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OpenWorld 2017
Oracle Enterprise Manager for MySQL

Adventures with MySQL Monitoring

Kathy Forte
Oracle MySQL Solutions Architect
October 2, 2017

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Safe Harbor Statement

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

Oracle Enterprise Manager : Agenda

1. **Introductions**
2. When to Use Enterprise Manager
3. Architecture
4. How To’s
5. Live Demo
6. Future of Monitoring
7. Q & A

Kathy Forte

MySQL Solutions Engineer, Oracle

Oracle Enterprise Manager For MySQL

- Who are you?
- Where do you work?
- How do you monitor today?

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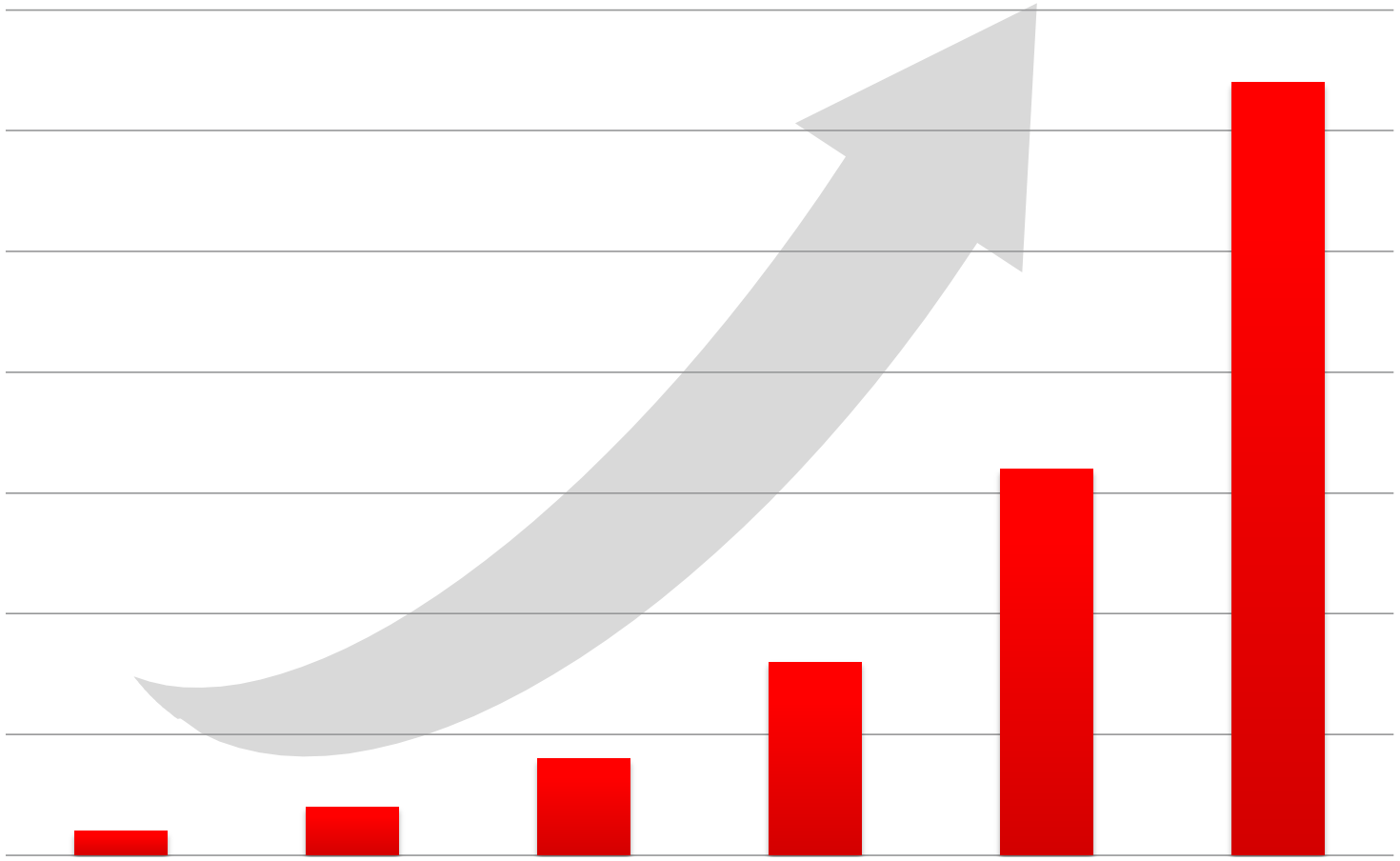
Database Application Growth



Situation

- 2.1 Billion Internet Users
- 40% Data Growth/Year
- $1 Trillion eCommerce
- 600 New Videos/Minute
- 58 Million Tweets/Day

Monitoring Requirements

The Operator's Responsibility

http://9xmedia.com/new/products/xtops.php

The DBA's Responsibilities

Oracle Enterprise Manager For MySQL

Single Dashboard to manage Oracle stack for Web & Cloud

- An estimated 70% of Oracle customers also use MySQL
  - For Web, custom, departmental and embedded applications
  - #1 Requested integration

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ENTERPRISE MANAGER

MySQL

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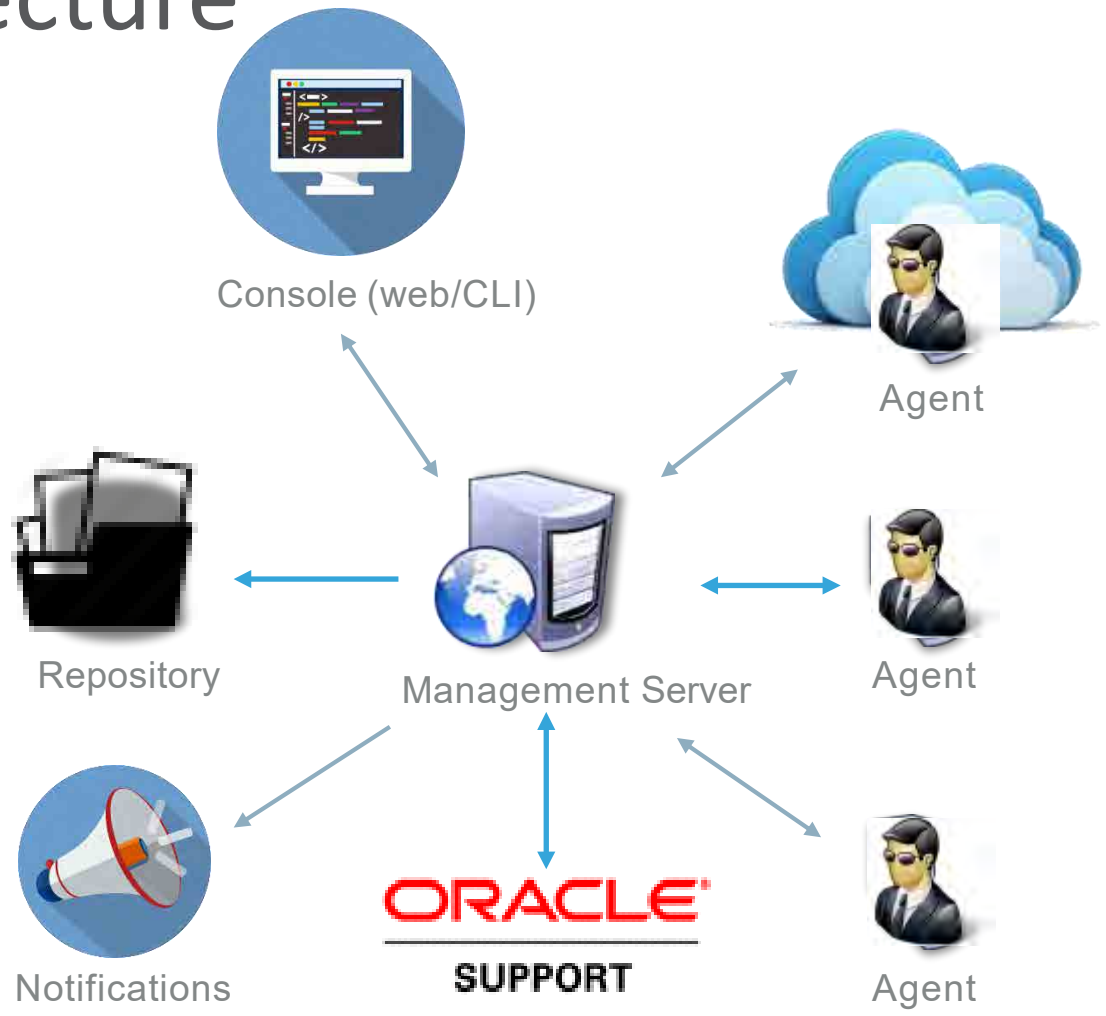
Oracle Enterprise Manager Architecture



- Agents: Collect monitoring and configuration data from the targets
- Management Server (OMS): Receives and processes data from agents,
- Repository (OMR): Persistent store for data collected from the managed targets

Enterprise Manager Architecture

- Console: web browser - primary interface for interactive management of objects/targets (database, application, middleware, cloud)

- CLI: Oracle Enterprise Manager‘s Command Line Interface

Enterprise Manager Architecture

- All target specific management encapsulated in target plug-ins (MySQL Plug-In)
- Plug-ins provide additional vertical EM functionality (Cloud Application Plug-in)
- Supports 3rd party plugins

Oracle Enterprise Manager : One Tool to Manage Them All!

- Manage hardware
  - Servers
  - Network switches/hubs
  - Storage appliances
- Manage Virtualization
  - Oracle VM
  - VMware vSphere
- Manage Cloud
  - Oracle Cloud
  - OpenStack
  - AWS

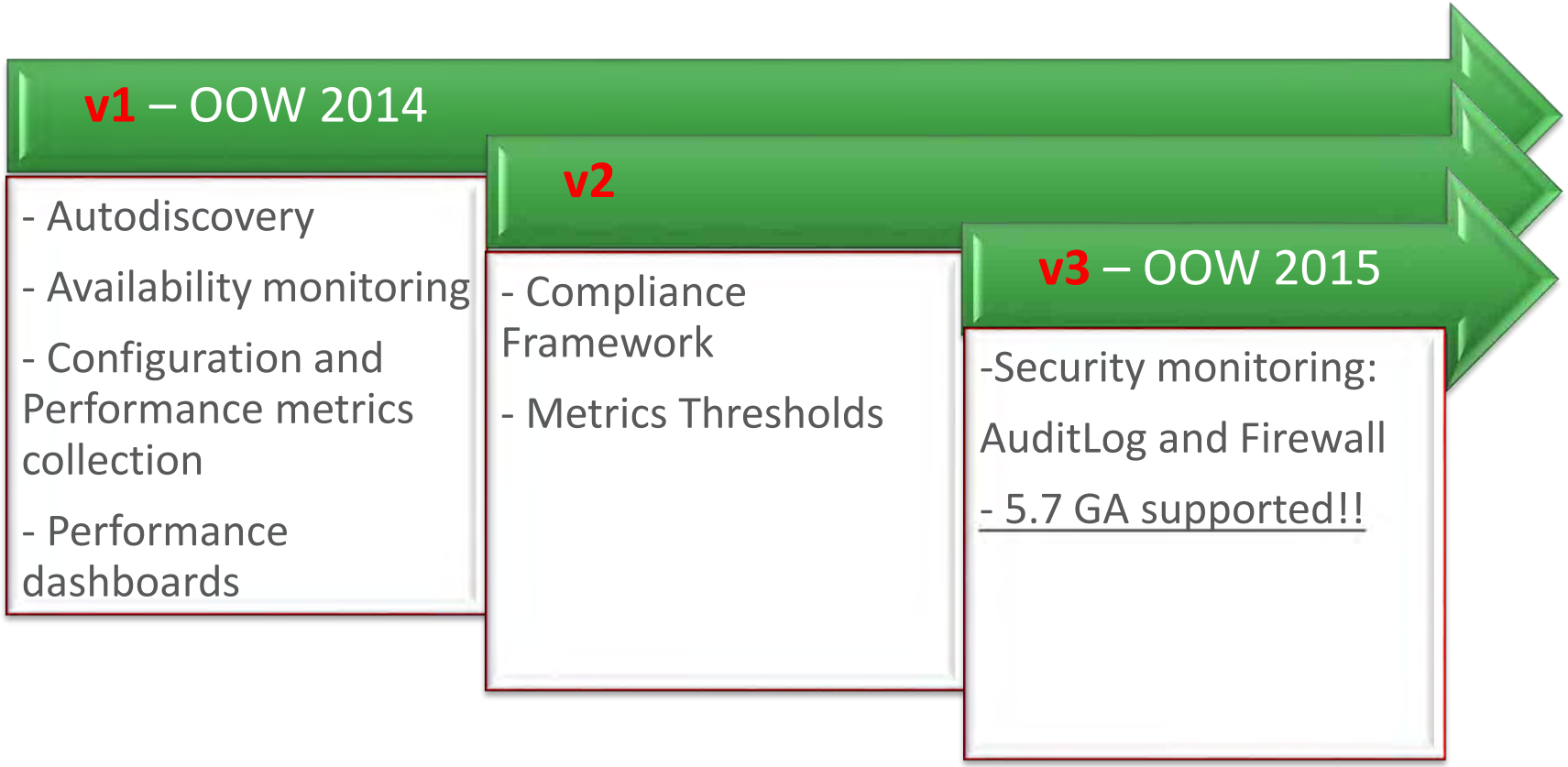
- Manage databases
  - Oracle Database
    - Including full DBaaS functionality
  - SQL Server Plugin
  - DB2 Plugin
  - Sybase Plugin
  - Postgres Plugin
  - Times Ten Plugin
  - ***MySQL Plugin!***

- Manage applications
  - Apache [Tomcat], IIS
  - Weblogic, Websphere
  - Oracle Directory Server, Windows Active Directory
  - JVM, Microsoft .NET
  - Siebel, Peoplsoft
  - Oracle Fusion
- Manage BI tools
- Manage networks
  - F5, Dell Force10, …

MySQL Integration

- Integrated as an Oracle provided plugin
  - Went GA at Oracle Open World 2014
  - Requires OEM 12c Release 4 or later
  - Available from within OEM itself using the Self Update tool
  - Listed within the Extensibility Exchange
    - https://apex.oracle.com/pls/apex/f?p=53891:1
  - Available as a standalone download (.opar file)
    - Via MyOracle Support and eDelivery
- Supports MySQL 5.5 and later
- Included with select commercial editions (Enterprise and CGE)

History



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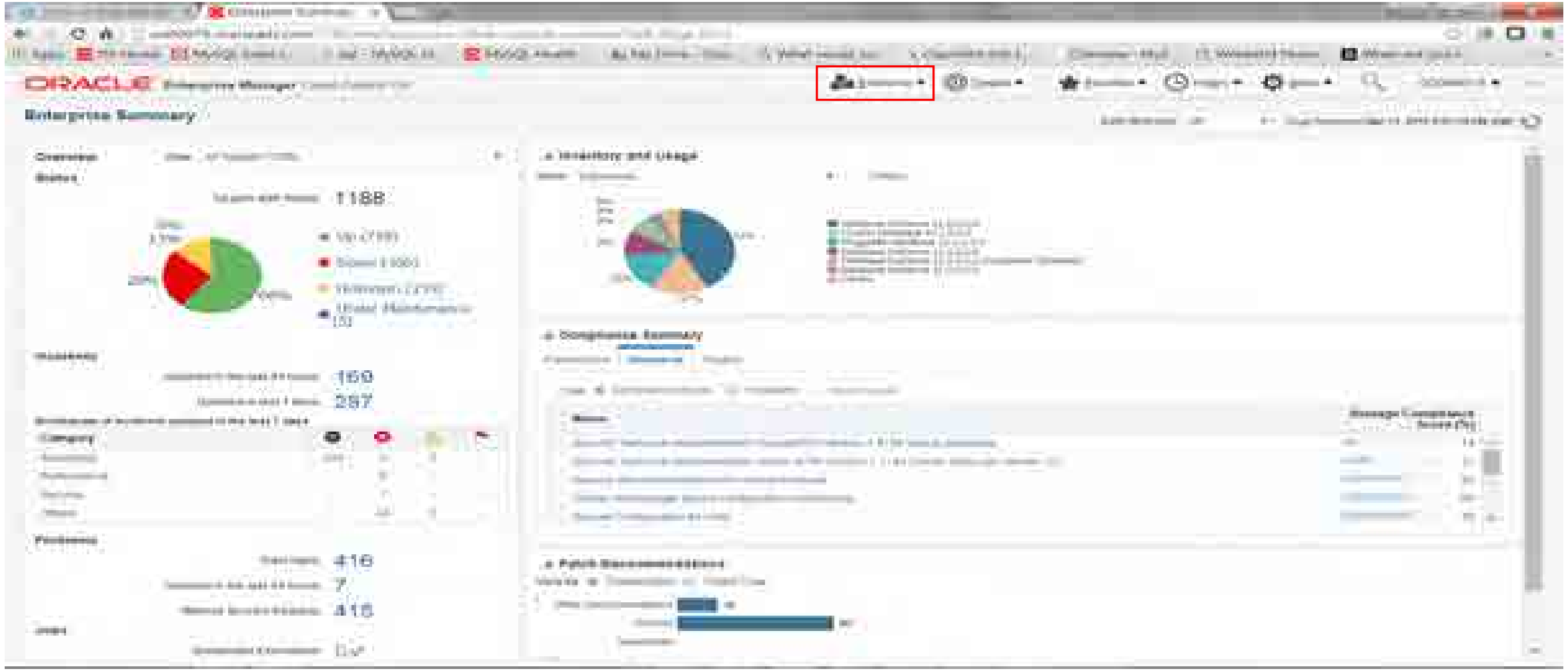
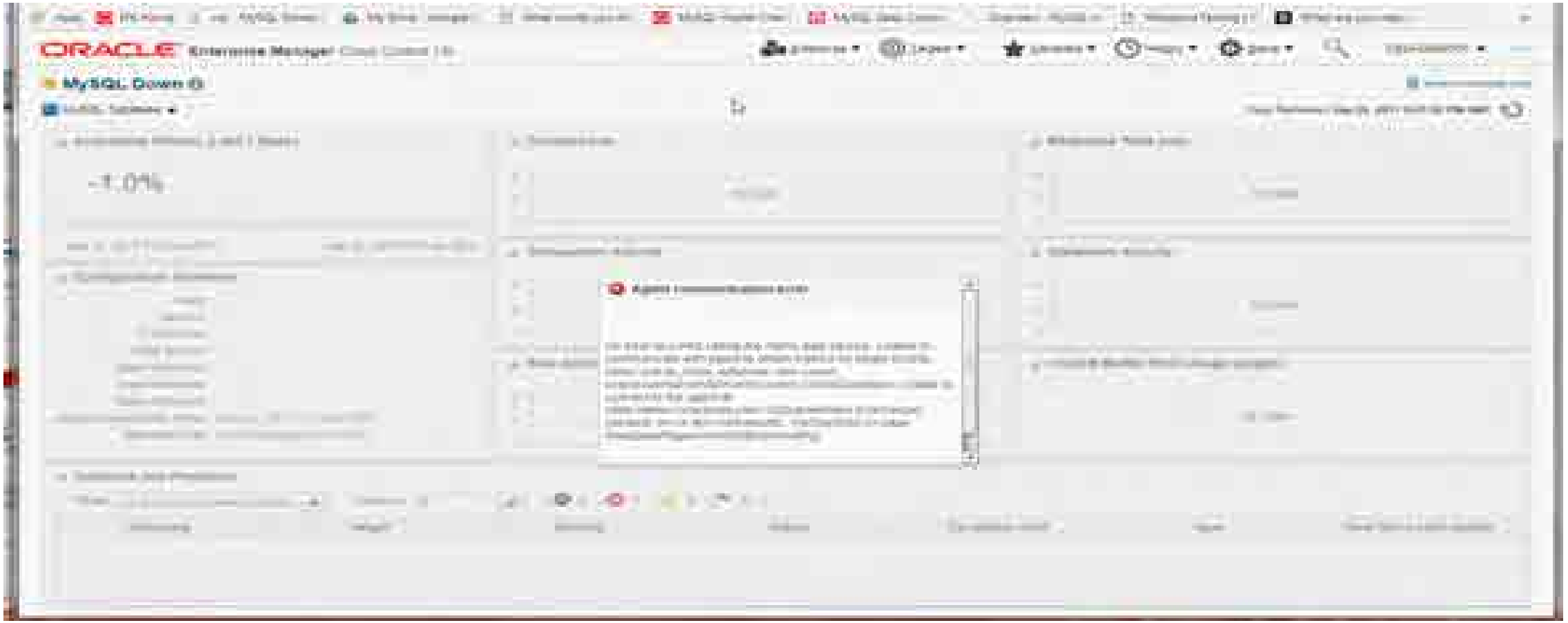
Reporting – How To See What Is Going On? The Operator

http://9xmedia.com/new/products/xtops.php

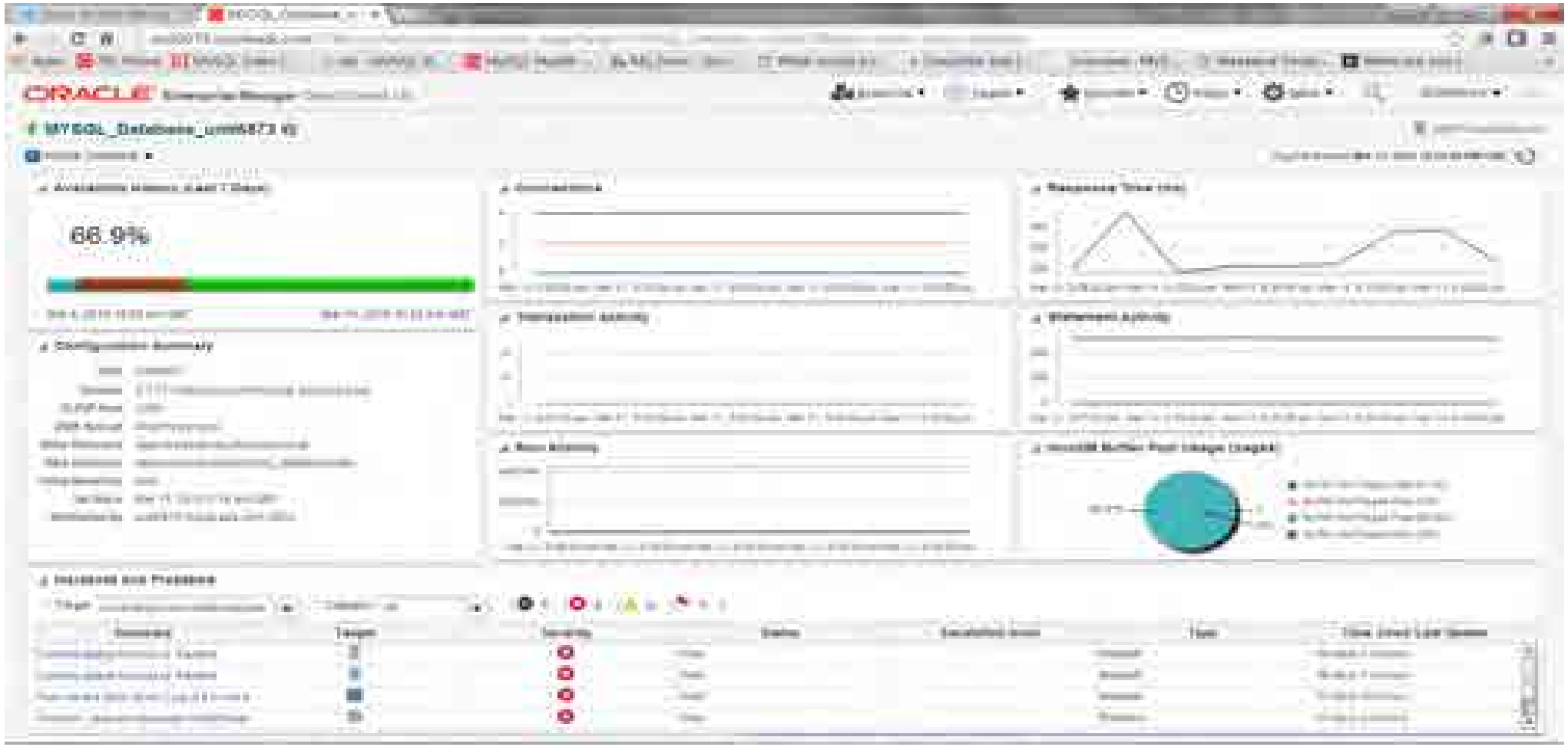
What Systems Are Down?



How Do You Find Which Instance has Status of Down or Unknown?



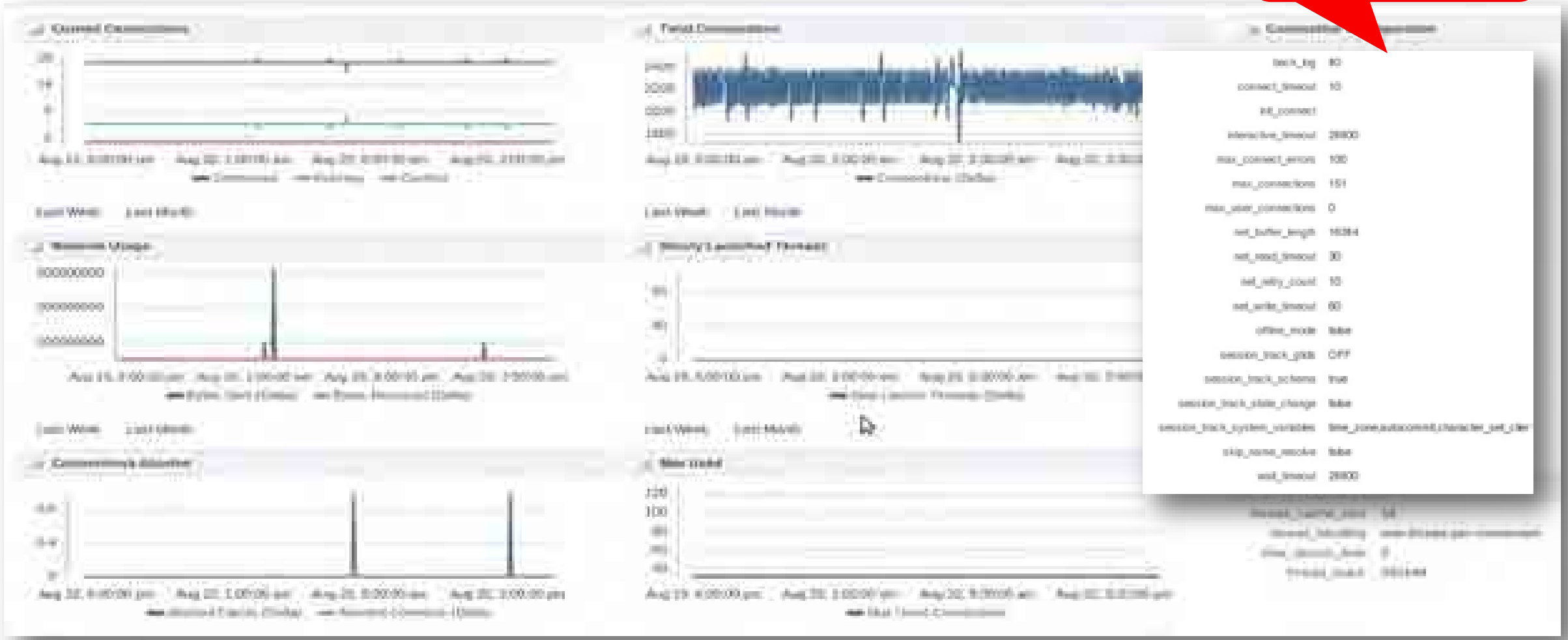
What Is Going On With Your MySQL Instance?



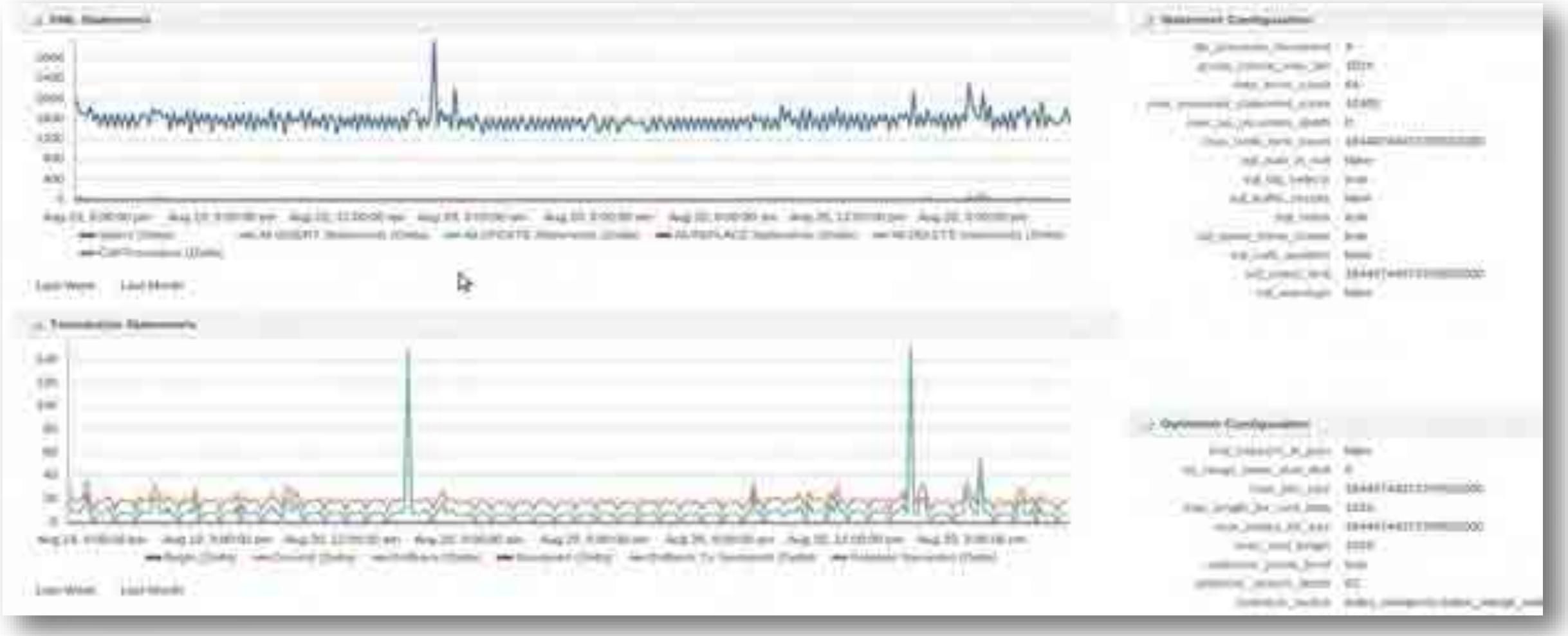
What Is The Load On Your MySQL Instance?

5.7

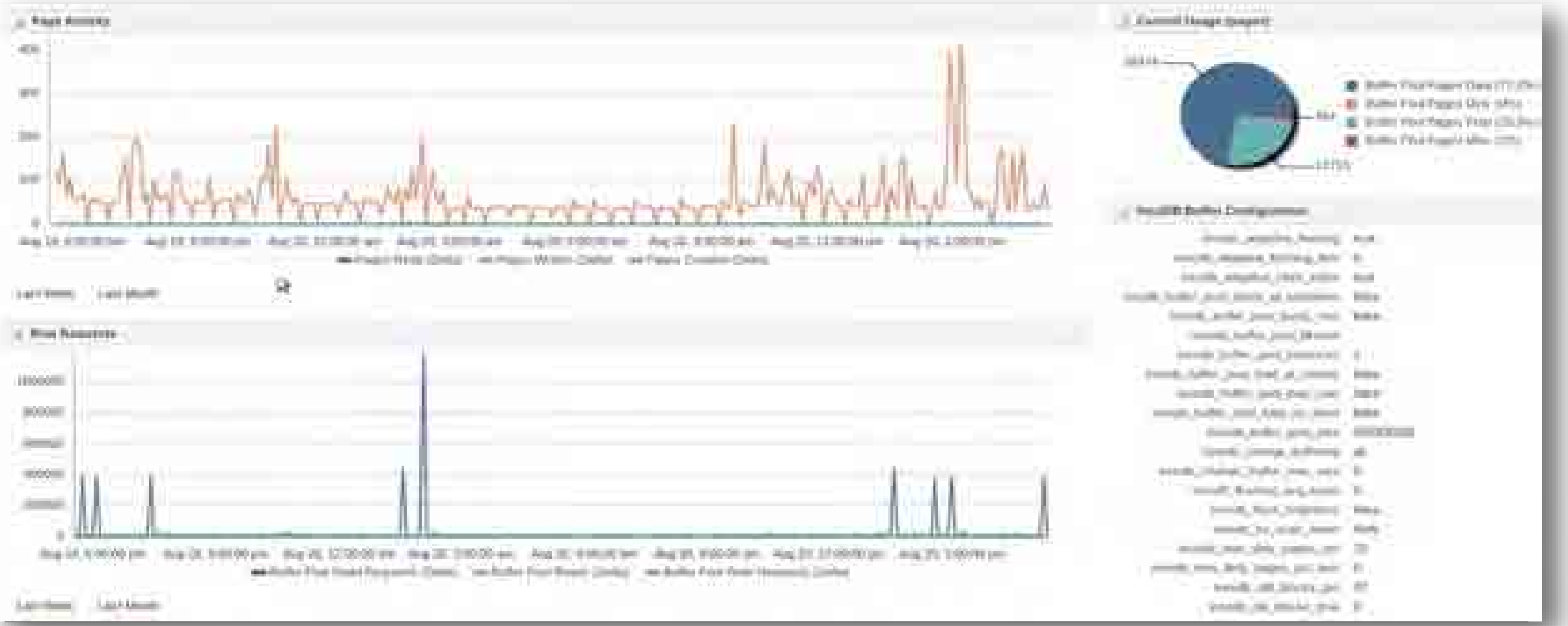
Offl… …ed
Session Track Grids
Session Track Schema
Session Track State Change
Session Track System Variables



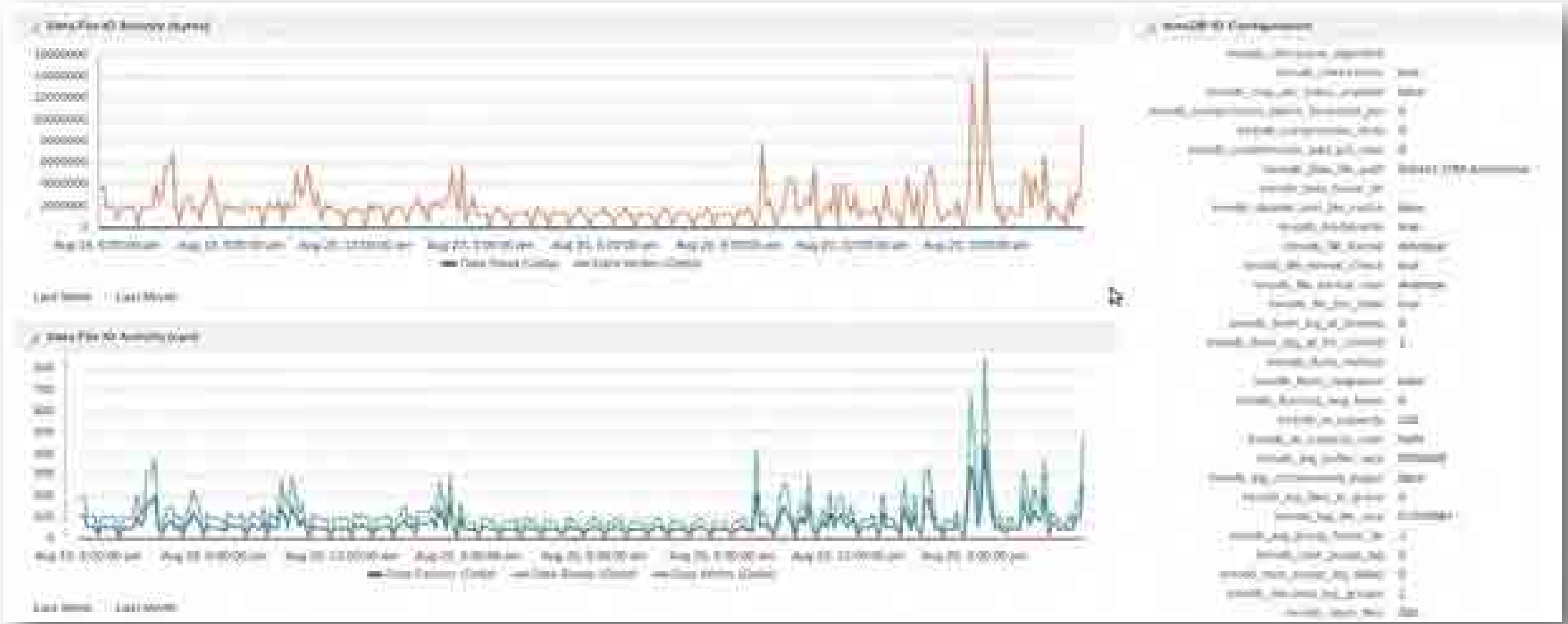
What Kind Of SQL Statements Are Running On Your MySQL Instance?



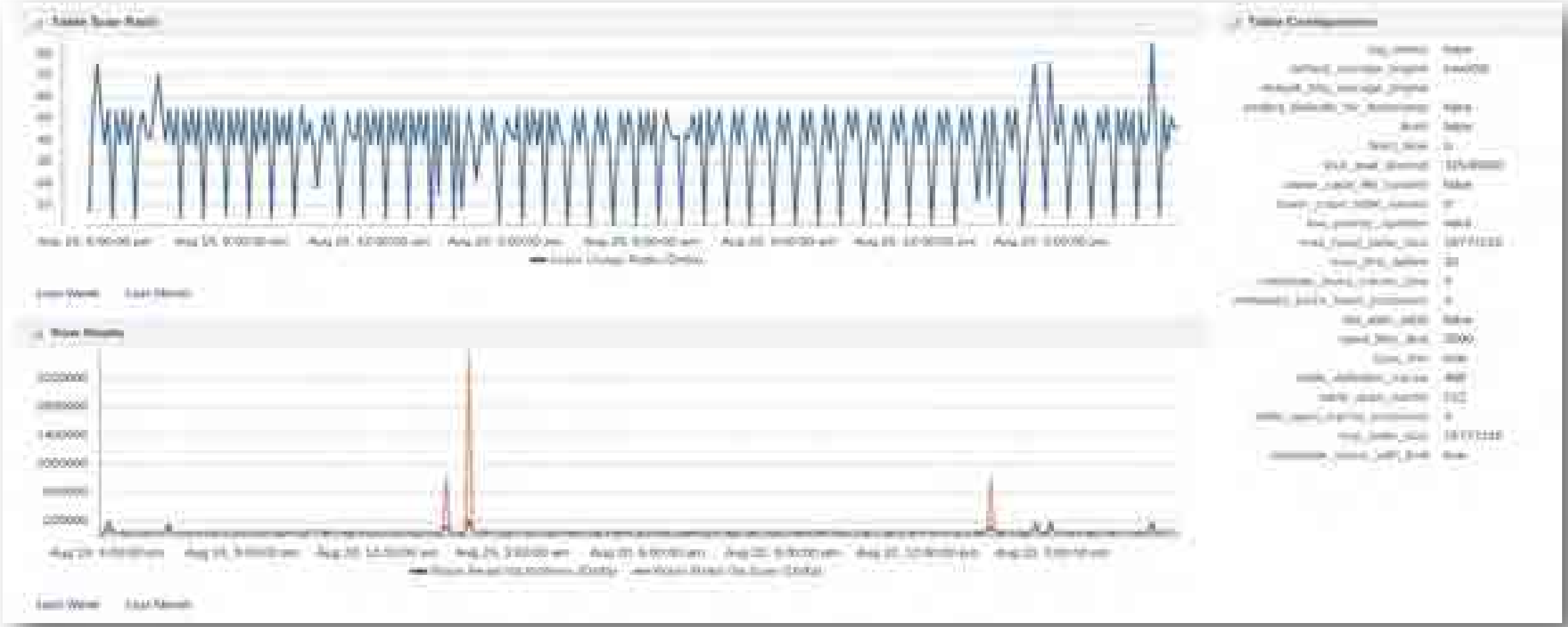
Are You Hitting Data In Cache? Innodb Buffer Pool



Am You Going To Disk Too Often? File I/O



Am You Using Indexes Or Doing Table Scans? Table/Rows



Is Your Master In Sync With Your Slave?

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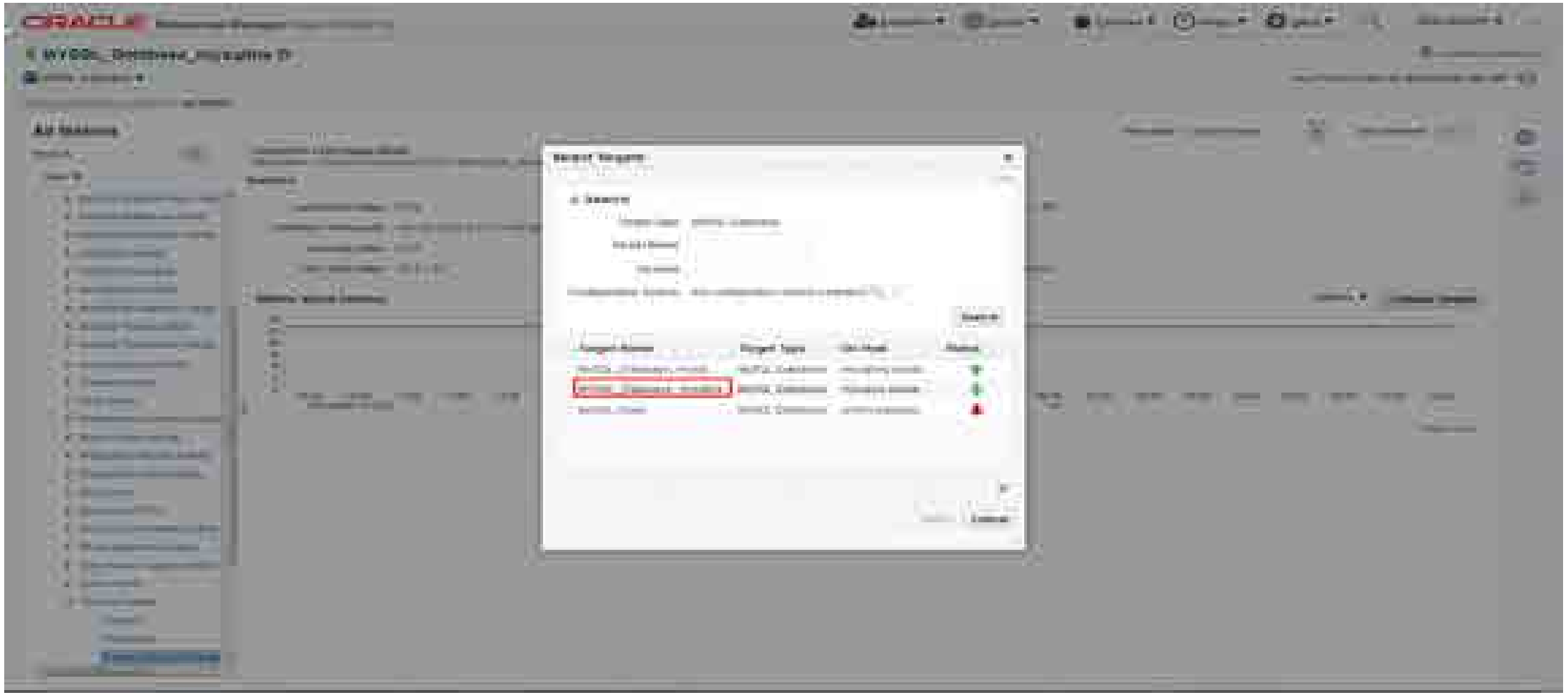
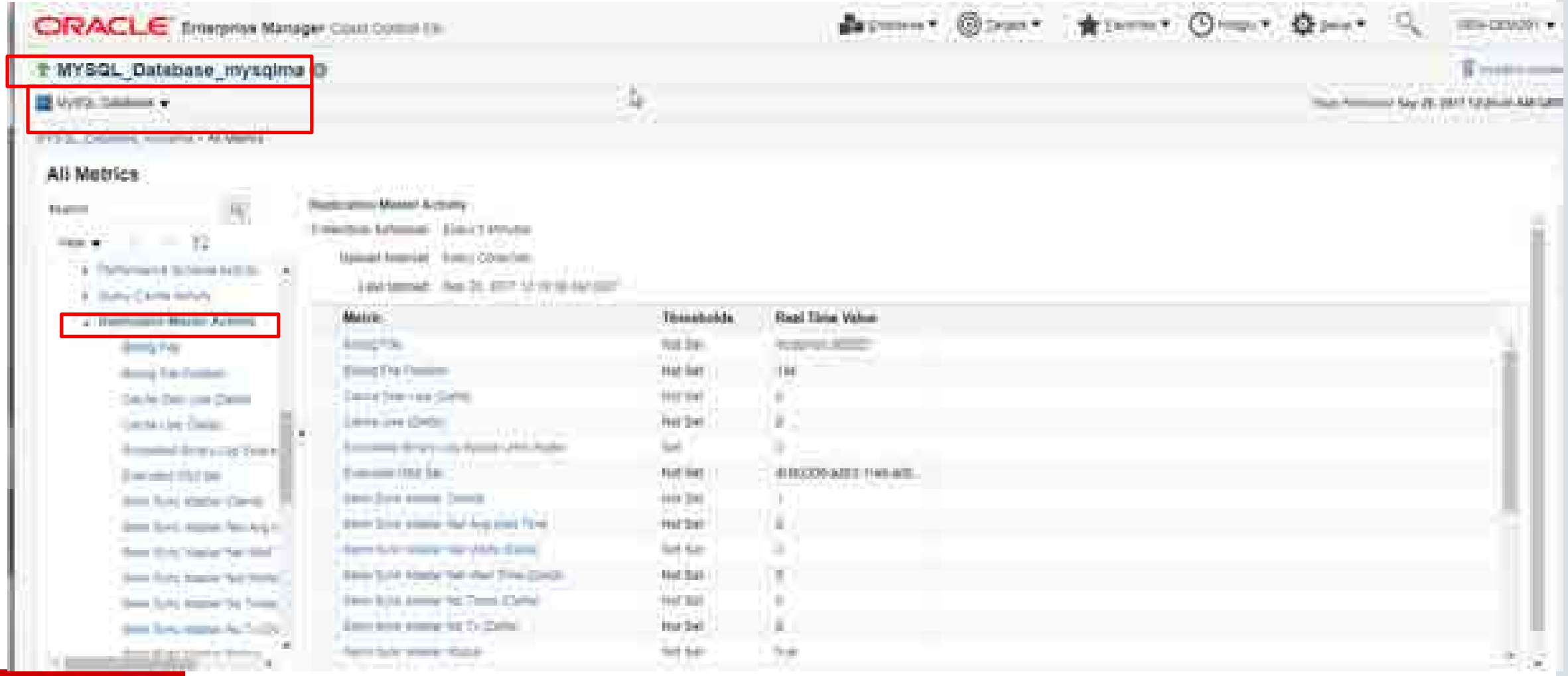


Is Your Master In Sync With Your Slave?

What Are Details Of Master Slave Setup ?



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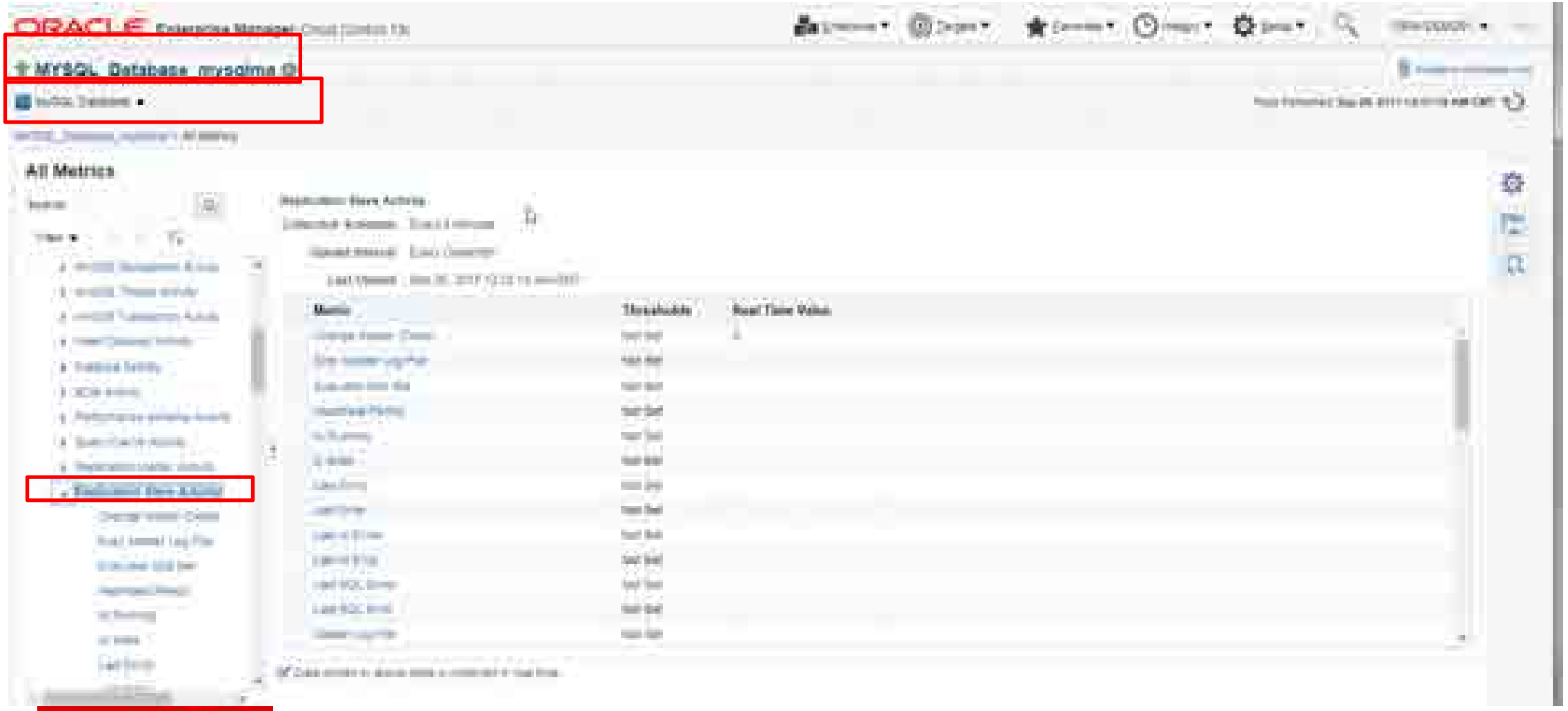

What Kind Of Hardware Is Your MySQL Instance Running On?

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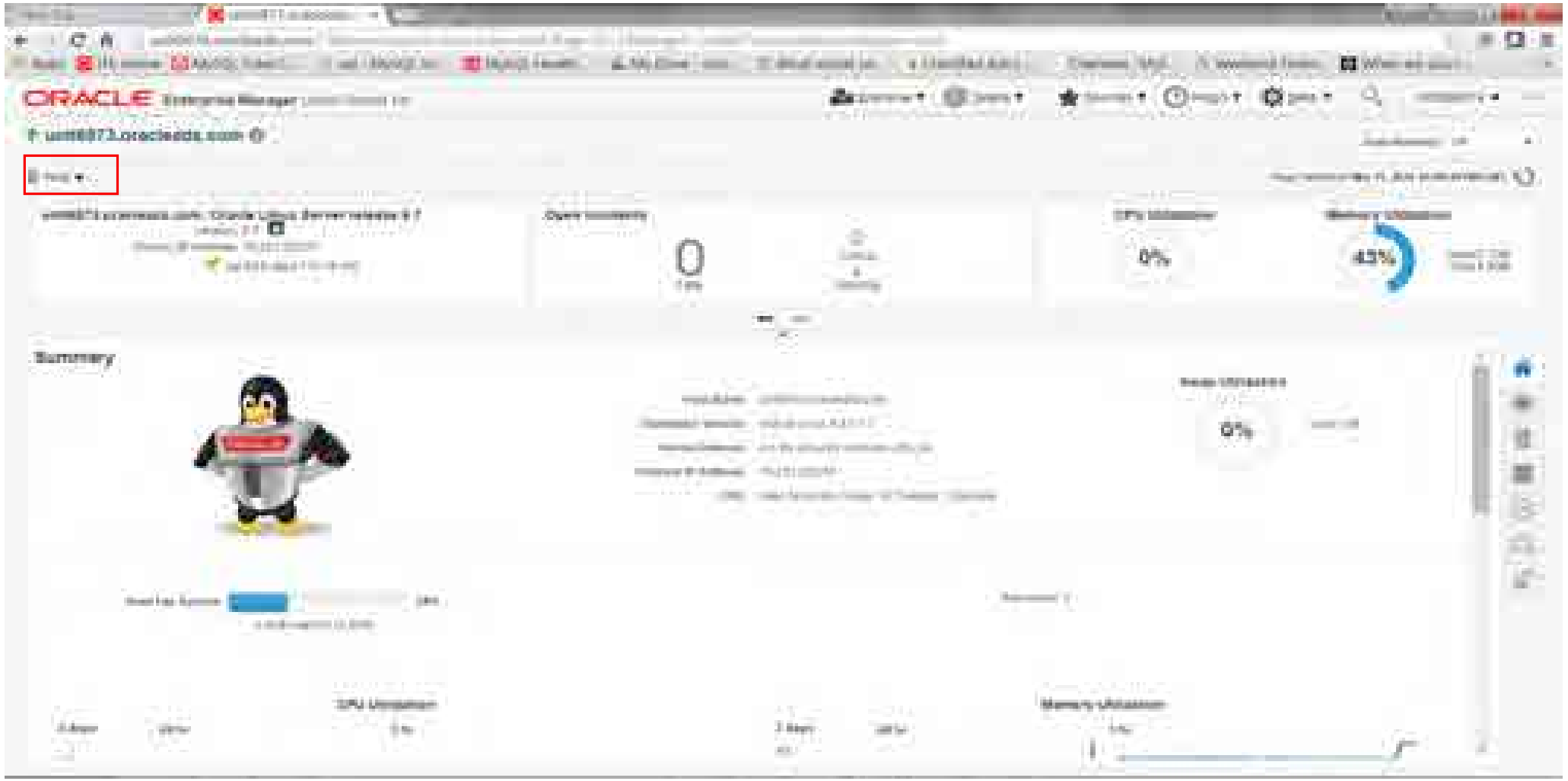
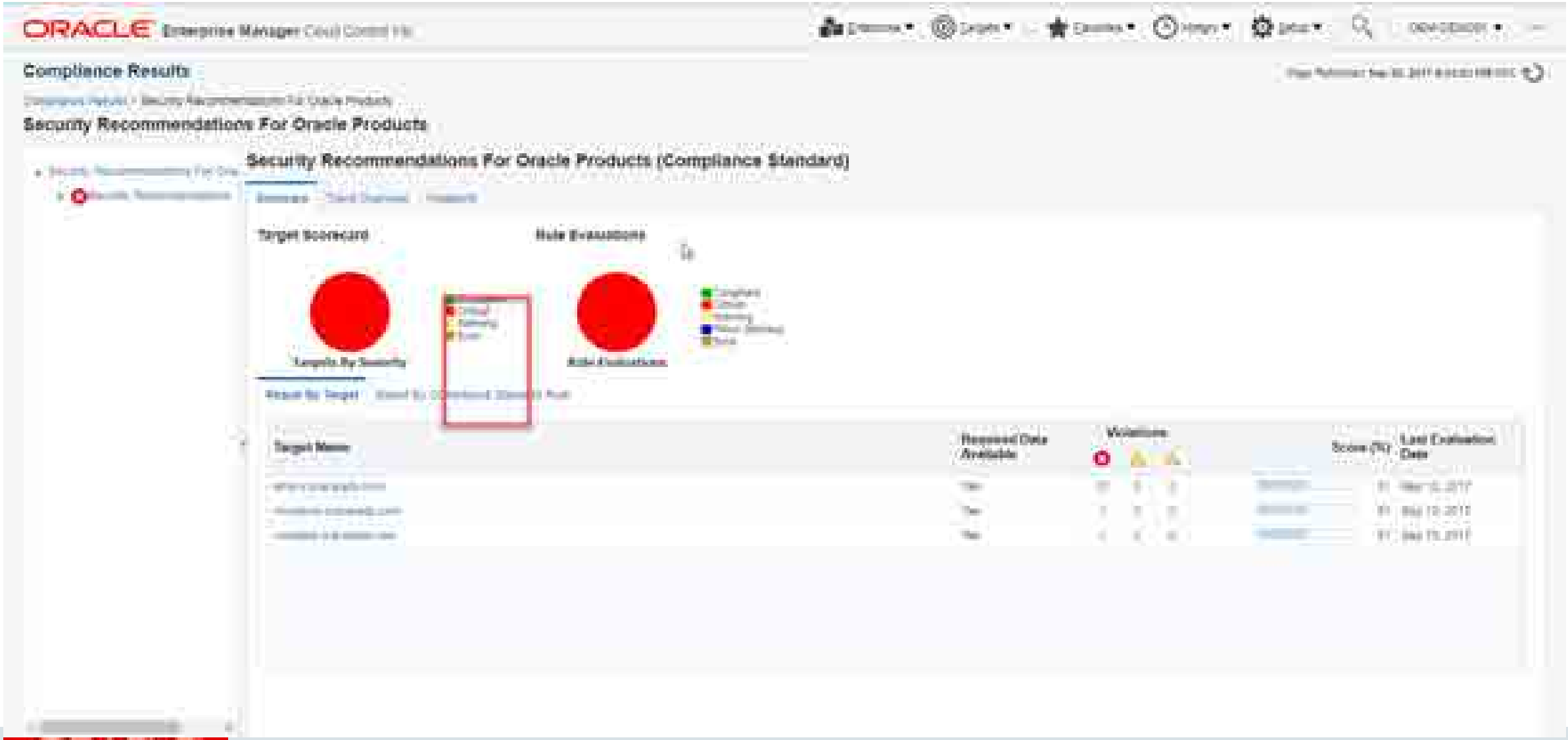


Are There Any Recommendations For MySQL Instances?



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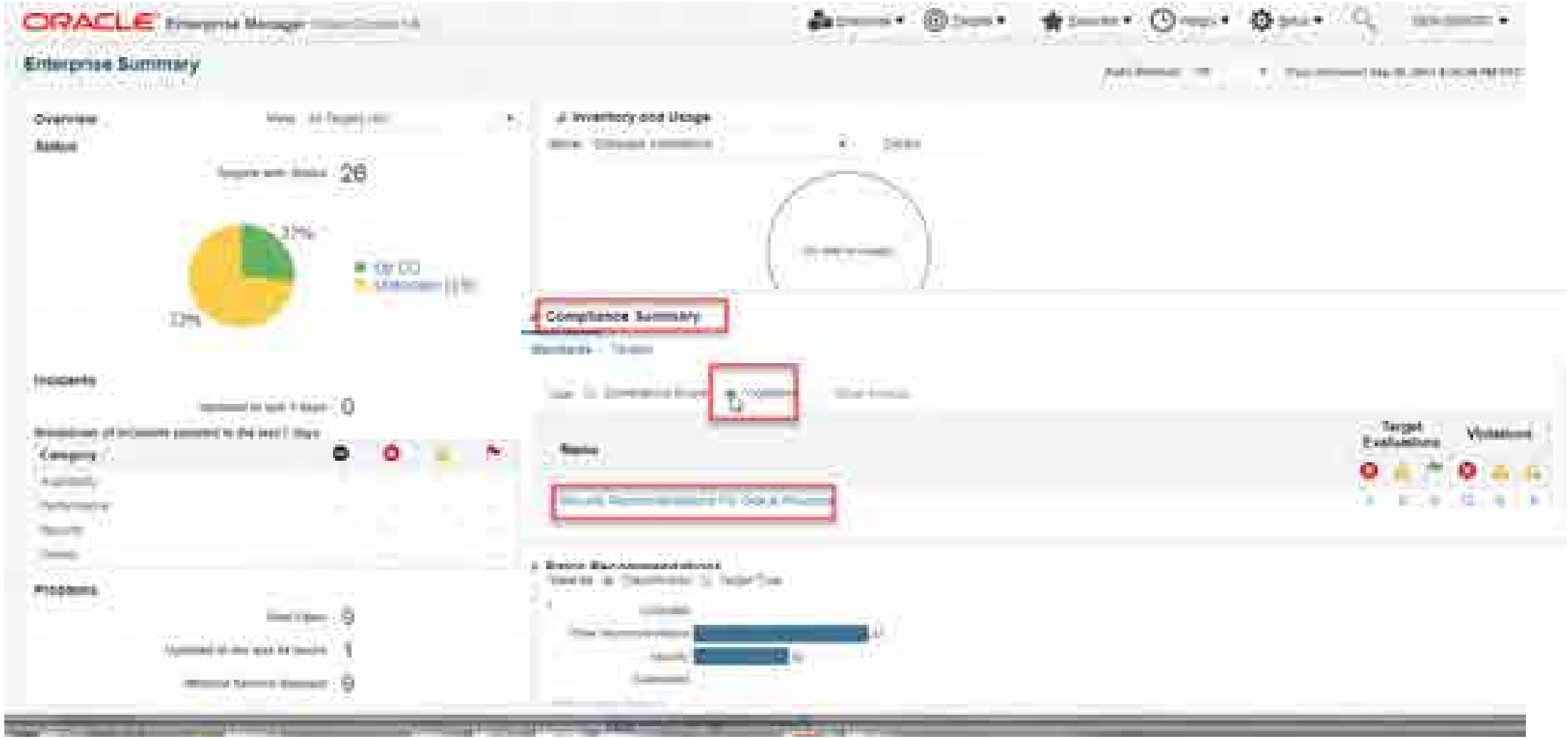

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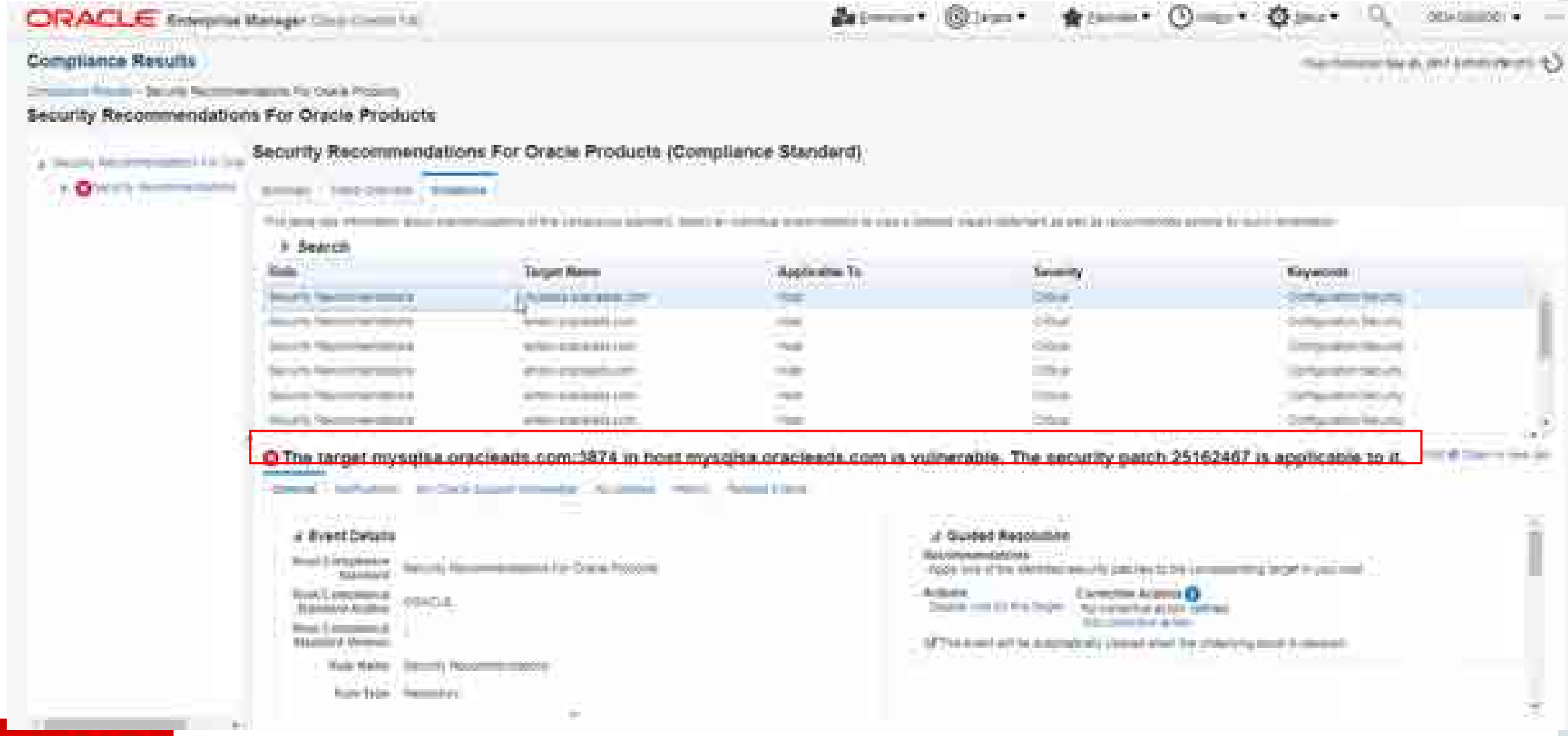
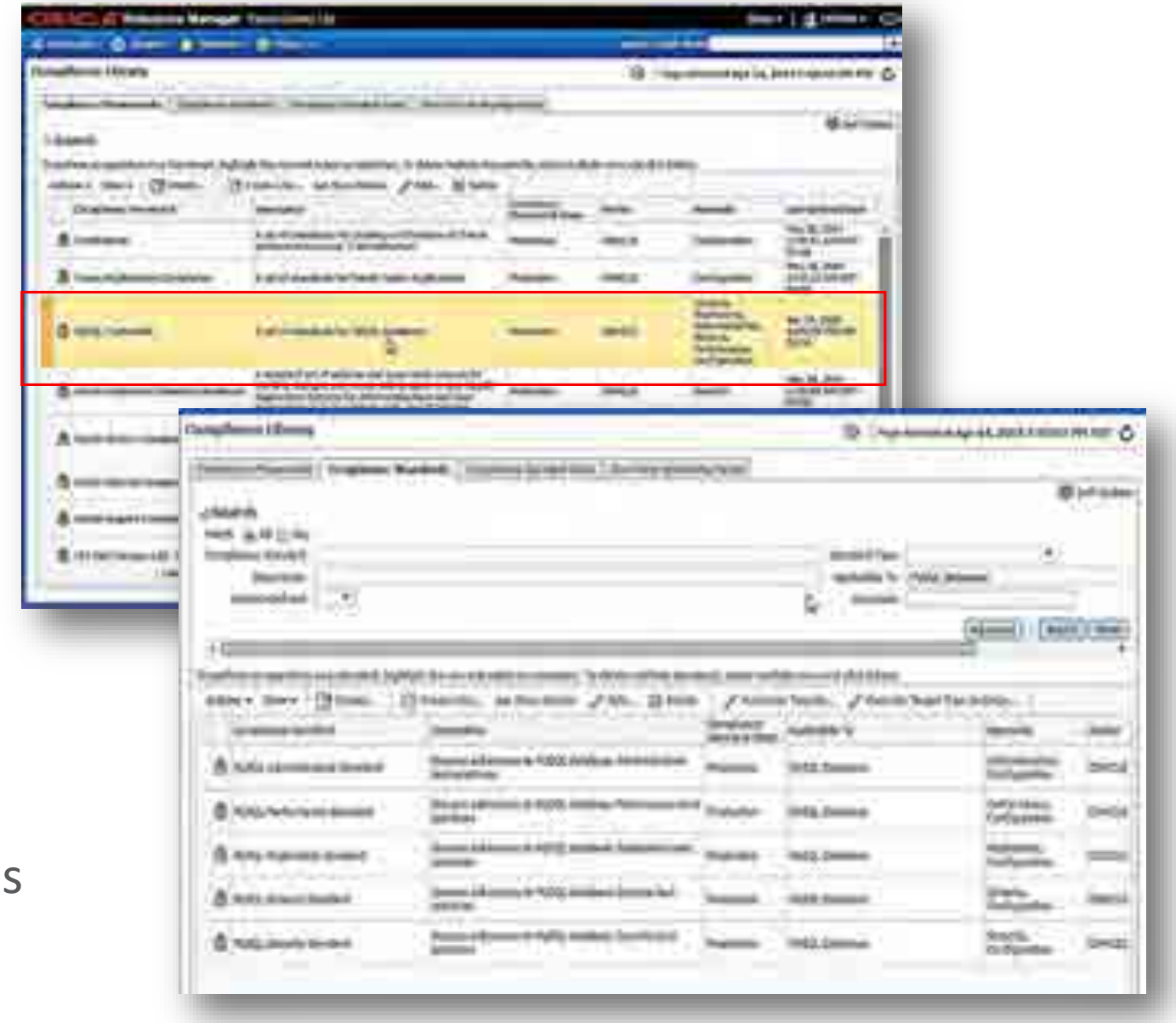


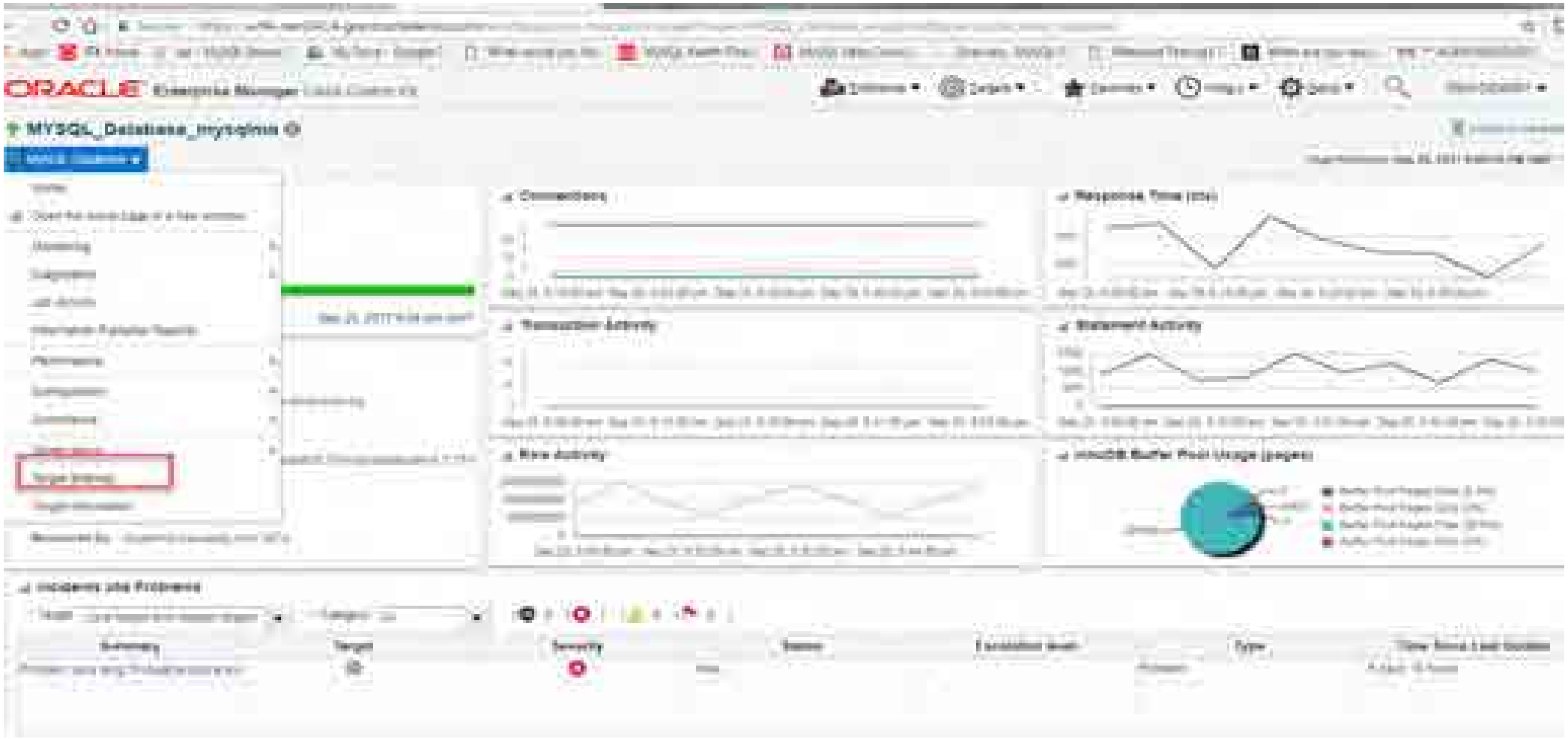
Are There Any Recommendations For MySQL Instances?

Compliance Framework

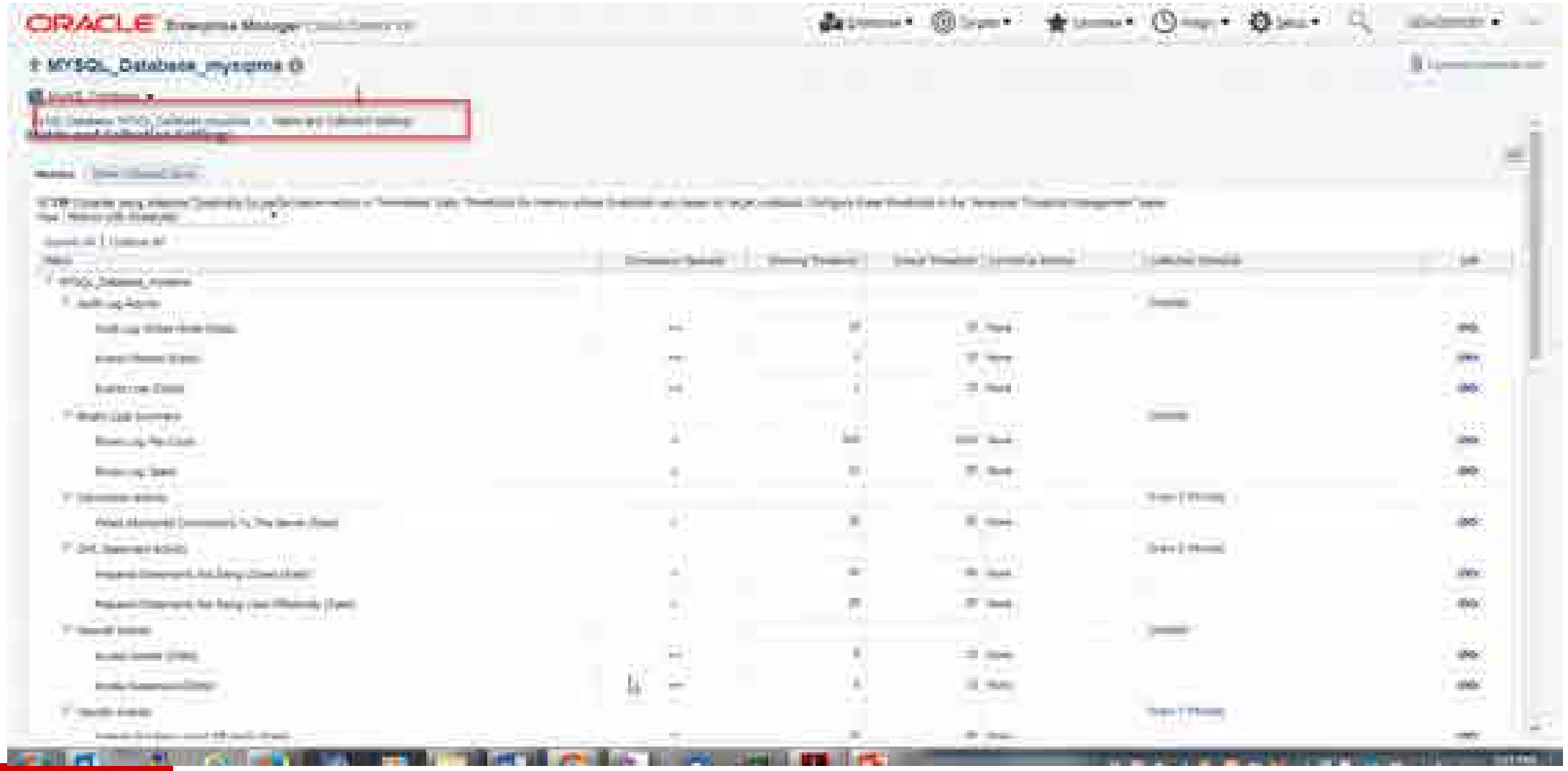
- Set of product **best practices**
- Suggested by our experts
- Based on configuration metrics
- Composed of:
  - 5 Compliance Standards
    - ✓ Administration
    - ✓ Performance
    - ✓ Replication
    - ✓ Schema
    - ✓ Security
  - Around 29+ Compliance Rules



What Metrics Are Set? Target Sitemap For MySQL



What Thresholds Are Set? Target Sitemap For MySQL



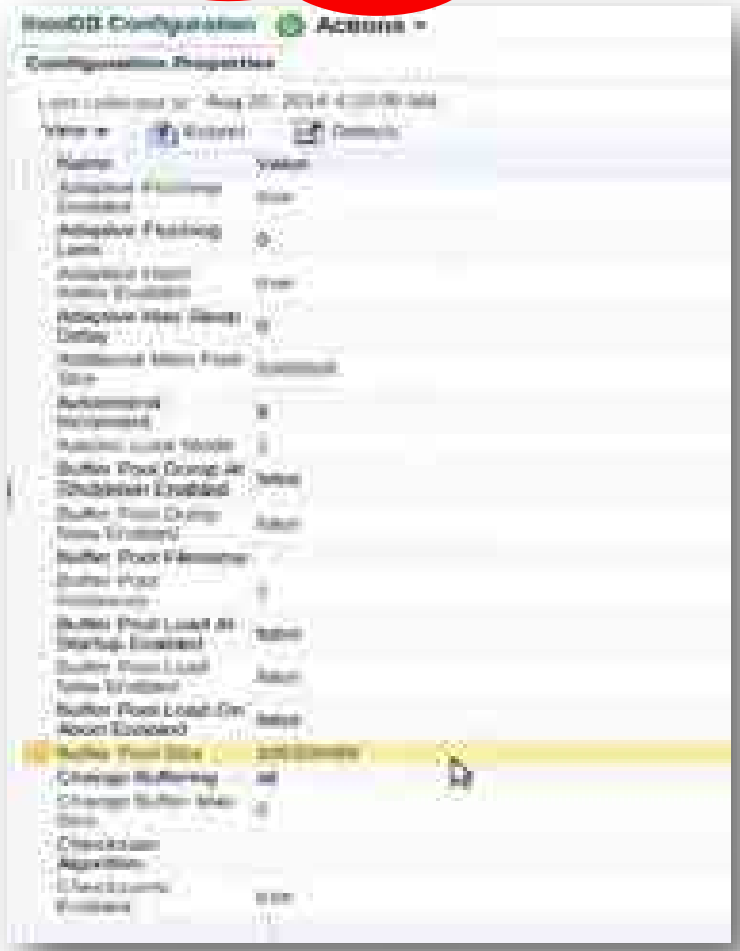
How Do You Set Up Your Oracle Enterprise Manager?

Certified MySQL® Database Administrator

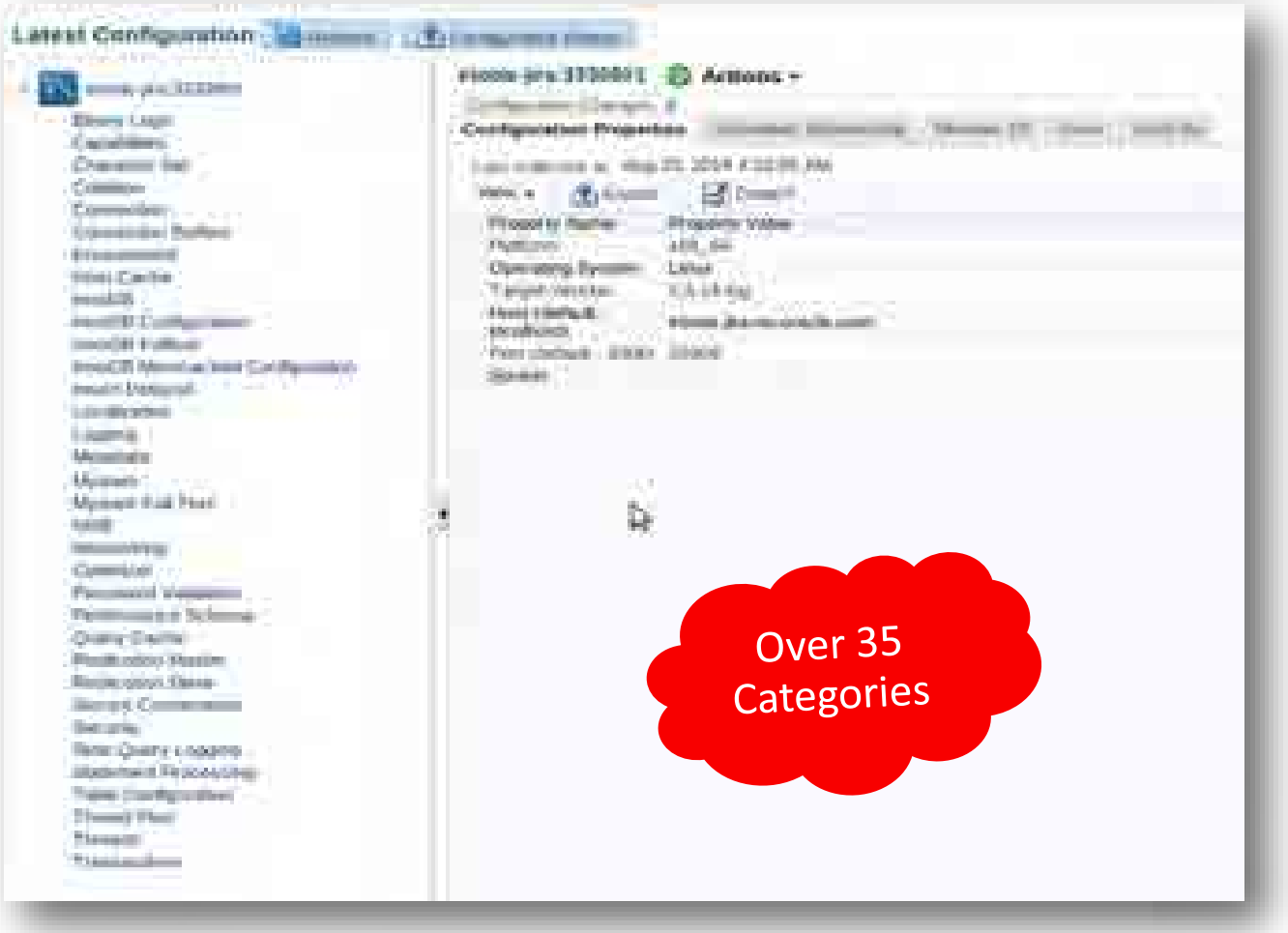
http://9xmedia.com/new/products/xtops.php

What Are Configuration Metrics?

Track of more than 563 config metrics available



More On Configuration Metrics



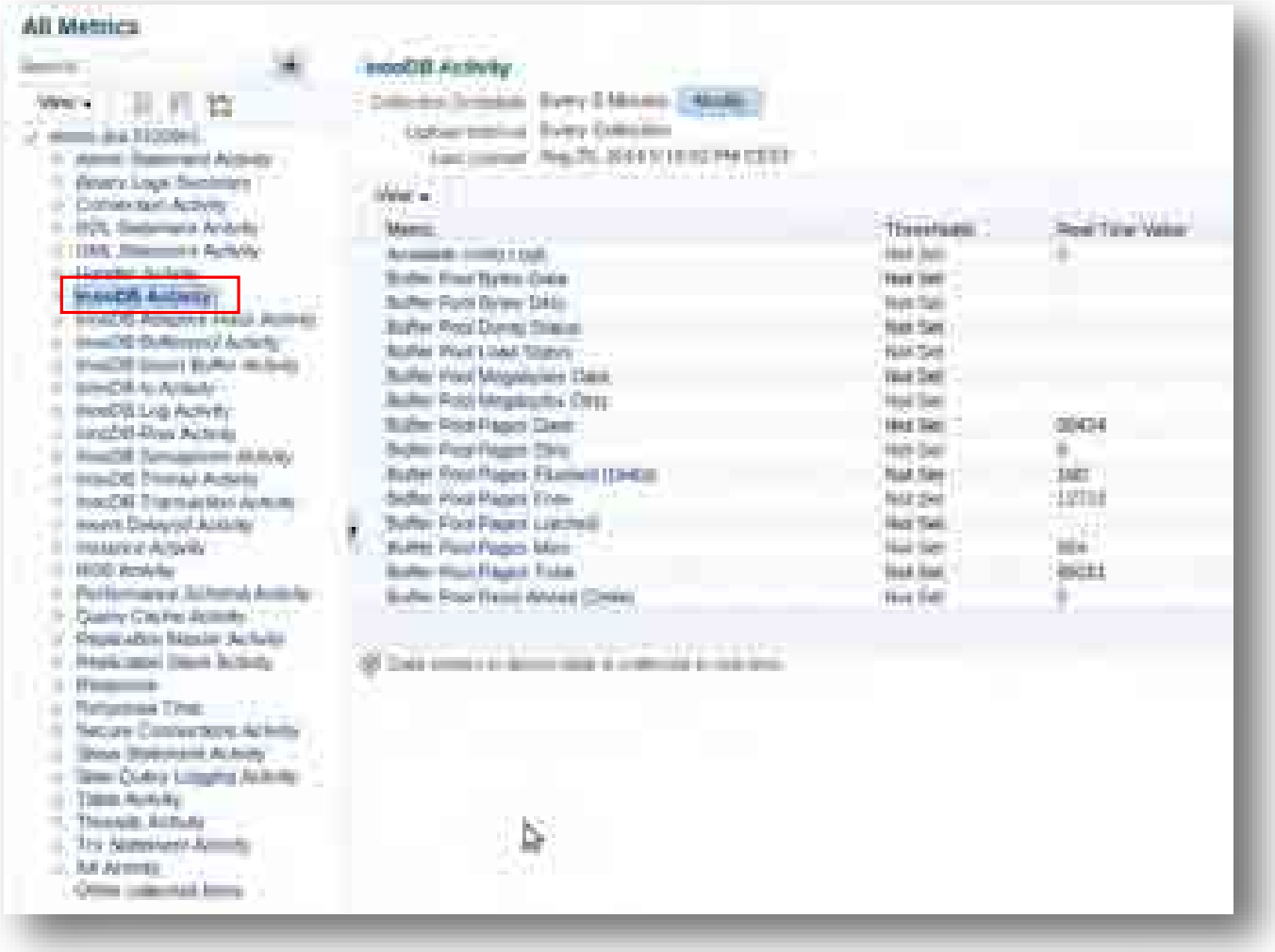
Highlights:

- Those metrics that represent **configuration** and come from ie. “show global variables”
- Categorized variables
- Collected every 24 hrs by default
- History and Comparable with other servers

What About Security Configuration Metrics? Firewall And Audit

….and **60+** more, scattered on other categories

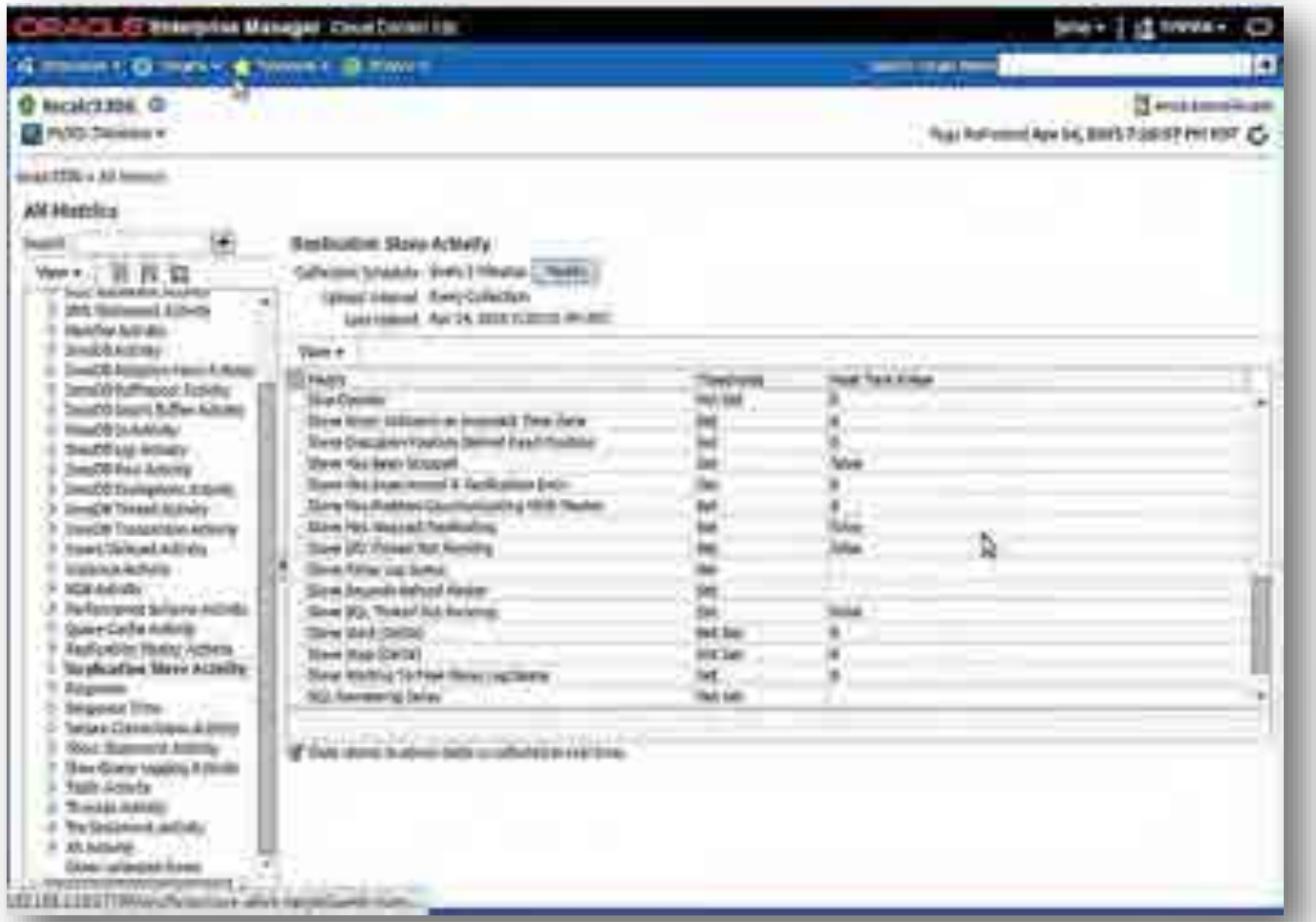
What Are Performance Metrics?



Highlights:

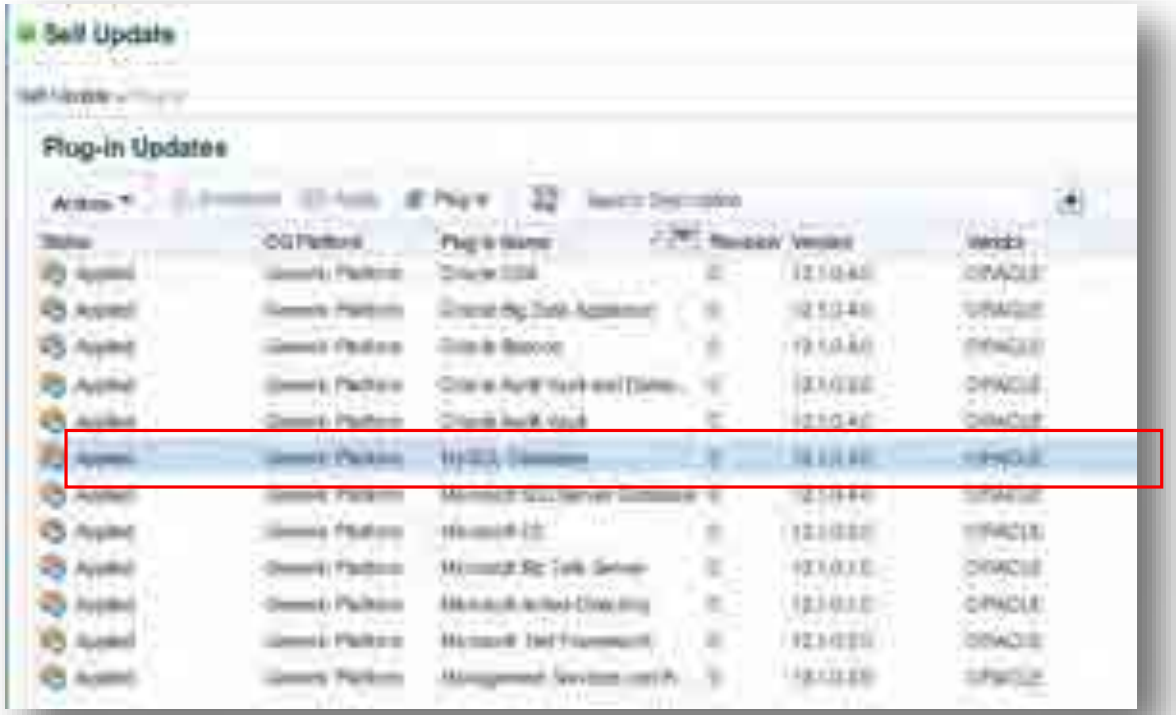
- Those that represent **usage** and come from ie. “show status”
- Collected by default every 5 minutes
- Categorized variables
- Current and historical activity
- Counters and Deltas
- Settable thresholds

What Are Performance Thresholds?



- 26+ metrics with thresholds
- **Expert advisors**
- Include the most important:
  - Availability
  - Replication
  - Key Performance Indicators
- Get alerts !!!

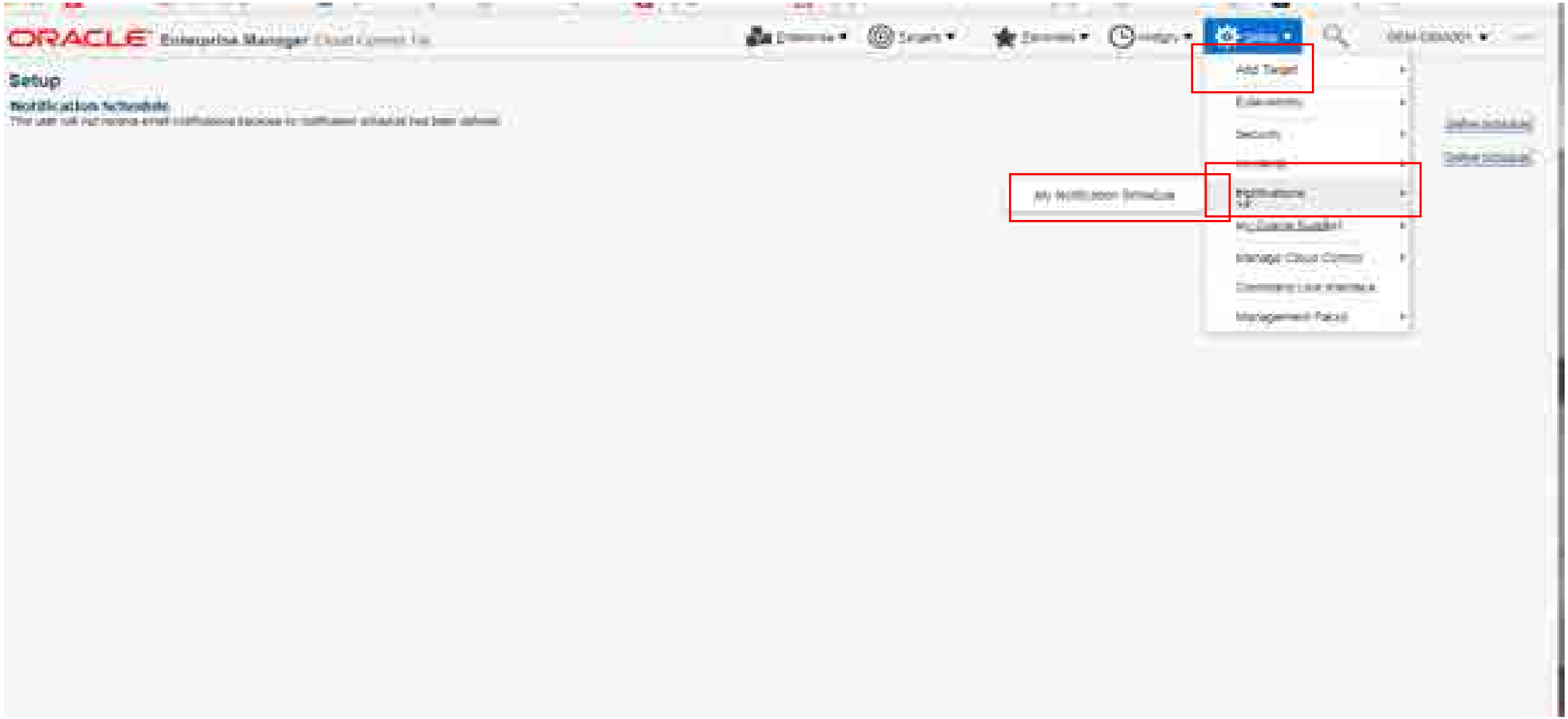
How Do You Install Oracle Enterprise Manager? Two Ways



Self-Update

Plug-in Deployment

How Do You Set Up Notifications?



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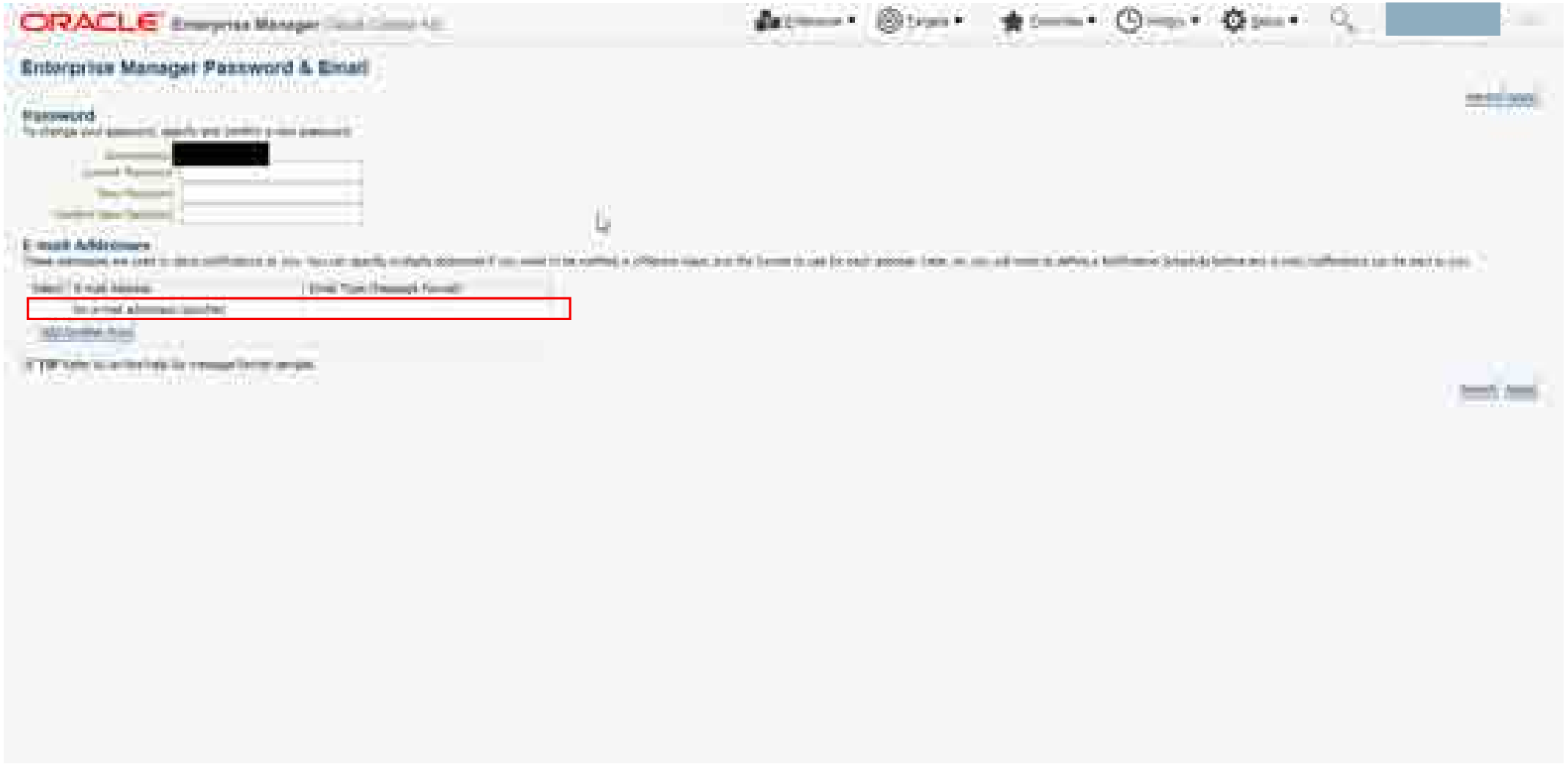
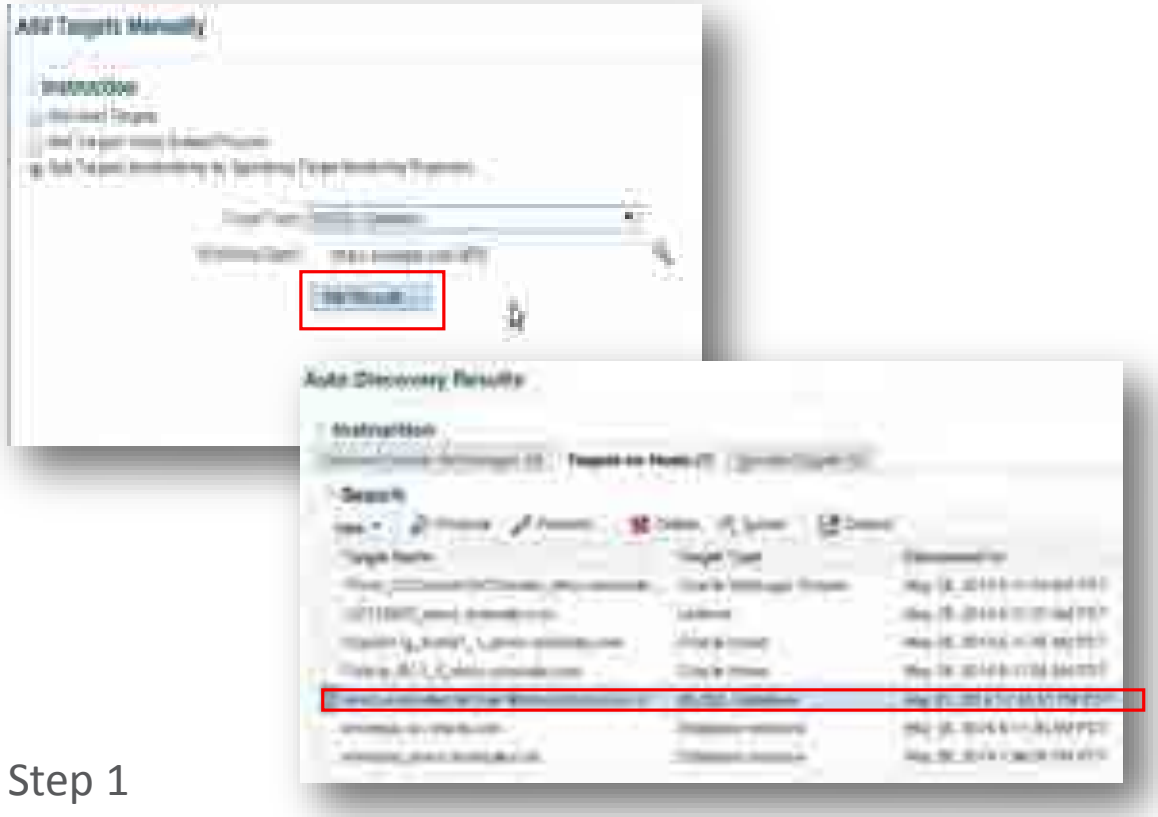


How Do You Add MySQL Database Instances? Targets



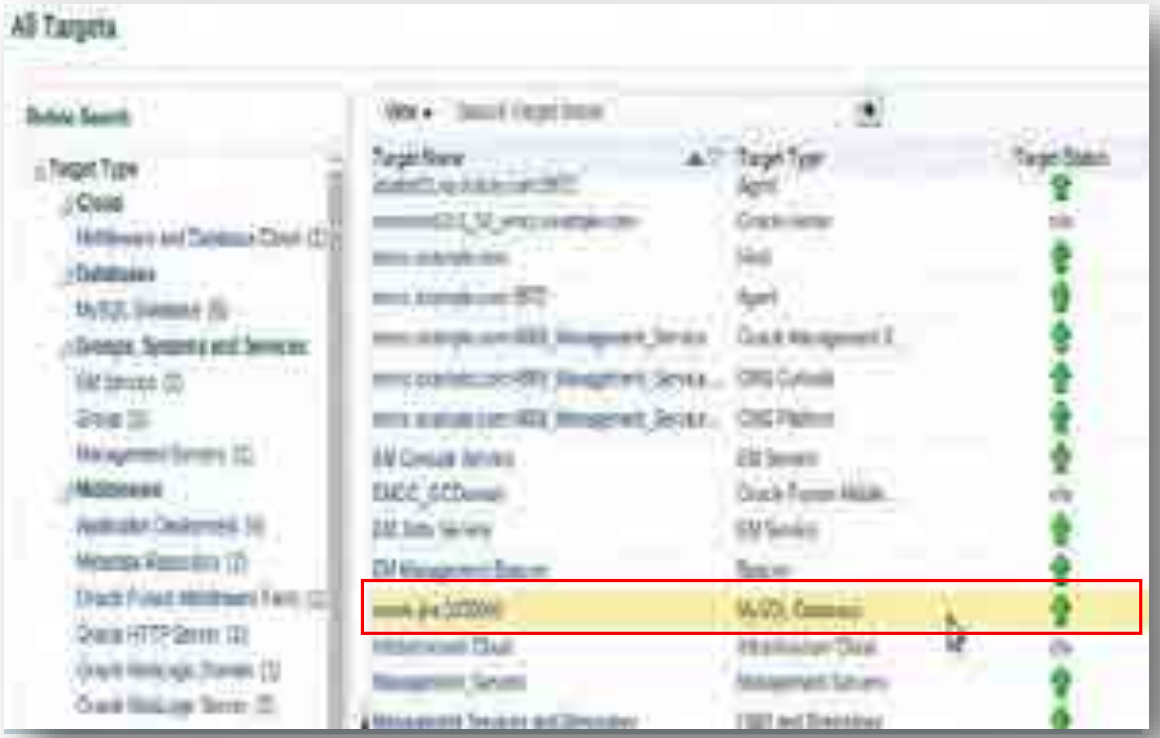
Step 1

Manually or Autodiscovered

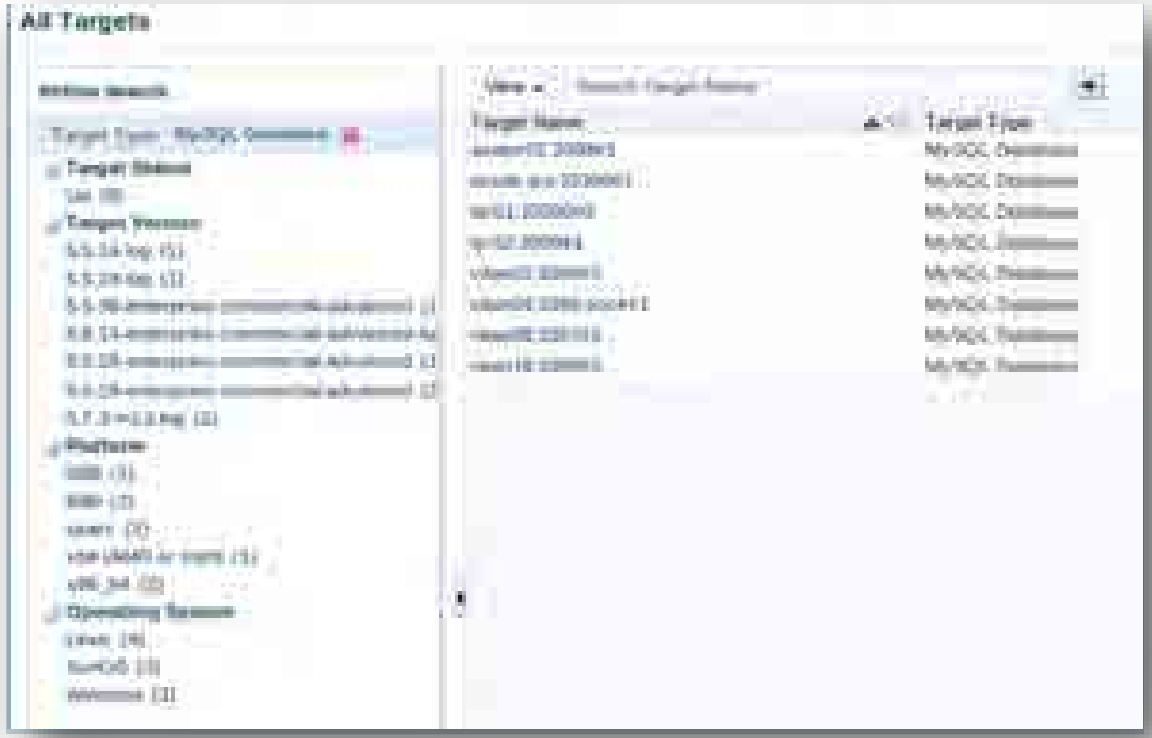
Step 2

Fill out the form with instance parameters

What Instances Do You Have Installed? Targets



All targets



Filtered targets

When Should You Use Which Tool?

for MySQL

- Provides a High Level Overview of MySQL within Your Enterprise
- Tool for the Operations Team

Enterprise Monitor

- Allows You to Dive Deeper Into
  - Query Analyzer
  - Exhaustive Best Practice Advisors
- Tool for the MySQL DBA & Dev team(s)

When Should You Use Which Tool?

for MySQL

- Can Drill Down to Topology of Hardware
- A ‘Map’ to All Your Systems
- CLI Interface to Oracle Cloud Infrastructure

Enterprise Monitor

- Can Look at Backups
- Can Drill Down to Topology of Replication

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This Is How We Used to Monitor - Get System Table Information And Put in Excel

https://i.ytimg.com/vi/FVRJU--8YMY/maxresdefault.jpg

Now

No longer have to monitor in past tense

We have advice for you

We give you graphs

http://www.tsi.com/Landing-Pages/HS-Silica.aspx

In The Near Future

https://kiply.com/blog/three-productivity-mistakes-you-can-fix-monitoring-time/

Your Monitor Talks to You, Alerts You - Alexa

https://www.google.com/search?q=alerting+that+talks+to+you+alexa&source=lnms&tbm=isch&sa=X&ved=0ahUKEwi0rIa-9cjWAhXmhFQKHebYAT0Q_AUICigB&biw=1961&bih=841#imgrc=C4A1RDLcCPoF4M

And Now …

Where do you think monitoring is going?

What would help you solve your business/operations issues in the Oracle Enterprise Manager – the MySQL plugin?

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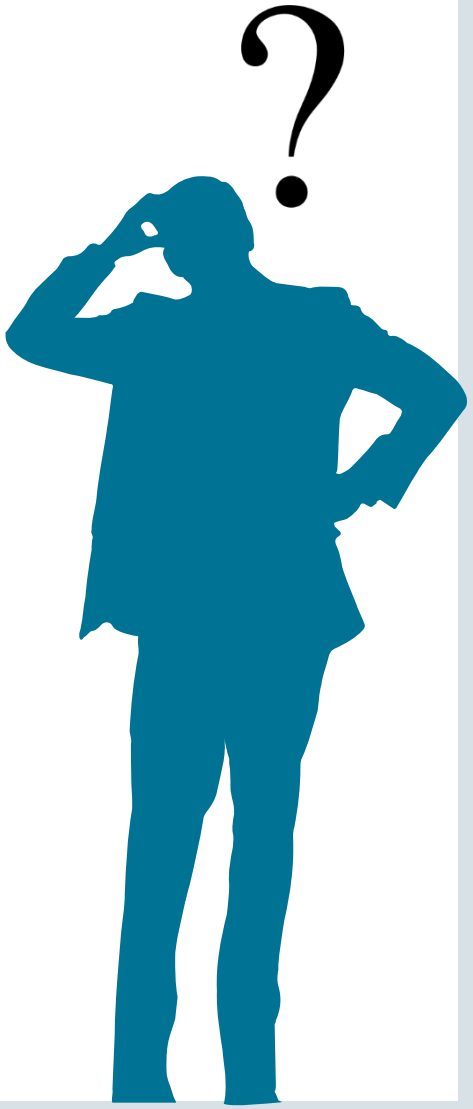
Q & A



Learn More

- Oracle Enterprise Manager for MySQL

  http://www.mysql.com/products/enterprise/em.html

- MySQL Enterprise Monitor

  http://www.mysql.com/products/enterprise/monitor.html

- Download

  https://eDelivery.oracle.com

- Kathy Forte

  kathy.forte@oracle.com

Thank You!

https://www.123rf.com/photo_22066345_young-female-construction-worker-with-an-electric-drill-and-plans-vector-illustration.html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