

ORACLE®

Oracle Enterprise Manager: The Complete Solution and Oracle's Best Kept Secrets

[CON9715]

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ENTERPRISE MANAGER

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Safe Harbor Statement

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Total Cloud Control

ORACLE[®]
ENTERPRISE MANAGER **12^c**



Complete Cloud Lifecycle Management



Expanded Stack Management



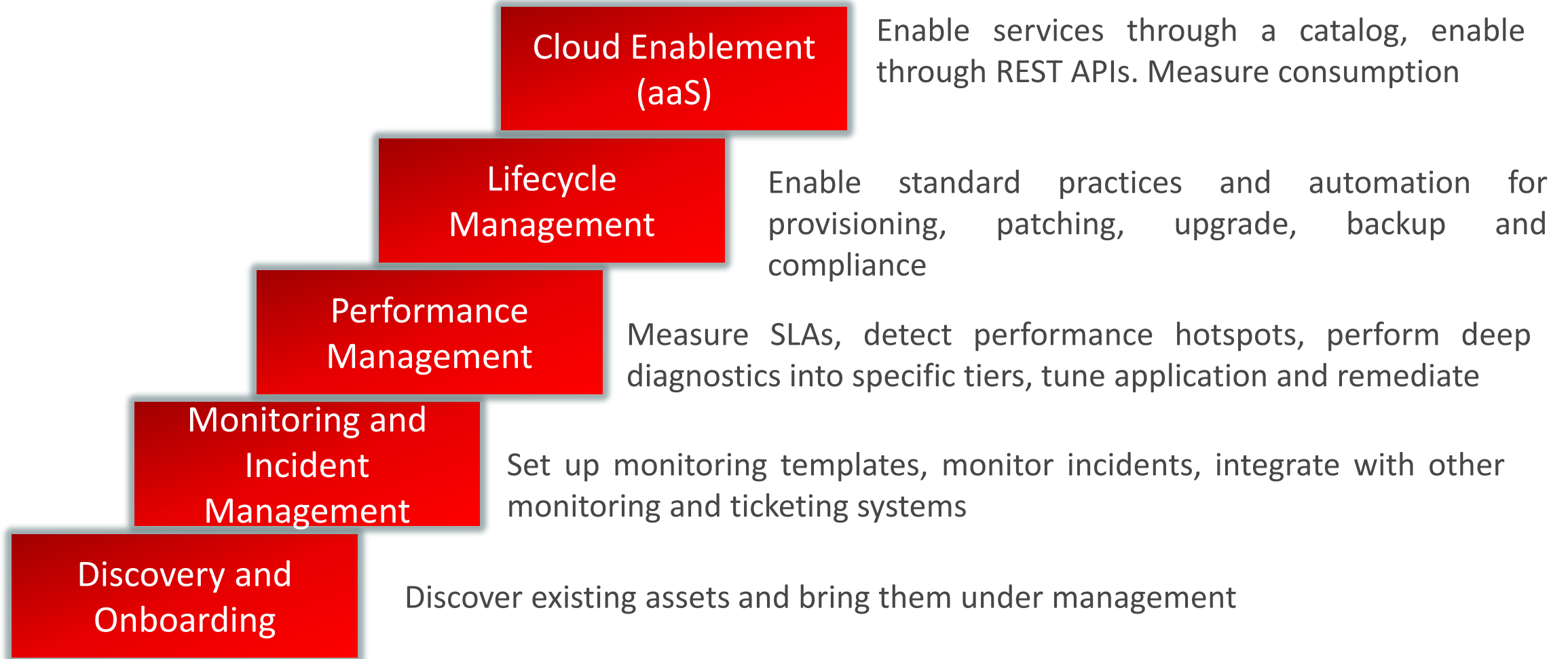
Superior Enterprise-Grade Management

Agile, Automated

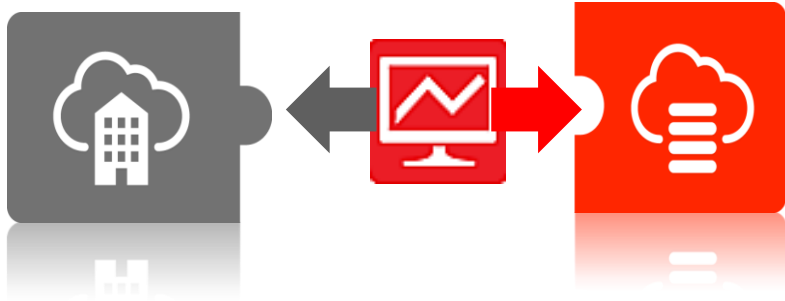
Optimized, Efficient

Scalable, Secure

Enterprise Manager: Typical route to adoption



Hybrid Management

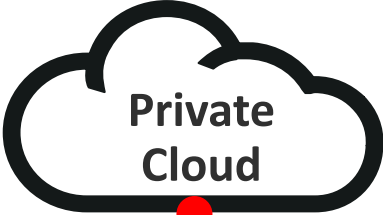


*Be the **Single Pane of Glass** for managing services on-premise and on Oracle Cloud*

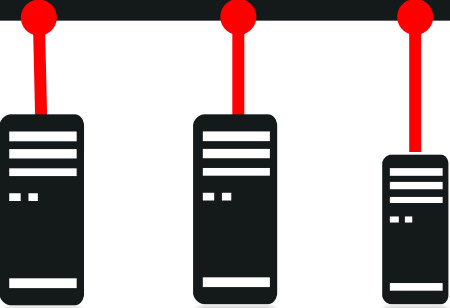
- Customers running PaaS services on Oracle Cloud are able to monitor and manage those assets just like their on-premise assets
- Customers are able to onboard new cloud services and clone workloads from a single point of control
- The solution works seamlessly without any significant change in customer's infrastructure or operational practices

Hybrid: Simple, Secure Deployment

- Minimal changes to Enterprise Manager or enterprise network (no VPC required!)
- Enterprise Manager remains hardened and secure

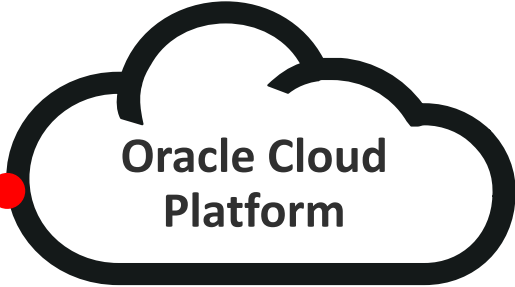


Hybrid Cloud **SSH Gateway** handles all communication between private and public cloud



Traditional IT

Communication via HTTPS, SQL*Net and JMX over SSH



Enterprise Manager: **Questions** beyond the obvious

- **Hybrid Management**

I am moving to the Oracle Cloud ...

How can I distinguish Oracle Cloud Databases from on-premise Databases?

How do I validate if my setup on cloud meets SLAs?

How do I open tickets for PaaS events using my on-premise ticketing system?

- **Monitoring**

– How do I verify my notifications will be sent as expected?

– How do I give my most important targets monitoring priority?

- **Compliance**

– How do I know my current security compliance status?

Enterprise Manager: **Questions** beyond the obvious

- **Performance and Diagnostics**

How do I diagnose application response time in a production environment?

How do I analyze Database performance without being connected to EM or the Database?

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Target Home Page for Oracle Public Cloud Targets

The screenshot displays the Oracle Enterprise Manager Cloud Control 12c interface. The breadcrumb navigation at the top includes 'Oracle Database', 'Performance', 'Availability', 'Security', 'Schema', and 'Administration'. A red box highlights the text 'Oracle Public Cloud target' in the breadcrumb. The main content area is divided into several sections:

- Summary:** Shows database status including Up Time (0 days, 0 hrs), Version (11.2.0.3.0), Load (0.02 average active sessions), Total Sessions (37), Last Backup (N/A), Available Space (0.01 GB), Used Space (1.19 GB), and Total SGA (832.26 MB).
- Performance:** Features a line chart titled 'Activity Class' showing 'Active Sessions' over time. The chart includes a legend for Wait (orange), User I/O (blue), CPU (green), and CPU Cores (red).
- Resources:** A section for monitoring database resources.
- SQL Monitor - Last Hour:** A section for monitoring SQL activity.
- Incidents and Problems:** A table showing current incidents and problems. The table has columns for Summary, Target, Severity, Status, Escalation Level, Type, and Time Since Last Update. One incident is listed: 'User SYS logged on from slc0...' with a severity of 'Warning' and a status of 'New'.
- Compliance Summary:** A section for monitoring compliance standards.
- Jobs Running:** A section for monitoring running jobs.
- Patch Recommendation:** A section for monitoring patch recommendations.

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A woman with long brown hair and glasses is sitting at a wooden table in a cafe. She is wearing a brown leather jacket over a blue patterned scarf and is talking on a black smartphone. She is looking down at a newspaper or magazine on the table. In the background, there is a blurred view of a cafe interior with other tables and chairs.

Using Oracle Real Application Testing and Oracle Database Cloud Services

What is Oracle Real Application Testing?



Faster Technology Adoption



Journey to the Database Cloud



Lower Costs & Risk



SLA Management

- Proactive administration tool for predictable database performance
- Key value
 - Enables predictable application quality of service (QoS)
 - Helps avoid performance problems with closed loop automated tuning
 - Facilitates accurate consolidation and capacity planning, migration to Oracle Public Cloud
 - Improves business agility with faster and risk-free new technology adoption
 - Enhances DBA productivity significantly

RAT for Migration to Oracle Public Cloud



Database Customer

- I want to make use of my Oracle Public Cloud Credits and reduce CAPEX and OPEX
- Can I use RAT to smoothly transition to Oracle Public Cloud or Database Cloud Services (DBCS) ?

Using Real Application Testing with DBCS



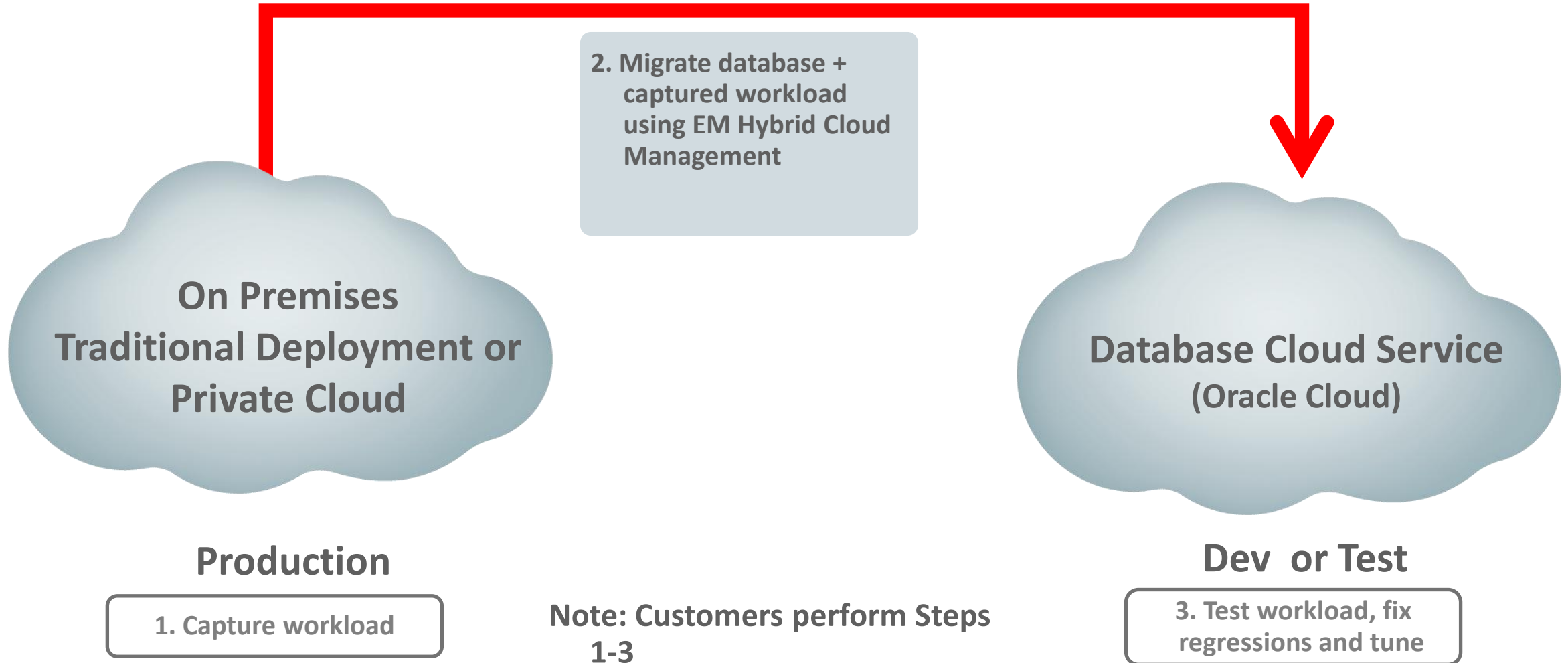
DBCS use cases for Real Application Testing

1. Help validate DBCS setup and performance after db migration
 - Identify missing schemas, structures, application code (on db tier), etc.
 - Validate new environment, identify and fix performance regressions before going live
2. Post go-live on DBCS, use RAT for
 - Day-to-day performance validation of system changes
 - DB infrastructure system changes, for e.g.,
 - Enable Advanced Compression or Database In-memory options
 - Go from Extreme to High Performance DBCS option
 - For customer managed DBCS databases test upgrades or patch-sets, CPUs, etc.
 - Stress testing, capacity planning and what-if scenarios testing

SMOOTH
MIGRATION TO
DCS

PROACTIVE
PERFORMANCE
MANAGEMENT

Oracle Real Application Testing Cloud Use Case



Journey to Cloud Made Easy Journey with Oracle Real Application Testing

Real Workload Testing at Lower Cost

- Useful in DBCS or any private cloud environment
- Validation of DBCS environment before go-live
- Post DBCS go-live, day-to-day proactive performance management tool
- Helps test with workload scale-up, stress testing, and capacity planning
- Works for Oracle Database as a Service (DBaaS) or Exadata Cloud Services
- Enables technology adoption Database In-Memory, Multitenant, RAC, Engineered Systems
- Accurate workload testing with more than 10x less time and effort

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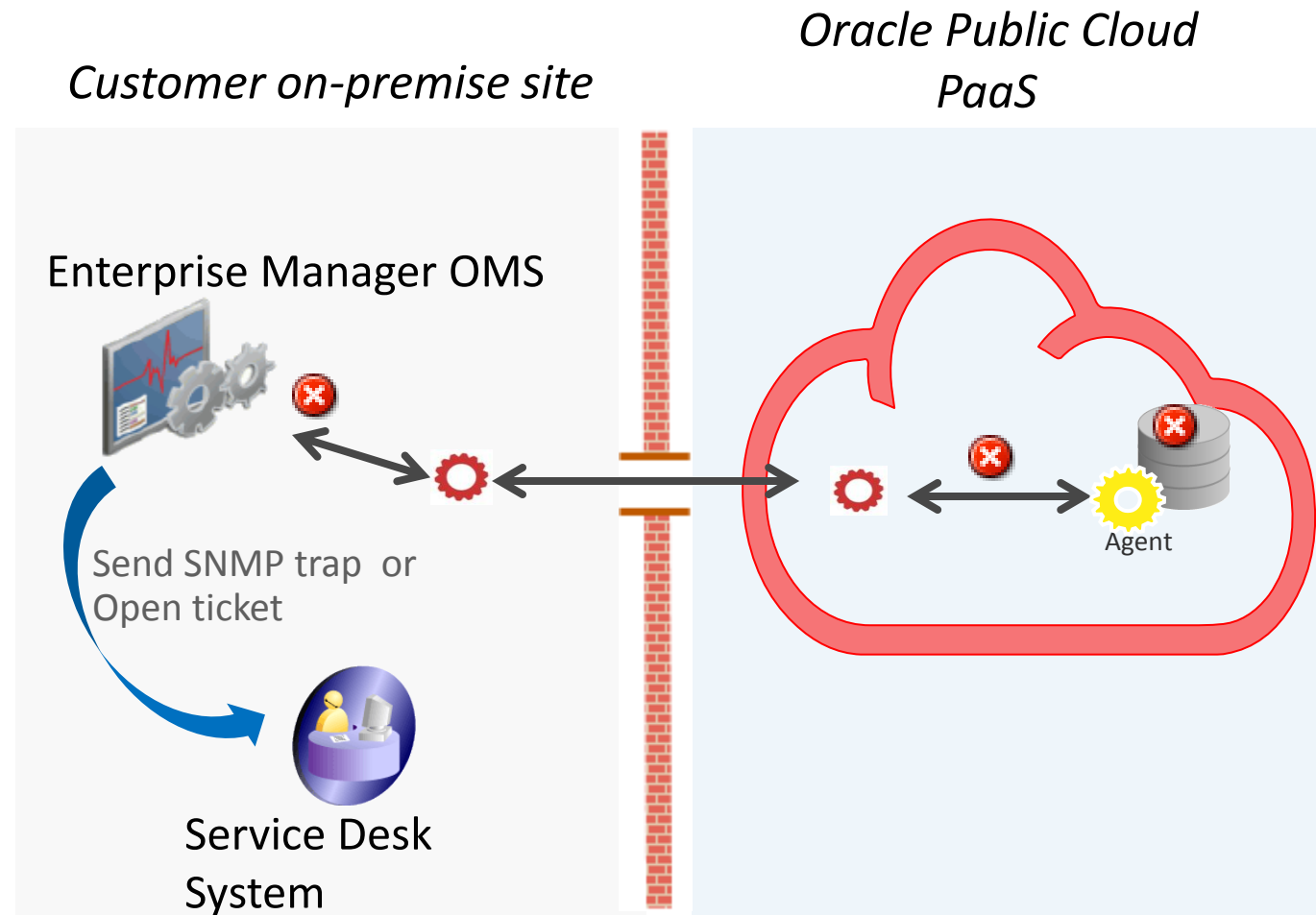
– How do I give my most important targets monitoring priority?

- **Compliance**

– How do I know my current security compliance status?

How do I open tickets for PaaS events using my on-premise ticketing system?

- Answer: Hybrid Monitoring
- Agent detects and raises event about a PaaS target, sends event to OMS via SSH gateway
- OMS processes event
 - Event sent to 3rd party systems via SNMP trap
- OR
- Ticket opened using ticketing connector



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How Do I Verify Notifications Will Be Sent As Expected?

Step 1: Select Event, Review Event and Start Simulation

Target Name  Event Type Target Availability

Target Type Database Instance

Select event to be used as sample to simulate rules. You can tweak the target name, if needed, to match any specific rule.

View

Event Type	Internal Event Name	Message	Target Name
Target Availability	Status	Agent has stopped monitoring. The following errors are reported : agent shutdown.	orcl111.us.oracle.com
Target Availability	Status	Agent has stopped monitoring. The following errors are reported : agent shutdown.	demo112.us.oracle.com
Target Availability	Status	The current status of the target is Down	habadb.us.oracle.com

Step 2: Review Simulation Results

If expected result does not appear below, refer to "Troubleshooting" section under "Setting Up Rule sets" in Administrator's guide.

- Incident created by rule (Name = Incident management rule set for all targets, Incident creation rule for a Target Down availability status [Sy
- Based on rule HQ Group Rules : Email for database target down : e-mail will be sent to : ana.mccollum@oracle.com

Setup → Incidents → Incident Rules → Simulate Rules

- Answer: Use *Event Simulation* feature
- Step 1: Search and select event on a target
 - Can substitute another target (useful if event hasn't happened yet on this 2nd target)
 - Example: generate event on Test target, simulate on Prod target
- Step 2: Start Simulation.
 - Rule engine will evaluate all rule sets as if the event occurred now.
- Step 3: Review email and other actions to be taken if the event occurred now
 - Actions *will not* actually take place.
- Safely verifies event rule actions on production targets without creating events on them

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How Do I Give Priority To My Most Important Targets?

Answer: Set *Lifecycle Status* property to Mission Critical or Production

- Lifecycle Status
 - Used to determine priority for data upload and event processing
 - Values:
 - Mission Critical
 - Production
 - Staging
 - Test
 - Development
- Ensures faster event processing for important targets even as managed targets grow



Host: [redacted] > Target Properties > Edit Target Properties

Edit Target Properties

Administration Groups and Dynamic Groups are created using membership criteria. A target joins an Administration Group or Dynamic Groups or both automatically when its Group's or Dynamic Groups' criteria, subject to limitations.

Administration Groups Hierarchy is not setup in this environment.

Name	Value
Comment	<input type="text"/>
Contact	<input type="text"/>
Cost Center	<input type="text"/>
Customer Support Identifier	<input type="text"/>
Department	<input type="text"/>
Downtime Contact	<input type="text"/>
Lifecycle Status	<input type="text" value="None"/>

- None
- Mission Critical**
- Production
- Staging
- Test
- Development
- None

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Oracle Enterprise Manager Compliance Framework

Overview



Continuous
Configuration Auditing



Real-Time File
Integrity Monitoring



Cloud Scale



Ready to use
Standards

Sample Oracle Provided Compliance Standards

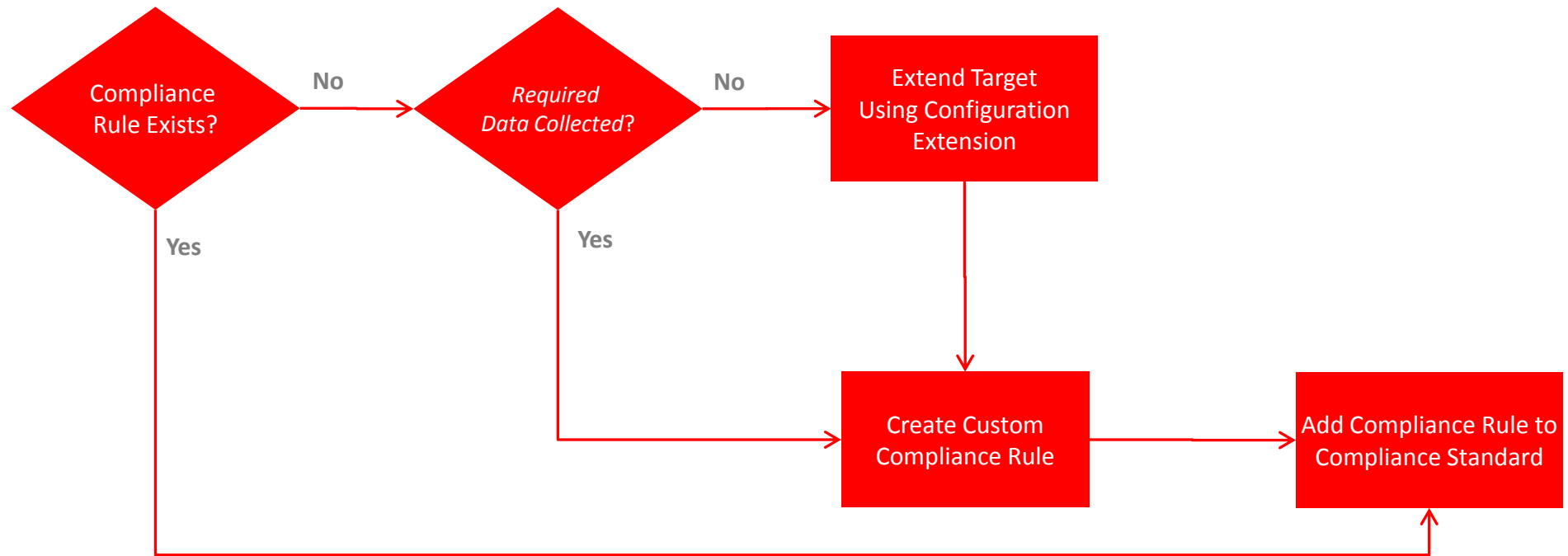
Security Configuration Standards

- Database - Single Instance, Cluster Database, PDB
 - Basic Security Configuration
 - High Security Configuration
 - **DISA Security Technical Implementation Guide(STIG)**
 - Patchable Configuration
 - Support Policy
- Middleware
 - Java Platform Security Configuration
 - Weblogic Server Configuration Compliance
 - Weblogic Domain Configuration Compliance
- Operating Systems
 - Secure Configuration for Host
 - Security Recommendations for Oracle Products (Recommended Patches)

File Integrity Monitoring

- Linux
 - Configuration Monitoring for Core Linux Packages
 - Configuration Monitoring for Network Time Linux Packages
 - Configuration Monitoring for Security Linux Packages
 - Configuration Monitoring User Access Linux Packages
 - File Integrity Monitoring for important Linux packages
- Exadata Database Machine
 - Configuration Monitoring for Exadata Compute Node Networking
 - Configuration Monitoring for Exadata Compute Node Time
 - File Integrity Monitoring for Exadata Compute Node

Custom Compliance Methodology



Product Demo

STIG and Custom Compliance

David Wolf

Enterprise Manager: **Questions** beyond the obvious

- **Performance and Diagnostics**

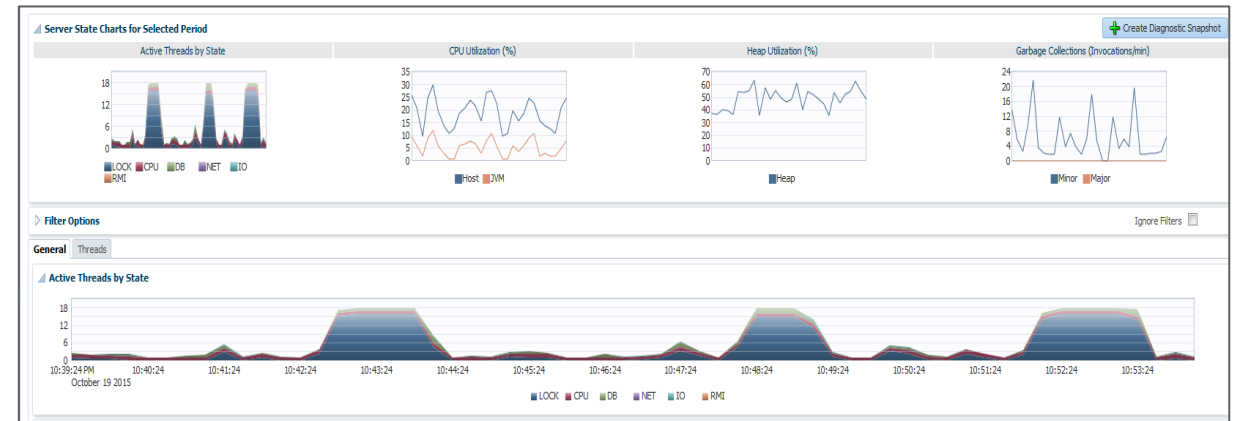
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JVM Diagnostics

Profiling through sampling

- Thread Sampling
 - Use JVMTI to sample the heap
 - Categorize threads by wait states
 - Examine local members to add thread context
 - Capture ECID and user names (FMW env)
 - Store active thread data in EM repository
- Heap Analysis
- JFR Integration



Product Demo

JVMD

Avi Huber

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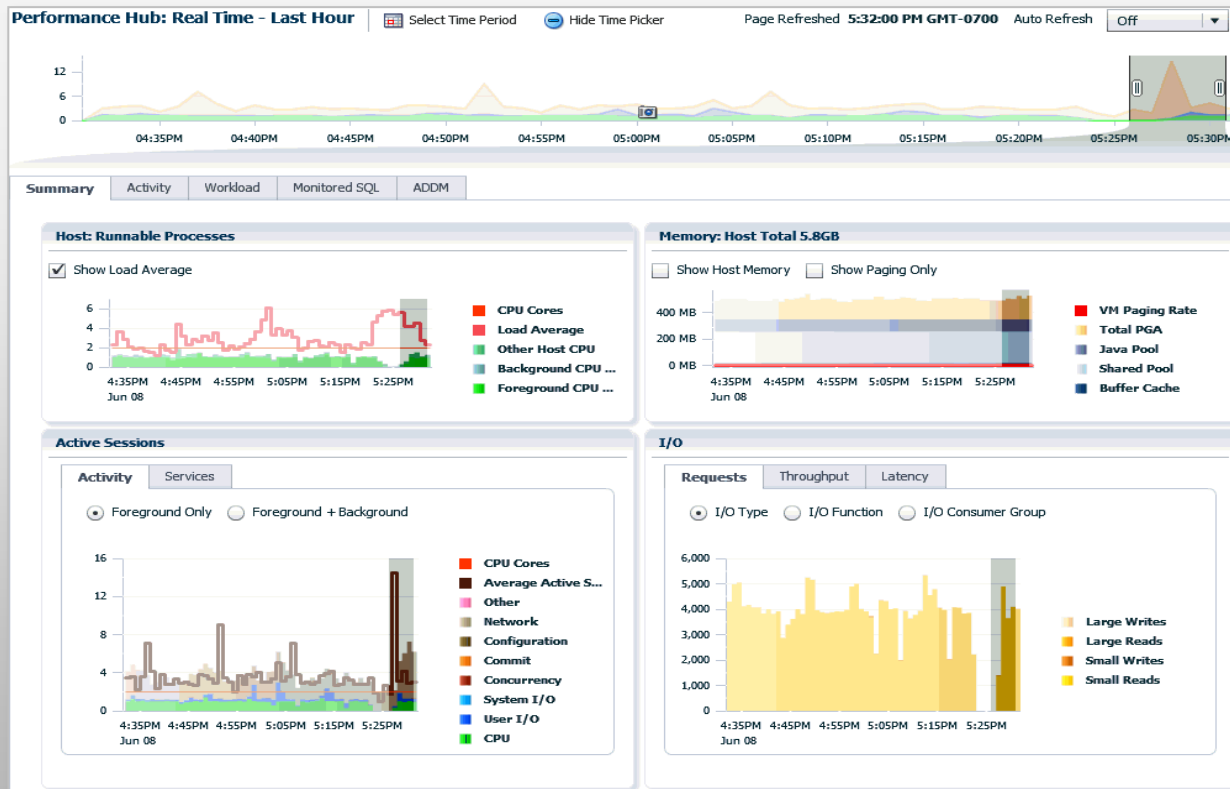
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Performance Hub

Performance Hub Report



- New interactive report for analyzing AWR data
- Single view of DB performance
- ADDM, SQL Tuning, Real-Time SQL Monitoring, ASH Analytics
 - Switch between ASH analytics, workload view, ADDM findings and SQL monitoring seamlessly
- Supports both real-time & historical mode
- Historical view of SQL Monitoring reports
- Performance Hub report generated from SQL*Plus:
 - @`$ORACLE_HOME/rdbms/admin/perfhubrpt.sql`

New AWR “Active-HTML” Report

- New AWR report type “active-html” introduced in Oracle Database 12.1.0.2
- Provides best of HTML and Performance Hub Reports
 - HTML report contains embedded Performance Hub Report as the last section
 - ADDM task finds and recommendations are also presented
 - Exadata-aware
- Highly recommended to use AWR “active-html” reports instead of HTML reports
 - Combines power for EM navigation and drill down for offline analysis
 - Can be saved and mailed like other Active Reports and does not need EM connectivity for viewing

AWR Report Vs Performance Hub Report

WORKLOAD REPOSITORY report for

DB Name	DB Id	Instance	Inst num	Startup Time	Release	RAC
DB12MUL	1111192837	db12mul	1	23-Sep-14 15:09	12.1.0.2.0	NO
Host Name	Platform	CPUs	Cores	Sockets	Memory (GB)	
slc06ewj	Linux x86 64-bit	4	4	4	15.14	
Snap Id	Snap Time	Sessions	Cursors/Session	CDB		
Begin Snap:	179 24-Sep-14 15:00:53	49		2.5 YES		
End Snap:	180 24-Sep-14 16:01:00	48		1.7 YES		
Elapsed:	60.12 (mins)					
DB Time:	32.60 (mins)					

Report Summary

Top ADDM Findings by Average Active Sessions

Finding Name	Avg active sessions of the task	Percent active sessions of finding	Task Name	Begin Snap Time	End Snap Time
Top SQL Statements	.54	67.55	ADDM:1111192837_1_180	24-Sep-14 15:00	24-Sep-14 16:01
PL/SQL Execution	.54	61.17	ADDM:1111192837_1_180	24-Sep-14 15:00	24-Sep-14 16:01
Session Connect and Disconnect	.54	18.18	ADDM:1111192837_1_180	24-Sep-14 15:00	24-Sep-14 16:01
Unusual "Other" Wait Event	.54	10.35	ADDM:1111192837_1_180	24-Sep-14 15:00	24-Sep-14 16:01
Shared Pool Latches	.54	5.56	ADDM:1111192837_1_180	24-Sep-14 15:00	24-Sep-14 16:01

Load Profile

	Per Second	Per Transaction	Per Exec	Per Call
DB Time(s):	0.5	-0.5	0.00	0.07
DB CPU(s):	0.4	-0.4	0.00	0.06
Background CPU(s):	0.0	0.0	0.00	0.00
Redo size (bytes):	-51,605.1	50,214.7		



Hardware and Software Engineered to Work Together

ORACLE®