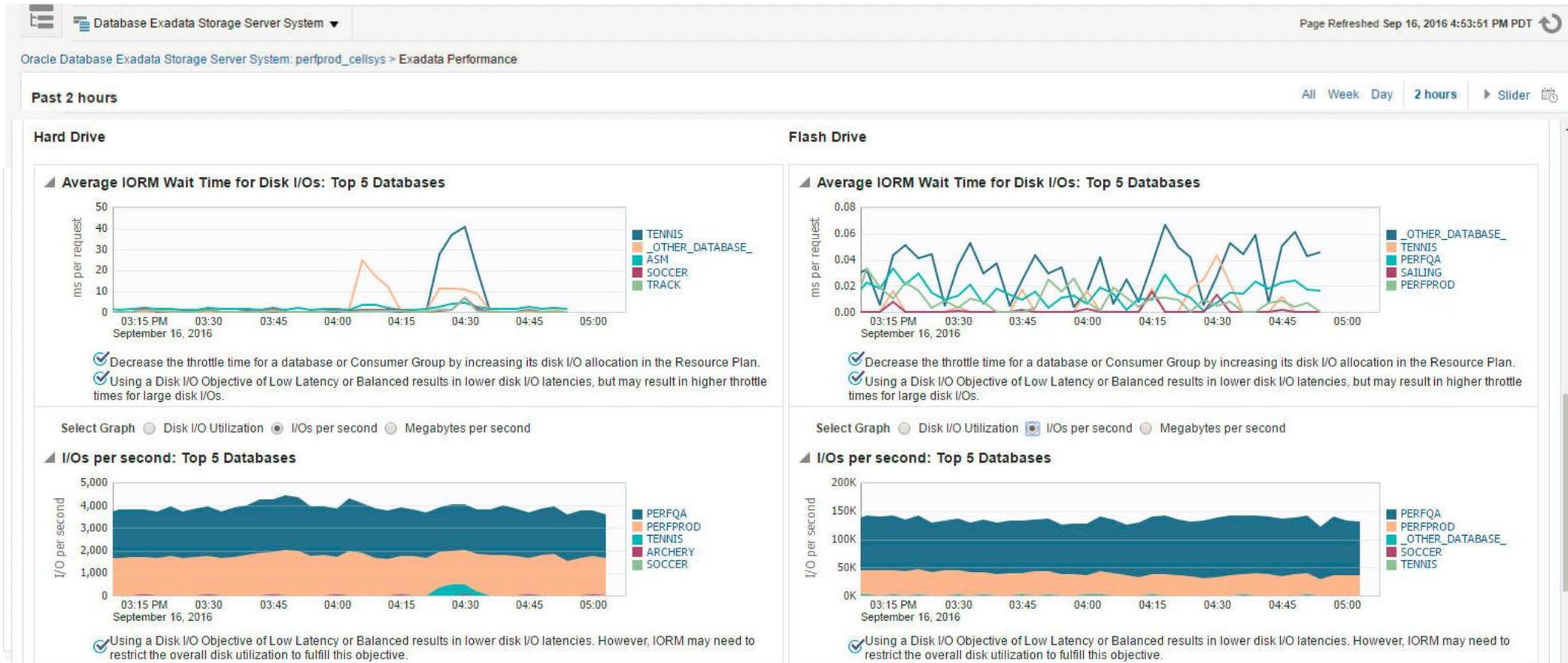


Monitor Flash performance and IORM waits



Cell and Grid Performance page

From Target Navigation Icon → Exadata Storage Server Grid → Performance



Infiniband Network Management

The screenshot displays the Oracle Infiniband Network Management interface. At the top, it shows the system name 'Systems Infrastructure Switch' and the page refresh time 'Page Refreshed Jul 29, 2016 12:47:47 PM GMT-07:00'. The main content area is divided into several sections:

- System Information:** IP: 10.240.211.13, Serial: 465769T+1348RR0AEX, Part Number: 7057247, Model: Sun Datacenter InfiniBand Switch 36. It also shows FW Version: 1.3.3-2, Health: ✔, and Locator: ⏻.
- Open Incidents:** A large '0' indicates 0 Fatal incidents. To the right, a '2' indicates 2 Critical incidents and 0 Warning incidents.
- Switch Throughput:** Displayed as 'N/A'.
- Physical Views:** Two views of the switch are shown: 'Rear' and 'Front'. The 'Rear' view shows the back of the switch with numerous ports. The 'Front' view shows the front of the switch with several green status indicators. A note states '2 incident(s) not shown in the physical view.' A 'View' dropdown menu is set to 'Photo-Realistic'.

– Comprehensive monitoring

- Alerts (switch generated and EM generated)
- Performance metrics
- Configuration metrics – detect and notify configuration changes/best practice violations

Infiniband Network Management

Command Credentials & Schedule Review & Submit Status

InfiniBand Network Administration: Command Back Step 1 of 4 Next Cancel

Command

Operation: **Enable Port** (dropdown menu open showing: Enable Port, Disable Port, Clear Performance Counters, Clear Error Counters, Switch LED On, Switch LED Off, Setup SNMP Subscription) Port: (dropdown menu)

From Target Navigation Icon → Infiniband Switches → Administration → Switch Operations

– Perform Infiniband Administration tasks

- Enable Port
- Disable Port
- Clear Performance counters
- Clear Error Counters
- Set up SNMP Subscription

Monitoring: ILOM, Cisco Switch, PDU

Database Machine Schematic

Slot Number	Component Name	Component Type	Status	Temperature			
22	sw-ibb0	InfiniBand Switch		47°C	2		
20	sw-iba0	InfiniBand Switch		52°C	2		
17	adm02/server	Server		41°C			
16	adm01-ilom	Server		41°C			
6-7	celadm03	Storage Server		29°C			
4-5	celadm02	Storage Server		28°C			
2-3	celadm01	Storage Server		28°C			
	sw-pdua0	PDU					
	sw-pdub0	PDU					

View Schematic Photo-Realistic Table

Show Empty Slot

Status

Up

Down

Blackout

Incidents

View ▼ Category All ▼ 0 4 0 0

Summary	Target	Severity	Status	Escalation Level	Type	Time Since Last Update
Access point ibb0.us.oracle.com_ILOM_AP1/snmp is down			New	-	Incident	0 days 4 hours
Access point -ibb0.us.oracle.com_ILOM_AP2/snmp is down			New	-	Incident	0 days 4 hours
Access point -iba0.us.oracle.com_ILOM_AP1/snmp is down			New	-	Incident	0 days 4 hours

– Metrics monitored

- Power supply failure, Fan failure, Temperature out of range
- Configuration change tracking and reporting, SNMP access issues

Exadata Dashboard

ORACLE Enterprise Manager Cloud Control 13c SYSMAN

DB Machine System Service Dashboard: DB Machine slcm21.us.oracle.com

Page Refreshed On **Aug 15, 2016 8:03:20 AM PDT** [Refres](#)

Service	Status	Performance	Usage and Business Indicators	Components	Service Level		
					Last 24 Hours	Last 7 Days	Last 31 Day
DB Machine slcm21.us.oracle.com- Exadata Storage Servers Service		0.13 Average Read Respons...	0.4 Average Write Respon...	3 Up	100.00%	100.00%	100.00%
DB Machine slcm21.us.oracle.com- Exadata Infiniband Service		No Metrics Available	No Data Total Octets Rate	2 Up	99.59%	99.91%	99.95%
DB Machine slcm21.us.oracle.com- Exadata Compute Node Server Service		No Metrics Available	259 Power Usage(Watts)	2 Up	100.00%	100.00%	100.00%
DB Machine slcm21.us.oracle.com- Exadata Host Service		8.74 CPU Utilization(%)	38.32 Memory Utilization(%...	2 Up	100.00%	100.00%	100.00%

How do you create the Exadata Dashboard?

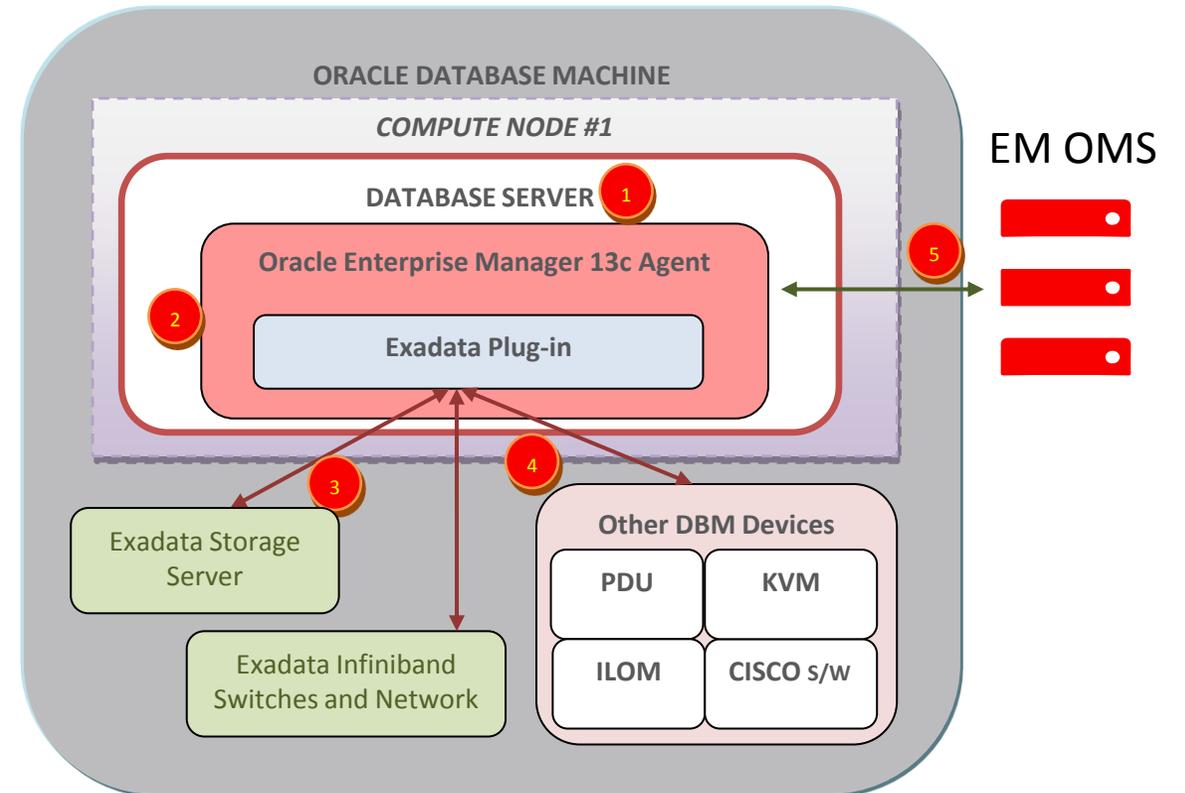
1. Use Oracle Enterprise Manager provided job: “Database Machine Services Dashboard”
2. From the Enterprise Manager home page, Click the Enterprise menu, Select Reports, then Information Publisher Reports
3. Search for report name “DASHBOARD_REPORT”
4. Click on the report to view the Exadata Dashboard Report

Program Agenda

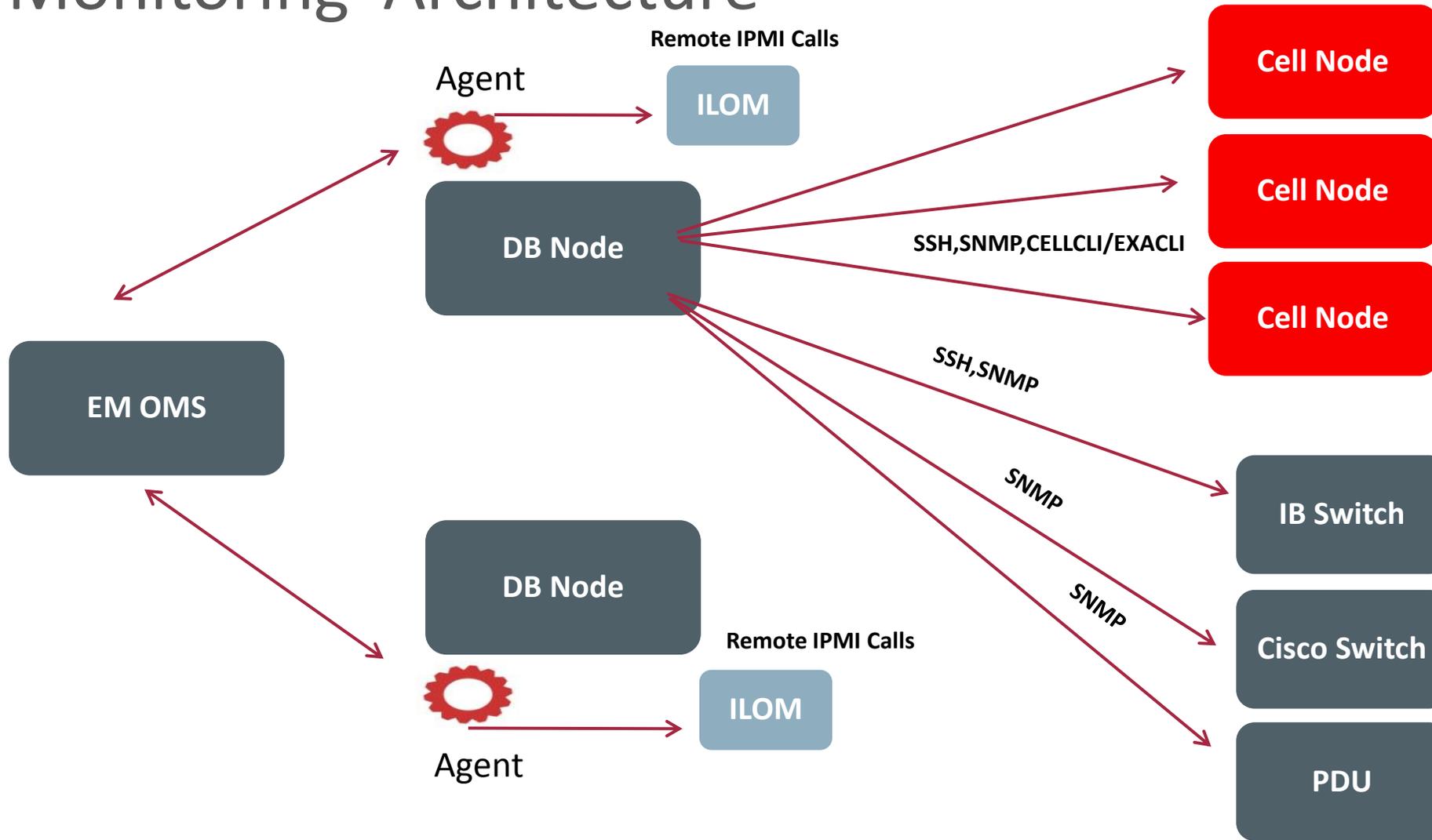
- 1 Exadata Monitoring in EM 13c
- 2 **Discovery**
- 3 Deployment
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Discovery Architecture

1. EM Agent deployed on each Compute Node
2. Exadata Plug-in deployed with the Agent
3. Agent communicates with Storage Server and Infiniband Switch targets using ssh or **exacli commands (New in 13c)**
4. Exadata Plug-in monitors the other DBM components
5. EM Agent collects data and uploads it to the Oracle Management Server (OMS)



Monitoring Architecture



Exadata Discovery Pre-Requisites

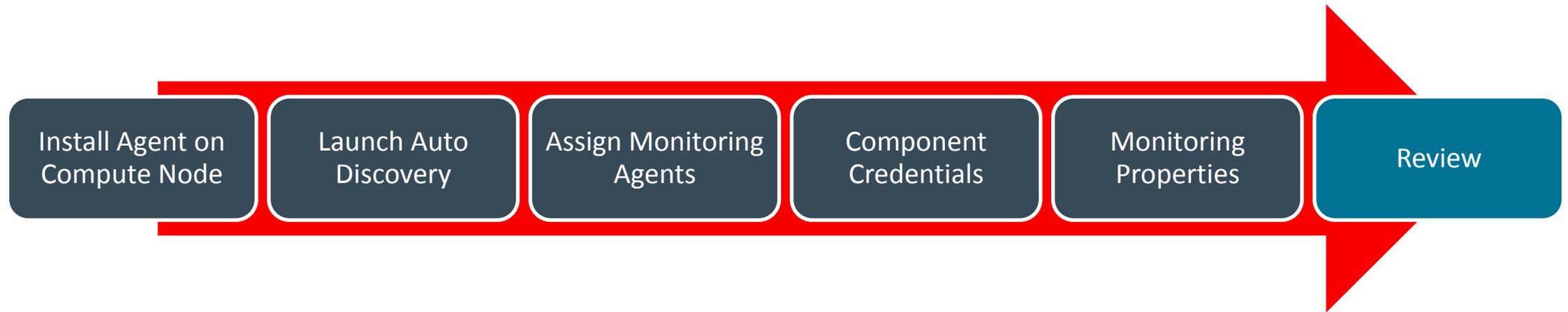
- Verify versions of storage server software, IB switch etc. are correct
- Perform catalog.xml , databasemachine.xml related checks (permission, version)
- Cipher entries in the storage servers and the compute nodes
- Run the script as part of Exadata plug-in 13.1.0.0.0 after the plug-in is deployed to the agent

```
$ORACLE_HOME/perl/bin/perl <agent_home> /plugins/oracle.sysman.xa.discovery.plugin_13.1.0.0.0/discover/dbmPreReqCheck/exadataDiscoveryPreCheck.pl
```

Exadata Discovery Pre-Requisites

- Additional credentials needed for 13c target types for enhanced H/W monitoring
- Agent host credentials
 - Username and password of the user running the agents on the compute nodes
- Monitoring credentials
 - Exadata Storage Cells: Root Credentials or Exacli User credentials, SNMP community string
 - System Infrastructure Server: ILOM SSH Monitoring Credentials
 - System Infrastructure Infiniband Switch : ILOM SSH Monitoring Credentials, SNMP Credentials
 - System Infrastructure Server CISCO Switch : Cisco Switch IOS Credentials , SNMP Credentials
 - System Infrastructure Server PDU: SNMP Credentials , HTTP Monitoring Credentials

Discovering Exadata in Enterprise Manager 13c



- Wizard driven guided discovery to discover all targets of the Exadata Database Machine
- Exadata Plug-in bundled for all components (viz. Cell, IB switch, PDU, Cisco Switch)
- Option to Discover New DB Machine or rediscover – Add DB Machine Members
- Support for discovery of virtualized DB Machine

Launch Guided Discovery

The screenshot shows the Oracle Enterprise Manager Cloud Control 13c interface. The main page is titled "Add Targets Manually" and has a navigation bar with "Enterprise", "Targets", "Favorites", "History", "Setup", and "SYSMAN". The page is divided into two main sections: "Add Host Targets" and "Add Non-Host Targets Using Guided Process". The "Add Host Targets" section has buttons for "Install Agent on Host" and "Install Agent Results". The "Add Non-Host Targets Using Guided Process" section has a button for "Add Using Guided". A modal window titled "Add Using Guided Process" is open, showing a table of "Guided Discovery" and "Discovered Target Types". The "Oracle Exadata Database Machine" row is highlighted in blue. The modal window has "Add ..." and "Cancel" buttons at the bottom right.

Guided Discovery	Discovered Target Types
Guided Discovery	Discovered Target Types
Exalogic Elastic Cloud	Exalogic Elastic Cloud
Exalytics System	Exalytics System
Global Data Services	Global Data Services, Global Service Manager, Globa...
IBM WebSphere Application Server	IBM WebSphere Application Server Cluster, IBM Web...
IBM WebSphere MQ Queue Manager	IBM WebSphere MQ Queue Manager, IBM WebSpher...
JBoss Application Server	JBoss Partition
Oracle BI Suite EE	Oracle BI Analytics Server (10g), Oracle BI Cluster Co...
Oracle Cluster and High Availability Service	Cluster, Oracle High Availability Service
Oracle Coherence	Oracle Coherence Cluster, Oracle Coherence Cache,...
Oracle Database, Listener and Automatic Storage Managem...	Database Instance, Listener, Pluggable Database, CI...
Oracle Directory Server Enterprise Edition	Oracle Directory Server Enterprise Edition Server, Dir...
Oracle Exadata Database Machine	Oracle Exadata Database Machine, Oracle Engineer...
Oracle Fusion Middleware/WebLogic Domain	Oracle WebLogic Domain
Oracle GlassFish Domain	Oracle GlassFish Domain

Select 13c Target Types

ORACLE Enterprise Manager Cloud Control 13c

Enterprise ▾ Targets ▾ Favorites ▾ History ▾ Setup ▾

Oracle Exadata Database Machine Discovery Page Refreshed Jul 27, 2016 7:52:09 AM PDT ↻

This process allows you to add hardware components (such as Oracle Exadata Storage Servers, Infiniband Switches, Ethernet Switches, KVM, PDUs and Racks) in the Oracle Exadata Database Machine as managed targets. Compute Nodes should have been added as Server targets already and will be added as members of the Database Machine System target after this discovery process. Monitoring of the compute node servers through their ILOM will also be enabled as part of the discovery process.

Select one of the following tasks:

- Discover a new Database Machine and its hardware components as targets
- Discover newly added hardware components in an existing Database Machine as targets

Hardware Component Monitoring Options

What target type would you like to use for monitoring hardware components?

- 13c target types with enhanced hardware monitoring, requiring additional credentials.
- 12c target types

Credentials required for 13C target discovery

Target Type	Credentials
Host	Agent Host User Credentials
Oracle Exadata Storage Server	Root Credentials, SNMP Community String
Systems Infrastructure CISCO Switch	Cisco Switch IOS Credentials, SNMP Credentials
Systems Infrastructure Infiniband Switch	ILOM SSH Administration Credentials, ILOM SSH Monitoring Credentials, SNMP Credentials
Systems Infrastructure PDU	SNMP Credentials, HTTP Monitoring Credentials
Systems Infrastructure Server	ILOM SSH Monitoring Credentials

Discover Targets Cancel

Discovery Inputs

ORACLE Enterprise Manager Cloud Control 13c SYSMAN ▾

Oracle Exadata Database Machine Discovery

Discovery Inputs Infiniband Discovery Prerequisite Check Components Monitoring Agents Credentials Review

Database Machine Discovery: Discovery Inputs Back Step 1 of 7 Next Cancel

Discovery Agent

Use remote agent for discovery and monitoring

* Agent URL 🔍

Schematic Files

The hardware components will be dynamically discovered based on your environment and the default schematic file.

You only need to customize the Schematic file location if one of the following is true:

- The Schematic file is not at the default location (/opt/oracle.SupportTools/onecommand/databasemachine.xml on the agent compute node)
- The Database Machine contains a Storage Expansion Rack (exadatabasemachine.xml).
- The hardware components are specified in multiple schematic files. (Only needed when an older version of Oracle Exadata Deployment Assistant is used to configure the environment.)

Customize Schematic File Locations

+ Add ✕ Remove Set Credential ▾

Host Name	*Credential	File Location	Schematic File
<input type="text" value="slcm21adm01.us.oracle.com"/> 🔍	Not Defined	<input type="text" value="/opt/oracle.SupportTools/onecommand/"/>	databasemachine.xml ▾

Prerequisite Check

ORACLE Enterprise Manager Cloud Control 13c SYSMAN ▾

Oracle Exadata Database Machine Discovery

Discovery Inputs Infiniband Discovery **Prerequisite Check** Components Monitoring Agents Credentials Review

Database Machine Discovery: Prerequisite Check Retry ▾ Back Step 3 of 7 Next Cancel

Prerequisite Check

Exadata discovery will try to discover hardware components dynamically based on your environment. If you are facing problems with dynamic discovery, you can opt for static discovery which will look up targets based on components defined in schematic files(schematic files required to be up-to-date).

✔ No critical issues found during discovery prereq checks. You can proceed further.

▲ **Warnings/Information**

Severity	Problem
i	EXM-4017: Discovery was done using the DYNAMIC_DISCOVERY method.



Component Summary

ORACLE Enterprise Manager Cloud Control 13c SYSMAN ▾

Oracle Exadata Database Machine Discovery

Discovery Inputs Infiniband Discovery Prerequisite Check **Components** Monitoring Agents Credentials Review

Database Machine Discovery: Components Set Target Properties Back Step 4 of 7 Next Cancel

Oracle Exadata Storage Server

Select the Oracle Exadata Storage Servers that are part of this Oracle Exadata Database Machine target.

Exadata Storage Server Name	Management IP
slcm21celadm01.us.oracle.com	10.240.211.4
slcm21celadm02.us.oracle.com	10.240.211.5
slcm21celadm03.us.oracle.com	10.240.211.6

Infiniband Switch

Select the Infiniband switches that are part of this Oracle Exadata Database Machine target. If this DB Machine is partitioned or this is a SuperCluster, you should select all Infiniband switches in this DB Machine or SuperCluster when you discover the first DB Machine target. All subsequent DB Machine targets will share the same set of Infiniband switch targets.

Infiniband Switch Name
slcm21sw-iba0.us.oracle.com
slcm21sw-ibb0.us.oracle.com

Ethernet Switch

Select the Ethernet switches that are part of this Oracle Exadata Database Machine target.

Host Name
slcm21sw-adm0.us.oracle.com

PDU

Select the Power Distribution Units (PDU) that are part of this Oracle Exadata Database Machine target.

PDU Name
slcm21sw-pdua0.us.oracle.com
slcm21sw-pdub0.us.oracle.com

Monitoring Agent Assignment

ORACLE Enterprise Manager Cloud Control 13c SYSMAN ▾

Oracle Exadata Database Machine Discovery

Discovery Inputs Infiniband Discovery Prerequisite Check Components **Monitoring Agents** Credentials Review

Database Machine Discovery: Monitoring Agents Back Step 5 of 7 Next Cancel

Exadata Storage Server Name	Monitoring Agent	Backup Monitoring Agent
slcm21celadm01.us.oracle.com	https://slcm21adm01.us.oracle.com:3873/emd/main/ ▾	https://slcm21adm02.us.oracle.com:3873/emd/main/ ▾
slcm21celadm02.us.oracle.com	https://slcm21adm02.us.oracle.com:3873/emd/main/ ▾	https://slcm21adm01.us.oracle.com:3873/emd/main/ ▾
slcm21celadm03.us.oracle.com	https://slcm21adm01.us.oracle.com:3873/emd/main/ ▾	https://slcm21adm02.us.oracle.com:3873/emd/main/ ▾

Infiniband Switch Name	Monitoring Agent	Backup Monitoring Agent
slcm21sw-ibb0.us.oracle.com	https://slcm21adm02.us.oracle.com:3873/emd/main/ ▾	https://slcm21adm01.us.oracle.com:3873/emd/main/ ▾

Ethernet Switch Name	Monitoring Agent	Backup Monitoring Agent
slcm21sw-adm0.us.oracle.com	https://slcm21adm01.us.oracle.com:3873/emd/main/ ▾	https://slcm21adm02.us.oracle.com:3873/emd/main/ ▾

Compute Node Server ILOM Name	Monitoring Agent	Backup Monitoring Agent
slcm21adm01-ilom.us.oracle.com	https://slcm21adm02.us.oracle.com:3873/emd/main/ ▾	https://slcm21adm01.us.oracle.com:3873/emd/main/ ▾
slcm21adm02-ilom.us.oracle.com	https://slcm21adm01.us.oracle.com:3873/emd/main/ ▾	https://slcm21adm02.us.oracle.com:3873/emd/main/ ▾

PDU Name	Monitoring Agent	Backup Monitoring Agent
slcm21sw-pdub0.us.oracle.com	https://slcm21adm02.us.oracle.com:3873/emd/main/ ▾	https://slcm21adm01.us.oracle.com:3873/emd/main/ ▾



Monitoring Credentials: Exadata Storage Server

Oracle Exadata Database Machine Discovery

Discovery Inputs | Infiniband Discovery | Prerequisite Check | Components | Monitoring Agents | **Credentials** | Review

Database Machine Discovery: Credentials

Agent

Specify the agent host users and passwords for all agents. The needed to set up SSH user equivalence between the agents and monitored by the agents and to configure the targets. They will unless you save them as named credentials.

Set Credential

Agent URL

https://slcm21adm01.us.oracle.com:3873/emd/main/
https://slcm21adm02.us.oracle.com:3873/emd/main/

Oracle Exadata Storage Server

Specify the Exadata Storage Server monitoring mechanism and Servers.

Set Credential

Exadata Storage Server Name	Monitoring Mechanism
slcm21celadm01.us.oracle.com	CellCLI
slcm21celadm02.us.oracle.com	CellCLI
slcm21celadm03.us.oracle.com	CellCLI

Enterprise Manager as monitoring credentials.

Set Credential

Ethernet Switch Name	*Credential
slcm21sw-adm0.us.oracle.com	Required, Not Set

Oracle Exadata Storage Server Credentials

Credentials

Specify the Exadata Storage Server Software version to determine the monitoring mechanism and the required credentials.

Are all Exadata Storage Server Software versions at 12.1.2.2 or later?

Yes

Monitor using ExaCLI (Recommended).
Allows SSH access to the Exadata Storage Server to be locked down for higher security.

Credential Named New

There are no named credentials defined.

Test Connection

No. Monitor using CellCLI.
Requires 'root' credentials (not stored) to set up SSH access from the monitoring agent to the Exadata Storage Server.

SNMP Credentials

Set up SNMP subscription for Oracle Exadata Storage Servers automatically.

Set up ASR subscription

OK Cancel

Monitoring Credentials: Summary

ORACLE Enterprise Manager Cloud Control 13c SYSMAN ▾

Oracle Exadata Database Machine Discovery

Discovery Inputs Infiniband Discovery Prerequisite Check Components Monitoring Agents **Credentials** Review

Database Machine Discovery: Credentials Back Step 6 of 7 Next Cancel

Agent

Specify the agent host users and passwords for all agents. The agent users and passwords are needed to set up SSH user equivalence between the agents and the Exadata Storage Server targets monitored by the agents and to configure the targets. They will not be saved in Enterprise Manager unless you save them as named credentials.

Set Credential ▾

Agent URL	*Credential
https://slcm21adm01.us.oracle.com:3873/emd/main/	oracle/*****
https://slcm21adm02.us.oracle.com:3873/emd/main/	oracle/*****

Oracle Exadata Storage Server

Specify the Exadata Storage Server monitoring mechanism and credentials for all Exadata Storage Servers.

Set Credential ▾

Exadata Storage Server Name	Monitoring Mechanism	*Credential
slcm21celadm01.us.oracle.com	CellCLI	root/*****,*****
slcm21celadm02.us.oracle.com	CellCLI	root/*****,*****
slcm21celadm03.us.oracle.com	CellCLI	root/*****,*****

Infiniband Switch

Specify the Integrated Lights Out Manager (ILOM) credentials and SNMP credentials for all Infiniband switches. They will be saved in Enterprise Manager as monitoring credentials and preferred credentials for administration tasks.

Set Credential ▾

Compute Node Server ILOM

Specify credentials for all the Compute Node Server Integrated Lights Out Managers (ILOM). They will be saved in Enterprise Manager as monitoring credentials.

Set Credential ▾

ILOM Name	*Credential
slcm21adm01-ilom.us.oracle.com	root/*****
slcm21adm02-ilom.us.oracle.com	root/*****

PDU

Specify the HTTP credentials and SNMP credentials for all PDUs. They will be saved in Enterprise Manager as monitoring credentials.

Set Credential ▾

PDU Name	*Credential
slcm21sw-pdua0.us.oracle.com	root/*****,*****
slcm21sw-pdub0.us.oracle.com	root/*****,*****

Ethernet Switch

Specify the Cisco IOS and SNMP credentials for all the Ethernet switches. They will be saved in Enterprise Manager as monitoring credentials.

Set Credential ▾

Ethernet Switch Name	*Credential
slcm21sw-adm0.us.oracle.com	Required, Not Set

Final Review and Discovery

ORACLE Enterprise Manager Cloud Control 13c SYSMAN

Oracle Exadata Database Machine Discovery

Discovery Inputs Infiniband Discovery Prerequisite Check Components Monitoring Agents Credentials **Review**

Database Machine Discovery: Review Back Step 7 of 7 Next Submit Cancel

Oracle Exadata Storage Server

The following Exadata Storage Servers will be added as members of the Database Machine target. SNMP will be set up automatically on Exadata Storage Servers.

Exadata Storage Server Name	Management IP	Monitoring Agent	Backup Monitoring Agent
slcm21celadm01.us.oracle.com	10.240.211.4	https://slcm21adm01.us.oracle.com:3873/emd/main/	https://slcm21adm01.us.oracle.com:3873/emd/main/
slcm21celadm02.us.oracle.com	10.240.211.5	https://slcm21adm02.us.oracle.com:3873/emd/main/	https://slcm21adm02.us.oracle.com:3873/emd/main/
slcm21celadm03.us.oracle.com	10.240.211.6	https://slcm21adm01.us.oracle.com:3873/emd/main/	https://slcm21adm01.us.oracle.com:3873/emd/main/

Infiniband Switch

The following Infiniband switches will be added as members of the Database Machine target.

Infiniband Switch Name	Monitoring Agent	Backup Monitoring Agent
slcm21sw-iba0.us.oracle.com	https://slcm21adm02.us.oracle.com:3873/emd/main/	https://slcm21adm01.us.oracle.com:3873/emd/main/
slcm21sw-ibb0.us.oracle.com	https://slcm21adm01.us.oracle.com:3873/emd/main/	https://slcm21adm02.us.oracle.com:3873/emd/main/

Ethernet Switch

The following Ethernet switches will be added as members of the Database Machine target.

Ethernet Switch Name	IP Address	Monitoring Agent	Backup Monitoring Agent
slcm21sw-adm0.us.oracle.com		https://slcm21adm02.us.oracle.com:3873/emd/main/	https://slcm21adm01.us.oracle.com:3873/emd/main/

PDU

The following Power Distribution Units (PDU) will be added as members of the Database Machine target.

PDU Name	IP Address	Monitoring Agent	Backup Monitoring Agent
slcm21sw-pdua0.us.oracle.com	10.240.211.15	https://slcm21adm01.us.oracle.com:3873/emd/main/	https://slcm21adm02.us.oracle.com:3873/emd/main/
slcm21sw-pdub0.us.oracle.com	10.240.211.16	https://slcm21adm02.us.oracle.com:3873/emd/main/	https://slcm21adm01.us.oracle.com:3873/emd/main/

Processing

Promoting Targets - In Progress.

This operation cannot be cancelled. Closing the browser window may cause the process to fail.



Discovery Summary

ORACLE Enterprise Manager Cloud Control 13c

Enterprise ▼ Targets ▼ Favorites ▼ History ▼ Setup ▼

Page Refreshed Jul 29, 2016 8:22:33 AM PDT ↻

Target Creation Summary

The tables below show the result of target creation and set up. You can click on the discovery status to see the detailed messages.

System Target

The following system targets are added in Enterprise Manager.

Target Name	Target Type	Discovery Status
DB Machine slcm21.us.oracle.com	Oracle Exadata Database Machine	
Exadata Grid slcm21.us.oracle.com	Oracle Exadata Storage Server Grid	

Rack

Rack Name	Discovery Status
DB Machine slcm21 Rack slcm21adm01.us.oracle.com	

Compute Nodes/Servers

The following compute nodes are added as members of the Database Machine target.

Compute Node	Discovery Status
slcm21adm01-ilom.us.oracle.com	
slcm21adm02.us.oracle.com/server	

Oracle Exadata Storage Server

The following Exadata Storage Servers are added as members of the Database Machine target.

Exadata Storage Server Name	Management IP	Discovery Status
slcm21celadm01.us.oracle.com	10.240.211.4	
slcm21celadm02.us.oracle.com	10.240.211.5	

Post Discovery Tasks: Configure SNMP Traps

- Perform the below steps if SNMP was not configured while performing the discovery
- Compute nodes
 - DBMCLI> ALTER DBSERVER snmpSubscriber=((host='host1.example.com',port=[port], snmpUser='[v3user]', type=V3))
- Storage Cells
 - Use CellCLI and inspect snmpSubscriber, notificationMethod, notificationRule
 - cellcli -e list cell attributes snmpSubscriber
 - ALTER CELL snmpSubscriber=((host='host1.example.com',port=[port], snmpUser='[v3user]', type=V3))
- InfiniBand Switches
 - Use the ILOM interface or SSH to iba0/ibb0
 - Configure from EM Console (Target Navigation Icon → Infiniband Switches → Administration → Switch Operations)

Post Discovery Tasks: Configure SNMP Traps (Continued)

- Cisco IP Switch
 - Log in to the Cisco switch and enter Configure mode
 - dm01sw-ip# configure terminal
 - Enable access to allow the Agents monitoring Cisco Switch target to poll the switch
 - dm01sw-ip(config)# access-list 1 permit [EMagentIPAddr]
 - dm01sw-ip(config)# snmp-server community <community_string> ro 1
 - Set the monitoring Agent as the location where SNMP traps are delivered
 - dm01sw-ip(config)# snmp-server host <EMagentIPAddr> version 1 <community string> udp-port [EMagentRecvItListenPort]
- Power Distribution Units
 - Open http/s interface: Navigate to Net – Configuration
 - Enable “SNMP Enable” Checkbox
 - Provide compute node and community string entries under NMS

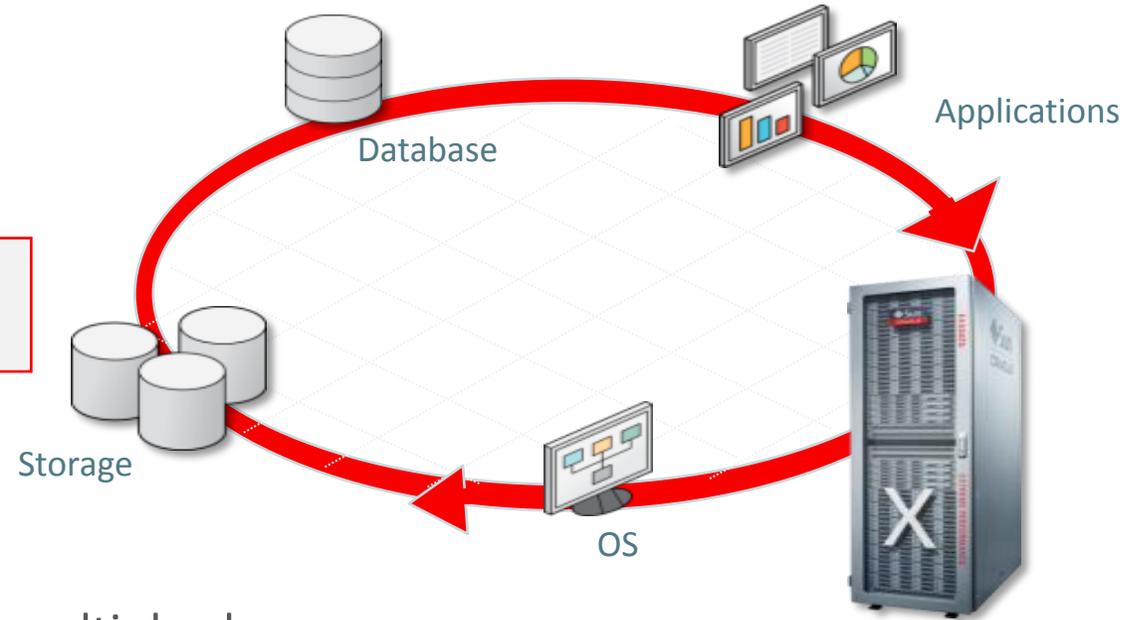
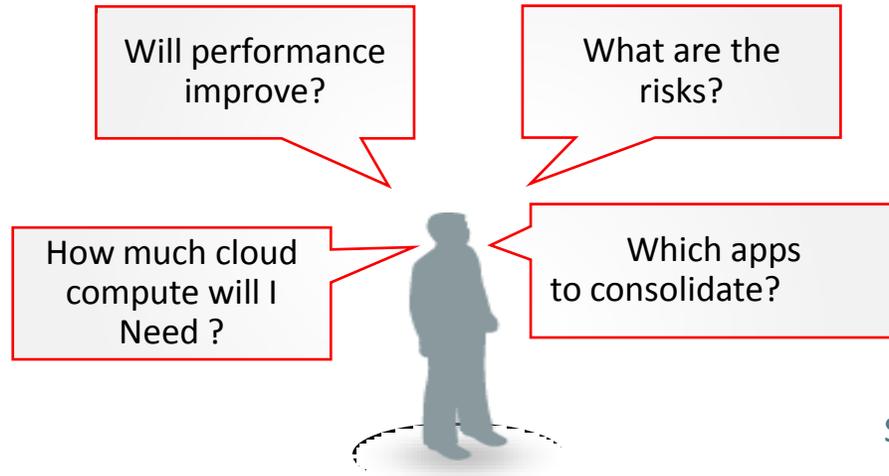
Handling Upgrades

- When you upgrade from Oracle Enterprise Manager 12c to 13c
 - Option to have existing DBM targets continue to be monitored as EM 12c target types
 - Monitor and manage DBM targets as with Oracle Enterprise Manager 12c
 - Experience new features in a phased manner at your convenience
 - Conversion Wizard to Convert 12c Targets to 13c Targets
- Conversion Options
 - Delete 12c targets and their historical data
 - Retain 12c targets and their historical data (Recommended)
- Handy MOS Notes
 - Information Center: Enterprise Manager for Exadata Plugin (Doc ID 1401235.2)
 - Enable DEBUG tracing: Enterprise Manager Issues for Exadata Targets (Doc ID 2134085.1)

Program Agenda

- 1 Exadata Monitoring in EM 13c
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Deployment Challenges



- Deploying application to Exadata involves multiple changes:
 - O/S migrations
 - Storage subsystem changes
 - Database upgrades
 - Single database instance to RAC
- Proper testing required for risk mitigation

Database Consolidation Workbench

End-to-end Consolidation Solution

- **Plan**

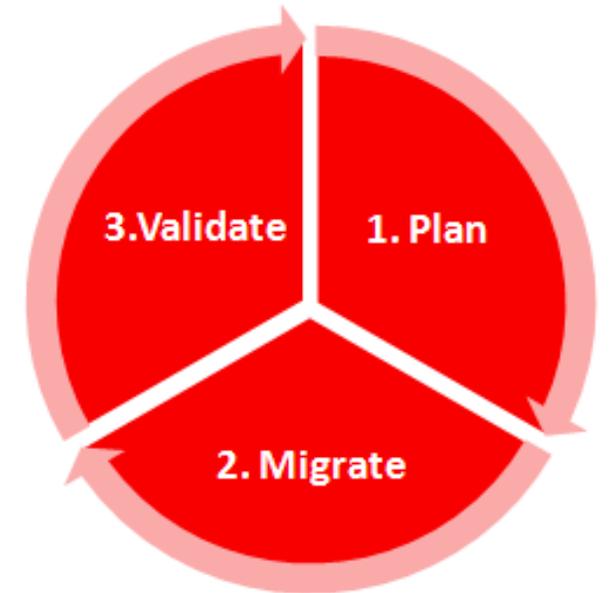
- Gives consolidation advice by identifying candidate databases for the designated consolidation platform using AWR data
- Accurately estimates requirements for Cloud migration

- **Migrate**

- Implements consolidation plan by migrating databases to new consolidation platform using EM's provisioning features

- **Validate**

- Validates consolidation plan with Real Application Testing (SPA) by running test workloads on consolidated databases



Database Consolidation Workbench

Key Features

- Estimates resource utilization under various consolidation scenarios
 - Ultra Conservative (peak maximum) → Aggressive (average)
- Supported consolidation modes
 - Database-to-Database (Multitenant) consolidation
 - Database-to-Server (Server, e.g. Exadata) consolidation
 - Oracle Exadata Cloud Service migration
- Consolidation optimization advice
 - Identifies conflicts based on workload characteristics, Exadata suitability
 - Storage/Platform advice: Impact of compression on I/O & storage, impact of I/O offloading & Flash Cache
 - Accurately estimate required Oracle cloud compute size and shape for Exadata Cloud Service Instances



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Performance Diagnostics using AWR

- Performance diagnosis in earlier versions (DB 11.2.0.4) required many steps
 - AWR report : verify I/O issue
 - Top Wait Events are in User I/O
 - Compare of good period vs bad period: difference is in I/O
 - Check ExaWatcher stats
 - Check CellDisk metrics
 - Compute total IOPs and MBPS for HDD and Flash
 - Check utilization and latency
 - Compare with datasheet numbers
- Difficult when multiple databases are consolidated on a DB Machine

Performance Diagnostics using AWR

- Enhanced Performance diagnosis from DB 12.1.0.2 with enriched statistics

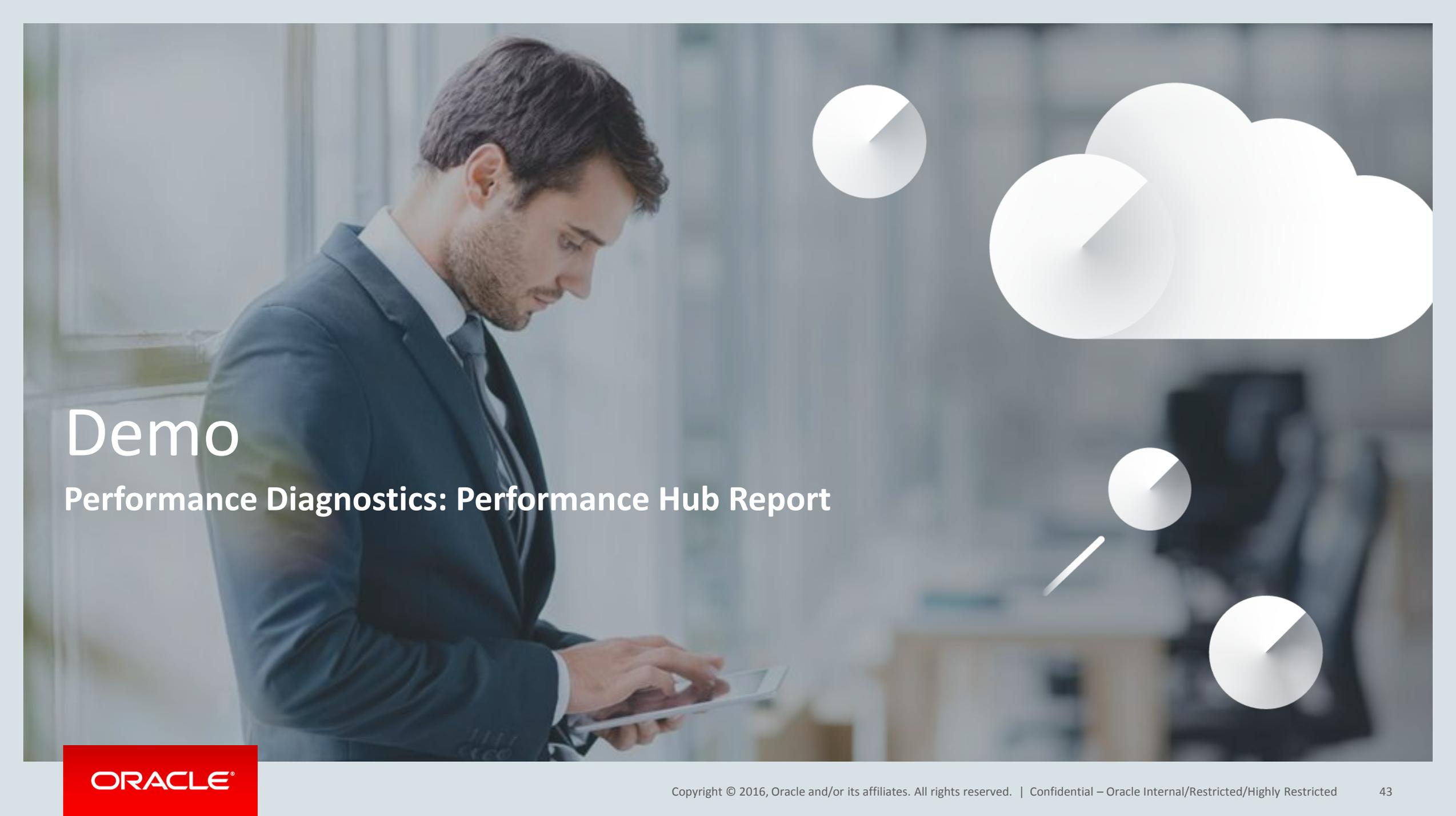
Exadata Configuration and Statistics

- Exadata Report Summary
 - Exadata Server Configuration
 - Exadata Server Health Report
 - Exadata Statistics
- Support available from RDBMS 12.1.0.2.11 DBBP & Exadata Storage Server Image version 12.1.2.1.0
 - Exadata Statistics: Operating system statistics, storage server software statistics, smart scan statistics and statistics by databases
 - Outliers are automatically analyzed and presented for easy performance analysis
 - Exadata Server Health Report: Offline disks and open alerts
 - Useful for analyzing cases where one database can affect the performance of another database

Performance Diagnostics: AWR Exadata statistics

Common Problems Addressed

- Multiple databases
- High I/O Load
 - Backup, Rebalance, etc
 - User I/O
- Slow disk – affecting system
- CPU bound cell
- Configuration issues
 - Different versions, offline disks
- Top Consumers
 - Report from a single database shows I/O from other databases
- IO Reasons
- Outlier Analysis
 - Find the one that is “different”
- Smart I/O section
 - Determines offload
- Configuration

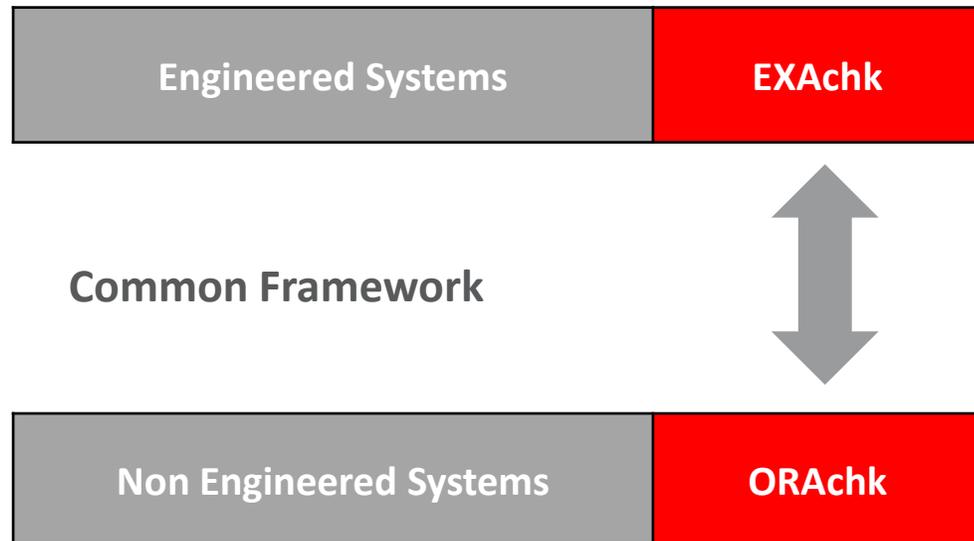


Demo

Performance Diagnostics: Performance Hub Report

Monitor Health using EXAchk

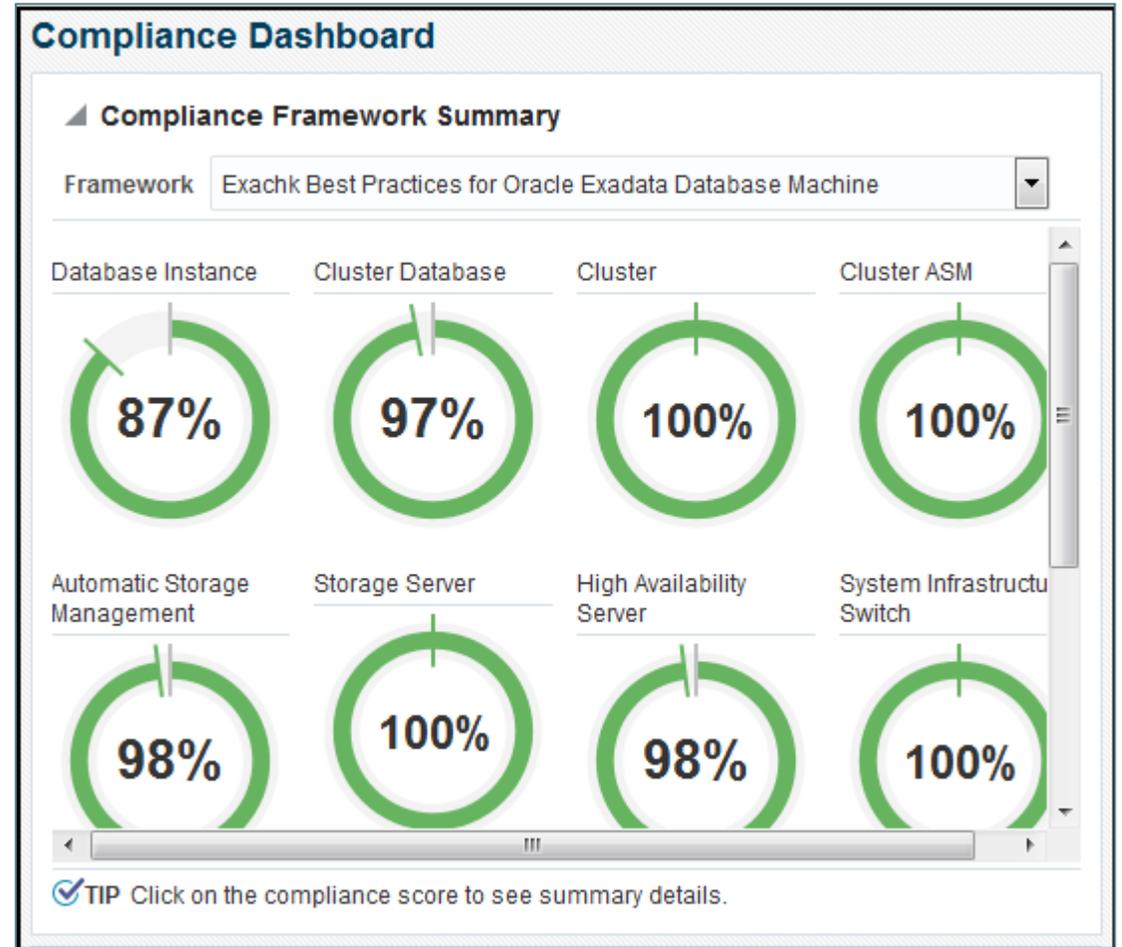
- Lightweight & non intrusive Health Check framework for the Oracle stack



- Automated risk identification and proactive notification before business is impacted
- Health Checks based on most impactful reoccurring problems across Oracle customer base
- Runs in your environment – no need to send anything to Oracle
- Scheduled email Health Check reports
- Findings can be integrated into EM

EXAchk integration with the Enterprise Manager

- EXAchk integrated with the Enterprise Manager compliance framework
- Install & Setup ORAchk utility from Enterprise Manager Cloud Control
- Upgrade of ORAchk utility from Enterprise Manager
- Convert results into Compliance Standards (CS) violations
- Associate the ORAchk results (CS violations) with appropriate targets



Setting Up Enterprise Manager EXAchk Plug-in

- The plug-in is already installed by default with Enterprise Manager 13.1
- Deploy the plug-in using the Enterprise Manager Plug-in Deployment feature
- Plug-in is always deployed on the OMS
- Provision the plug-in to setup the EXAchk daemon

Plug-ins
This page lists the plug-ins available, downloaded, and deployed to the Enterprise Manager system.

Actions ▾ View ▾ Deploy On ▾ Undeploy From ▾ Check Updates

Name	Version		
	Lat Av	Latest Downloaded	On Management Server
▶ Cloud			
▶ Databases			
▶ Engineered Systems			
▶ Middleware			
▶ Servers, Storage and Network			
Oracle Audit Vault	12.	12.1.0.4.0	
Oracle Audit Vault and Database Firewall	13.	13.1.1.0.0	
Oracle Beacon	13.	13.1.0.0.0	13.1.0.0.0
Oracle Consolidation Planning and Chargeb	13.	13.1.1.0.0	13.1.1.0.0
Oracle ORAchk Healthchecks	13.	13.1.1.0.0	13.1.1.0.0

View Results by Compliance Standard

Enterprise → Compliance → Results

Compliance Results
Page Refreshed

[Compliance Results](#) > Exachk Oracle Exadata Storage Server Best Practices For Oracle Exadata Database Machine

Exachk Oracle Exadata Storage Server Best Practices For Oracle Exadata Database Machine

Exachk Oracle Exadata Storage Server Best Practices For Oracle Exadata Database Machine (Compliance Standard)

- Exachk Oracle Exadata Storage S
 - Verify the file /.updfm_exact c
 - Verify there are no memory (E
 - RAID controller version on sto
 - Set "mpt_cmd_retry_count=10
 - Exadata celldisk predictive fai
 - Configure Storage Server aler
 - Verify storage server disk con
 - Exadata storage server root fi
 - Exadata storage server syste
 - Verify RAID Controller Battery
 - Verify RAID Controller Battery
 - Verify Electronic Storage Mod
 - Verify celldisk configuration or
 - Exadata Critical Issue EX11

Summary
Trend Overview
Violations

Target Scorecard



Targets By Severity

Rule Evaluations



Rule Evaluations

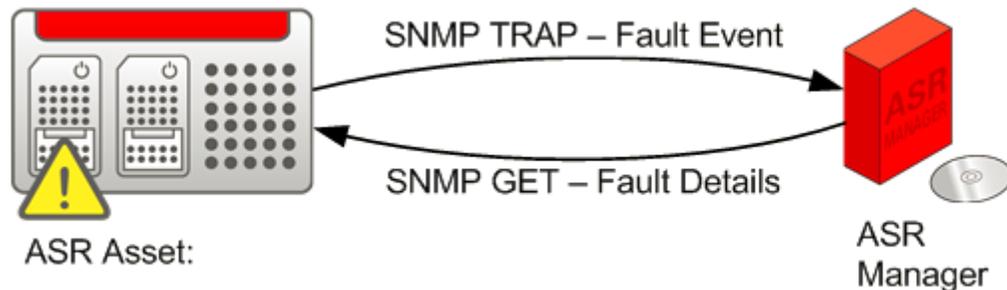
Event is generated for compliance violation with Event type "Compliance Standard Rule Violation"

Result By Target
Result By Compliance Standard Rule

Target Name	Required Data Available		Score (%)	Last Evaluation Date		Violations
slcc15cel01.us.oracle.com	Yes	<div style="width: 100%; height: 10px; background-color: #4CAF50;"></div>	100	Oct 9, 2015		0
slcc15cel03.us.oracle.com	Yes	<div style="width: 100%; height: 10px; background-color: #4CAF50;"></div>	100	Oct 9, 2015		0
slcc15cel02.us.oracle.com	Yes	<div style="width: 100%; height: 10px; background-color: #4CAF50;"></div>	100	Oct 9, 2015	✘	0

Diagnose and repair Hardware Faults using ASR

- Oracle Auto Service Request is included with Oracle Premier Support and is the fastest route to restoring system availability if a hardware fault occurs



- Requirement: Outbound, secure internet connection to Oracle to provide diagnostics information

- Automatically generates service requests with Oracle
- Covers physical faults on disk, fan, and power supplies etc.
- ASR Manager now available as EM 13c Plug-in
- EM infrastructure is used to configure ASR
- View ASR Incidents in EM Incident Manager

Setting Up ASR in Enterprise Manager 13c

- The plug-in is already installed by default with Enterprise Manager 13c
- The hardware targets (Exadata and Solaris host) must be discovered by Enterprise Manager
- Register with Oracle ASR
 - `$OMS_ROOT/bin/emcli em_asr_register -mosid=<MOS_USER_ID>`
- Activate the asset
 - `$OMS_ROOT/bin/emcli em_asr_asset_actcred -mosid="<MOS_USER_ID>"`
- For ASR activation to complete, the asset has to be Inactive or not monitored by another ASR or any other client
- Run `em_asr_deregister` If you need to disable and unregister ASR

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Oracle Big Data Appliance

Monitoring & Management using Enterprise Manager 13c

Enterprise Manager 13c Big Data Management



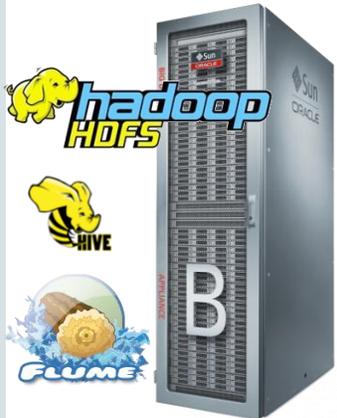
Big Data Monitoring

- New hardware targets for incident management specific to hardware targets (Ops Center Integration)
- ASR integration: ASR is included as part of Enterprise Manager Cloud Control 13c



Big Data SQL Support

- Predicate Push-Down
- Storage Indexes
- Appears as a EM Target



Cloudera Distribution

- Support for all target types in Hadoop managed by Cloudera
- Appears as a EM Target



Big Data Administration

- Enriched Cluster Management support
- Full Stack Patching and Upgrading
- Cluster Re-Configuration Support

Summary

- Exadata Monitoring in EM 13c
- Component Monitoring /Discovery
- Consolidation Best Practices & Monitoring Performance/Health Tips
- Oracle Big Data Appliance: Monitoring & Management

Program Agenda

- 1 Exadata Monitoring in EM 13c
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- 6 **Customer Testimonial - SOCIETE GENERALE**

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September 18–22, 2016
San Francisco

Christian Bilien
Global head of data infrastructures,
SOCIETE GENERALE

Accelerate Your
Digital Transformation
in the Cloud



what: job title, keywords or company

where: city, state, or zip

[Find Salaries](#)[Find Jobs](#)

Salary Search

Oracle Exadata Database Machine Administrator Salary in United States

What

Where

Job Title, Keywords

City, State or Zip

[Add Comparison](#) Search Job Titles Only[View Salary](#)

See up-to-date Database Administrator salary information in US on our new [salaries page](#).

Average Salary of Jobs Matching Your Search

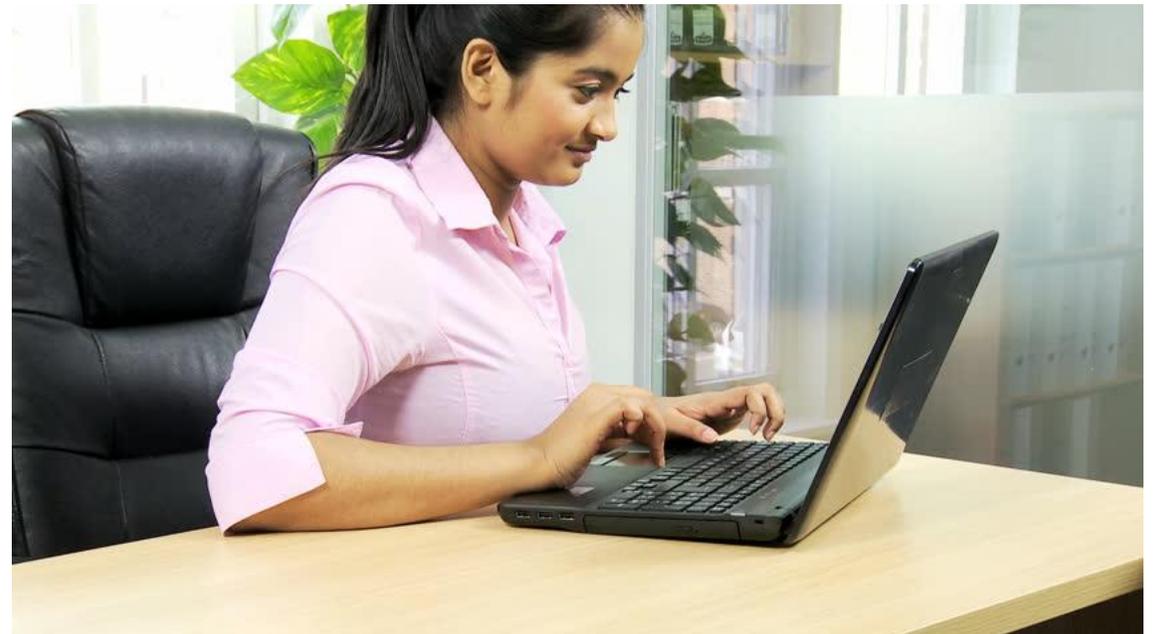


Meet Our Young Graduates



Justin, NYC

Schooled on Docker, Python, MySql, OpenStack
Fundamentals for Oracle Administrators



Ashwini, Bangalore

Schooled on Kubernetes, PostGreSQL, Node.js
Oracle Administration workshop I and II
Performance Tuning DBA

Meet Our 2005 Cryogenized DBA



Cuthbert

European country
(still part of the EU)

20 years of Oracle training,
too long to describe

Follow the sun support



Bangalore



NYC



Paris



Hardware & system healthcheck

Target Navigation

View ▾

DB Machine slcb06.us.oracle.com

Compute Nodes

DB Machine slcb06.us.oracle.com

Database Machine ▾

Overview

Racks 1

Compute Nodes 8

Incidents

View ▾ Category All

2 3 0 0 | Open events without incidents for current target 1

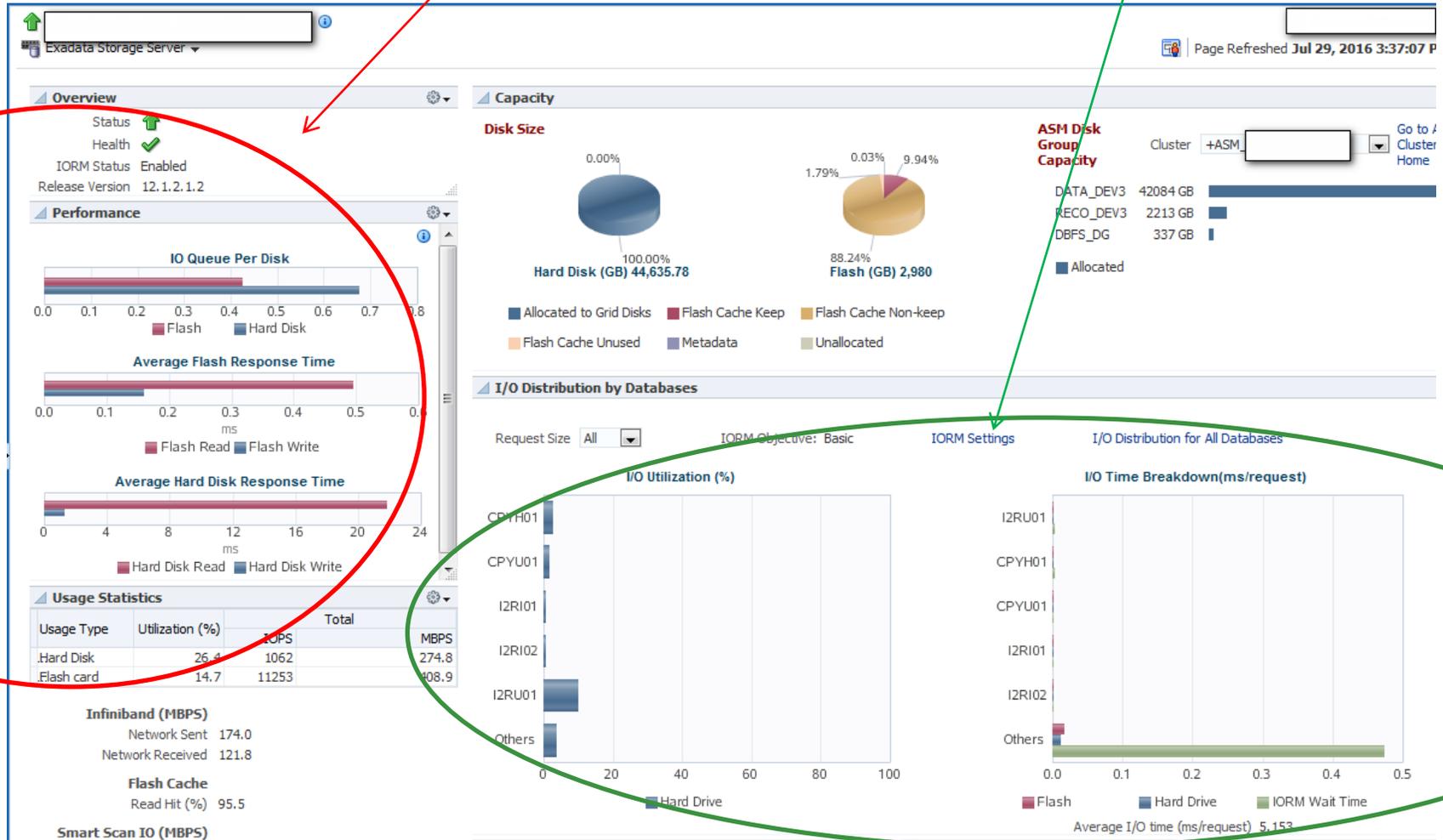
Summary	Target	Severity	Status	Escalation level	Type	Time since last update
Filesystem / has 4.84% available space, fallen below warning (20) or critical (5) threshold.		⊗	New	-	Incident	0 days 0 hours
Agent Unreachability is cleared. The current status of the target is DOWN.		⊖	New	-	Incident	0 days 12 hours
Agent Unreachability is cleared. The current status of the target is DOWN.		⊖	New	-	Incident	0 days 12 hours
Power supply sensor(s) at level - CRITICAL		⊗	New	-	Incident	8 days 6 hours
Power supply sensor(s) at level - CRITICAL		⊗	New	-	Incident	8 days 6 hours

Columns Hidden 13 | Open events without incidents for current target Updated in last 31 days

- Down
- Exadata Cell
- Compute Node
- Infiniband Switch
- Ethernet Switch
- Keyboard-Video-Mouse



All in one: Engineered systems for databases



OEM is a well suited administration tool

- For:
 - Engineered systems
 - Follow The Sun/ Offshored operations
 - For DBA teams made of different level of expertise



Key Sessions

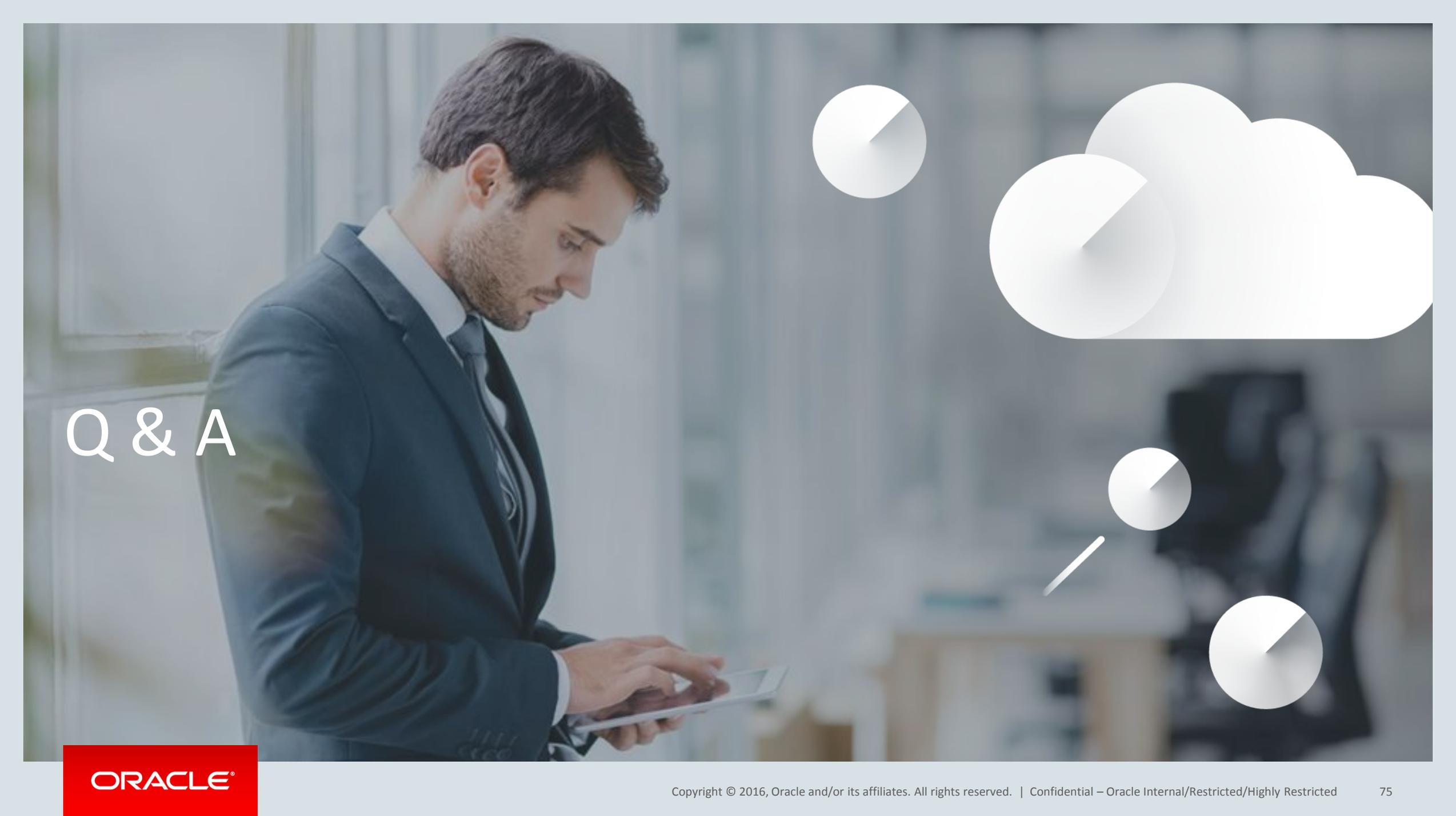
Wednesday, Sep 21

ORACLE
OPEN

DATE/TIME	TOPIC	Session #	LOCATION
1:30 p.m.	Expert Tips to Maximize Engineered Systems' Storage Performance: Three Proven Best Practices	CON2869	Park Central—Metropolitan III
1:30 p.m.	Oracle GoldenGate for Big Data	CON6632	Moscone South—306
10:15 a.m.	Kohl's: Record-Setting Timeline with an Agile Implementation Methodology	CON7849	Marriott Marquis—Golden Gate B
12:15 p.m.	Oracle E-Business Suite in Oracle Cloud: Technical Insight	CON6723	Moscone West—2002
3:00 p.m.	Insights on Orchestrating Extreme High Availability on Exadata and Oracle SuperCluster	CON1775	Moscone South—308
3:00 p.m.	Smart Manufacturing with Engineering Automation on Oracle Technology Stacks	CON3052	Park Central—Olympic
1:30 p.m.	Oracle Exadata Technical Deep Dive: Architecture and Internals	CON6522	Moscone South—103

Thursday, Sep 22

DATE/TIME	TOPIC	Session #	LOCATION
9:30 a.m.	Database Consolidation: Resource Management Best Practices	CON6423	Moscone South—301
10:45 a.m.	Maximizing Oracle Exadata Database Machine Reliability with Oracle EXAchk	CON1142	Moscone South—302
10:45 a.m.	Oracle Maximum Availability Architecture Best Practices for the Cloud	CON6536	Moscone South—102
12:00 p.m.	Exadata: Database Consolidation and Security Best Practices	CON6524	Moscone South-102
12:00 p.m.	Multitenancy at Wells Fargo Bank	CON3139	Park Central—Franciscan I
12:00 p.m.	Analytics at Energy Australia - Building an IM Platform in the Age of Big Data	CON5465	Moscone South—302
12:00 p.m.	Lift and Shift onto Oracle Database Exadata Cloud Service Using Database Consolidation Advisor	CON1125	Marriott Marquis—Salon 12
1:15 p.m.	Database Performance Analytics for Exadata	CON6885	Park Central—Franciscan II
1:15 p.m.	Implementing High Availability with Exadata: Deep Dive and Best Practices	CON6527	Moscone South—102
2:30 p.m.	Automated Patching for Hundreds of Exadata Systems in Oracle's SaaS Cloud	CON6528	Moscone South—102



Q & A

Integrated Cloud

Applications & Platform Services

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