

Class Of SE

Security

ORACLE MANAGEMENT CLOUD – DEMO GUIDE

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OVERVIEW

The following guide has been designed to assist facilitators on how to drive the Security and Management ClassOf session.

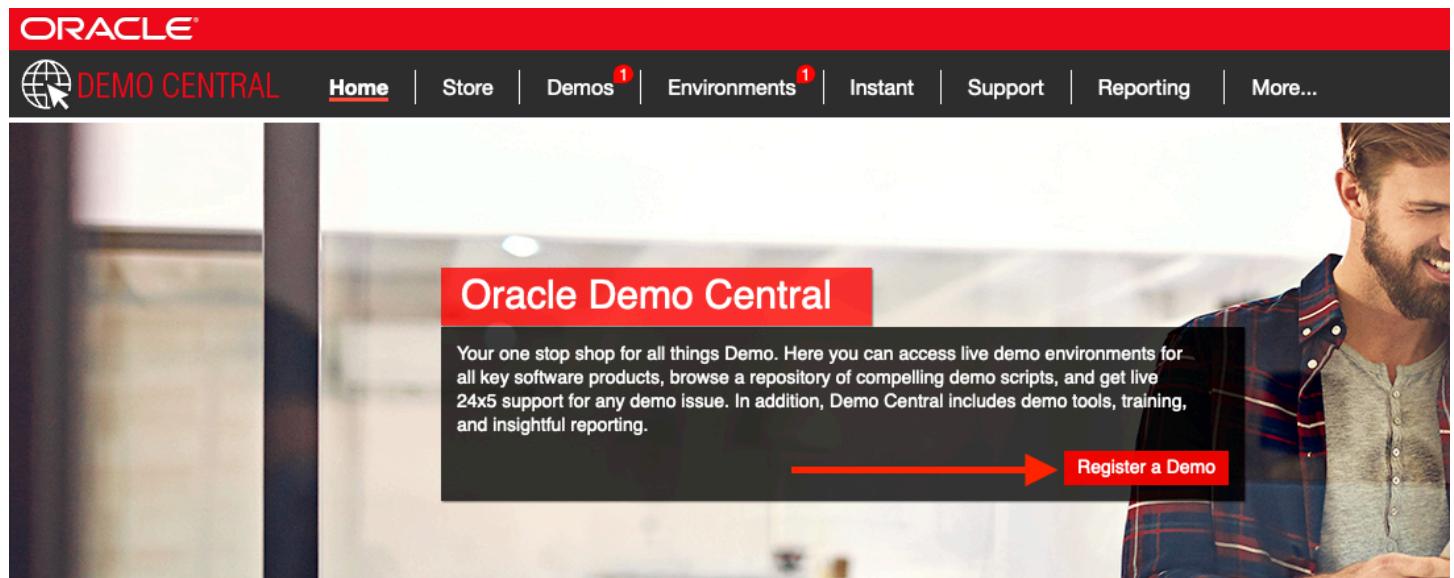
The intent of this document is to outline the items that must be considered during the Oracle Management Cloud Demo section of the training.

The individual modules allow you to get first hands-on exposure working with Oracle Management Cloud Service using a demo environment, where you will see how key features and functionality are deployed. The following demo instructions assume you understand the basics of Oracle Management Cloud Service including its problem statement, basic functions and logical architecture.

NOTE: OMC is a dynamic service that is, by design, constantly in flux. As a result, what you see in the console may not match exactly with the demo screenshots. Screenshots are provided solely for illustrative purposes to help guide you directionally through the OMC console.

Pre-requisites: Environment Registration

- Register your Oracle Management Cloud instance at <https://demo.oracle.com>. Click on “Register Demo”



- On the search bar type “Oracle Management Cloud” and click on the “Oracle Management Cloud(OMC)” Demo

The screenshot shows the Oracle Demo Registrations interface. At the top, there are tabs for "Demo Registrations" (which is selected) and "Workshop Requests". Below this, a section titled "Featured Demos" lists five options: EPM Enterprise Planning & Budgeting Cloud Service (EPBCS), Fusion GSI - ERP, SCM, HCM, Student & Engagement Cloud, Oracle Service Cloud (RightNow), Oracle Field Service Cloud (TOA), and Oracle Management Cloud (OMC). Each demo card has a "Register Demo" button and a "Click Through Demo" button. Below the featured demos is a search section titled "Search Demo Titles" with a "Filter by Product" dropdown set to "Oracle Management Cloud". A red arrow points from the "Filter by Product" dropdown to the search term "Oracle Management Cloud".

Demo Title	Demo Scripts	Access Type	Demo Description
Oracle Management Cloud (OMC)			Oracle Management Cloud (OMC) is a suite of next-generation, integrated monitoring, management and analytics solutions delivered across end-user and infrastructure data, enabling rapid trouble-shooting and the ability to run IT like a business. The demo includes proactive monitoring, diagnostics and so on.

- Fill the form with the information about the training, dates and timeframe. You can add additional information about the business need for this instance. Once completed, click “Next”

The screenshot shows the "Details" step of a demo registration form. The form is titled "Demo Title: Oracle Management Cloud (OMC) - (AP)". It consists of several sections:

- Details**: Contains fields for "Demo Purpose" (set to "Oracle or Partner Training") and "Customer Name" (set to "ClassOf 2019").
- Demo Resource Details**: Contains a field for "Demo Resource Request Type" (set to "A new Deal Server Environment").
- Activity Dates**: Contains fields for "Time Zone" (set to "Europe/Madrid"), "Activity Start Date" (set to "23-Jun-2019"), "Activity End Date" (set to "23-Jun-2019"), "Activity Start Time" (set to "06:00"), and "Activity End Time" (set to "20:00"). Below these fields is a timeline grid showing availability from 00:00 to 23:00. A legend indicates that green squares represent "Available" time and yellow squares represent "Low Availability" time. A note at the bottom states: "Green = Available, Yellow = Low Availability, (*) Hours with asterisks require approval."
- Additional Information**: Contains a text area with placeholder text "This instance will be used for ClassOf SE 2019 demo purposes." and a checkbox for "I have special requirements which I would like to discuss, please create a ticket to initiate this discussion."

At the bottom of the form, there are "Previous" and "Next" buttons. A red arrow points from the "Next" button to the right.

- Select Horizontal (Not-industry specific) from the drop-down menu,
- Add any additional facilitator / Lab assistant that would need access to this environment,
- Select all the products check-box,
- Click on “Next”

Demo Registrations Workshop Requests

Will your demo include content and/or functionality that is HORIZONTAL or INDUSTRY-SPECIFIC? *

Horizontal (NOT Industry-Specific) Horizontal (NOT Industry-Specific) 1

Add Others to this Demo (this can also be done after the Demo is registered)

Member Add 2

Remove	Member	Primary Sales Contact
alejandro.casas@oracle.com		

Select Products you plan to include in your Demo *

Products 3

PaaS & IaaS

Details Additional Info Confirmation

Next >

◀ Previous

4 → Next >

- Review the details and submit your request. Instance will be provisioned according to environment availability. We strongly recommend booking your instance with at least one week previous the training. Once your form has been submitted, you will receive an email with details about the environment and the admin assigned to this request.

Demo Registrations Workshop Requests

In compliance with Oracle security policies, I acknowledge I will not load actual confidential customer data or Personally Identifiable Information (PII) into my demo environment.

Show All Registration Details Additional Information

Registration Details

Customer Name	ClassOf 2019	Activity Start Date	23-Jun-2019 06:00
Demo Title	Oracle Management Cloud (OMC)	Activity End Date	23-JUN-2019 20:00
Demo Purpose	Oracle or Partner Training	Demo Dates	23-JUN-2019 06:00 to 20:00
Opportunity Number	N/A	Time Zone	Europe/Madrid

Additional Information

This instance will be used for ClassOf SE 2019 demo purposes.

Additional Information

Industry	Horizontal (NOT Industry-Specific)
Demo Team	alejandro.casas@oracle.com (Primary Sales Contact)
Products	PaaS & IaaS > Management > Application Performance Monitoring Cloud Service PaaS & IaaS > Management > Analytics Cloud Service PaaS & IaaS > Management > Infrastructure Monitoring Cloud Service PaaS & IaaS > Management > Log Analytics Cloud Service PaaS & IaaS > Management > Orchestration Cloud Service PaaS & IaaS > Security > Configuration & Compliance Cloud Service PaaS & IaaS > Security > Security Monitoring & Analytics Cloud Service

Submit

Exercise 1: Logging to OMC

1. Let's start by logging in. Use the URL and Identity Domain provided during registration process.

SIGN IN TO
ORACLE CLOUD

Traditional Cloud Account

Enter your Identity Domain

omcinternal

Remember my choice ?

Go

ORACLE

2. Login with the credentials provided during registration.

SIGN IN TO
ORACLE CLOUD

Traditional Cloud Account

Welcome omcinternal change domain ?

omcuser14

.....

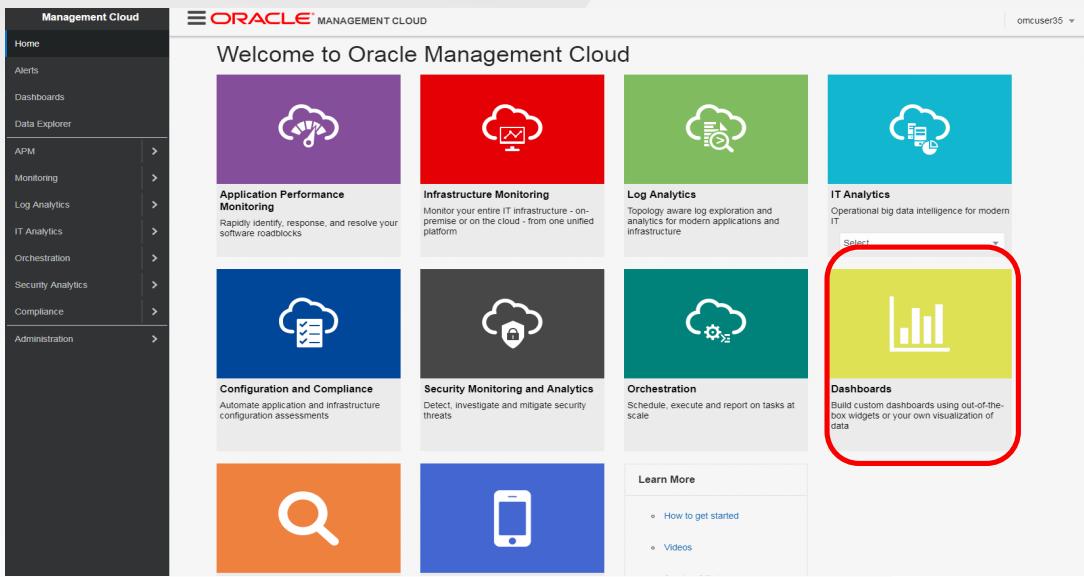
Can't access your account?

Sign In

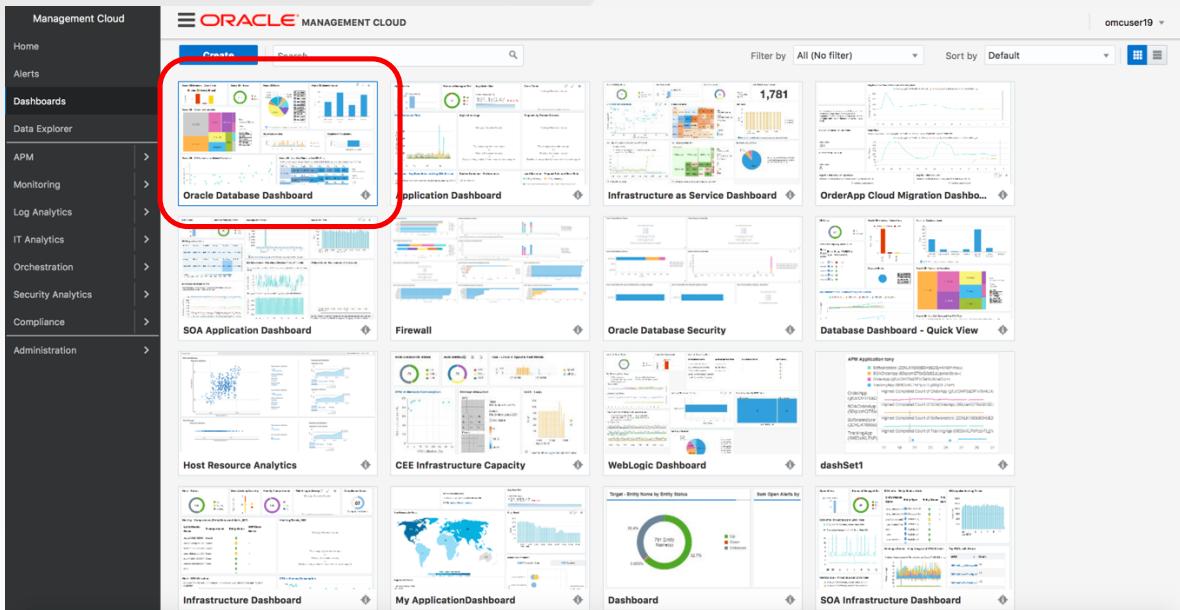
3. Welcome to the OMC launch page. You can now start the regular exercises to learn and practice OMC solutions [Note: The Menu may appear differently from here, depending on how its rendered and your screen resolution. If that happens, you can always access this pulldown menu by clicking on the Hamburger menu. This is the Global menu with three bars on the top-left corner of your display as shown next to the Oracle Management Cloud logo]

Exercise 2: Centralized Visibility to entire Oracle DB Infrastructure

1. Click on the Dashboard option as shown in the picture



2. ‘Oracle Database Dashboard’ is a custom dashboard designed to manage Oracle Database Infrastructure. This dashboard demonstrates OMC’s capability of managing the Oracle DB Infrastructure across multiple cloud service providers in the single dashboard.

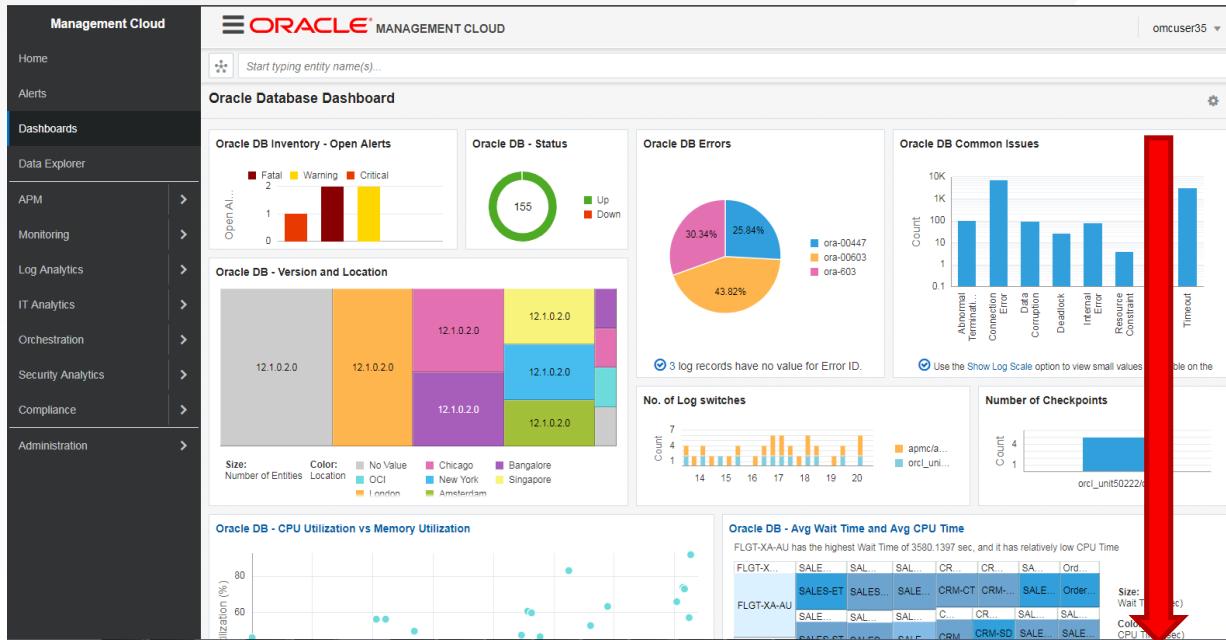


3. Click “Oracle Database Dashboard”

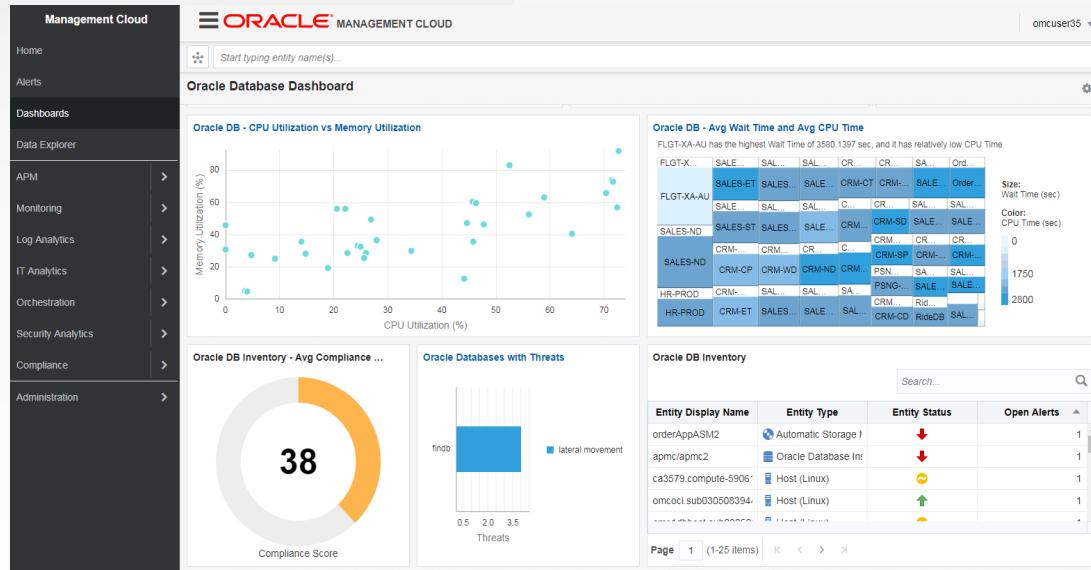
This provides complete visibility to your database, whether those are running in on-premises monitored by multiple Enterprise Managers, deployed in the cloud and natively monitored by OMC. It shows the database and breakdown by versions, alerts, their performance, errors reported in the logs of database infrastructure, capacity utilization, security threats and compliance.

We have not applied any filters on this dashboard, so you are seeing the complete Oracle DB infrastructure of the organization.

4. Scroll Down

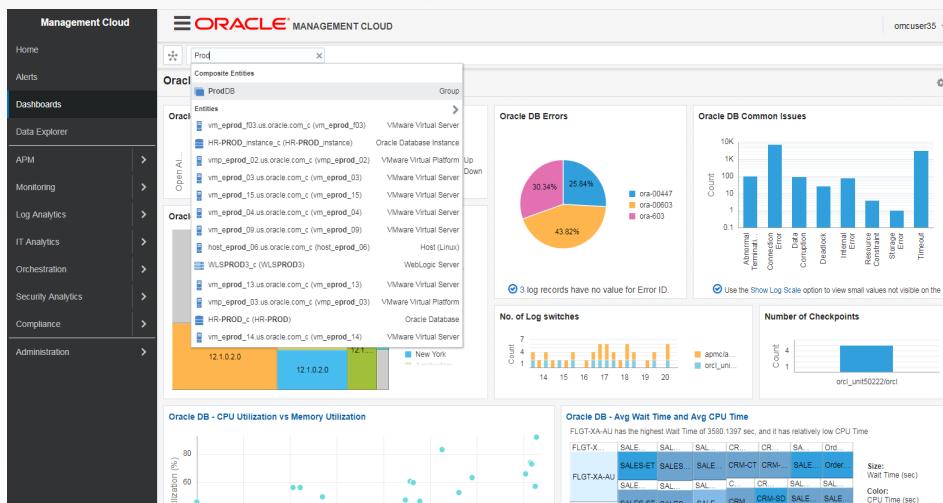


These are the remaining widgets: CPU Utilization and Memory Utilization, Average Wait time and Average CPU Time, Oracle DB Inventory – Average Compliance, Threats and Oracle DB inventory.

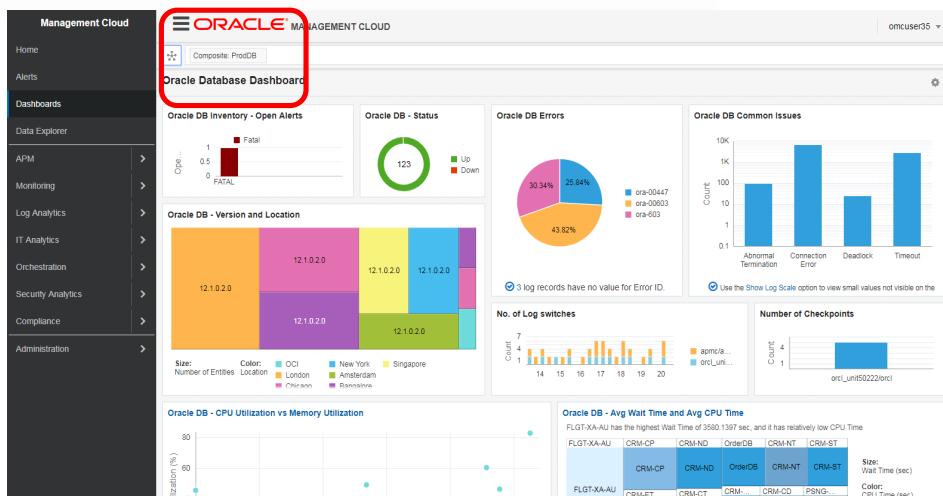


Let us now filter by Production Databases group which a typical DBA will be interested in managing.

5. Type **Prod** in global context bar
6. Select **ProdDB** Group (If is not selected already)
7. This is a group of Production Oracle Databases.



The content of all the widgets now gets filtered for the ProdDB group.



8. Scroll down. From the ‘Oracle DB Inventory’ widget, we can see that one of the Oracle DB instance has open alert. ***Note that this is “live” environment and the number of alerts for entities may look different from what is shown in these screenshots. Please pay more attention to the steps, rather than the exactness of the alert data displayed.***

9. If ‘apmc/apmc2’ is not shown at the top, please search it in the search box.

10. Hover over ‘apmc/apmc2’

11. Click View More icon i.e. three horizontal dots

The screenshot shows the Oracle Management Cloud interface. On the left, a sidebar lists various dashboards and monitoring tools. The main dashboard area includes:

- Oracle DB - CPU Utilization vs Memory Utilization:** A scatter plot showing Memory Utilization (%) on the Y-axis (0-80) versus CPU Utilization (%) on the X-axis (0-50). Data points are scattered across the plot.
- Oracle DB - Avg Wait Time and Avg CPU Time:** A heatmap showing average wait time and CPU time for various database instances. A tooltip for 'FLGT-XA-AU' indicates it has the highest wait time of 3580.1397 sec.
- Oracle DB Inventory - Avg Compliance ...:** A donut chart showing a compliance score of 20.
- Oracle Databases with Threats:** A section stating 'No Log Records Found' with instructions to change time range or search query.
- Oracle DB Inventory:** A table listing entities. The row for 'apmc/apmc2' is highlighted with a red box. The table columns are: Entity Display Name, Entity Type, Entity Status, and Open Alerts.

Entity Display Name	Entity Type	Entity Status	Open Alerts
apmc/apmc2	apmc/apmc2 Oracle Database Instance	*** ↓	1
AdvertiseDB-XA-CH	Oracle Database	↑	
AdvertiseDB-XA-CH_1	Oracle Database Inst	↑	
AdvertiseDB-XA-CH_2	Oracle Database Inst	↑	
AdvertiseDB-XA-CH_3	Oracle Database	↑	

This opens the entity card for the entity which gives the summary of the open alert.

12. Click number '1' next to Total alerts in the entity card header

The screenshot shows the Oracle Management Cloud interface. On the left, a sidebar lists various services: Home, Alerts, Dashboards (selected), Data Explorer, APM, Monitoring, Log Analytics, IT Analytics, Orchestration, Security Analytics, Compliance, and Administration. The main area is titled "Oracle Database Dashboard". It features several cards: "Oracle DB - CPU Utilization vs Memory Utilization" (a scatter plot showing CPU utilization around 20% and memory utilization around 40%), "Oracle DB Inventory - Avg Compliance Score" (a donut chart showing a score of 20), and "Wait Time and Avg CPU Time" (a heatmap showing wait times and CPU times for various database components). A central modal window is open for an entity named "apmc/apmc2 Oracle Database Instance". The modal header shows "1 Total Alerts". Below the header, it says "Down since Feb 12, 2018 5:08 PM" and "Reason : Test event DOWN Duration 117d 6h 50m 4s Type Monitoring". The modal also displays a table of "Wait Time and Avg CPU Time" for various components like CRM-CP, CRM-ND, OrderDB, etc. At the bottom of the modal, there's a table titled "Inventory" listing entities with their status (e.g., Oracle Database In: Down) and an "Open Alerts" column showing the count (e.g., 1 for Oracle Database In: Down).

Clicking on the alert count link takes to the alert page which provides full details regarding the open alert.

The screenshot shows the Oracle Management Cloud interface. The left sidebar is titled "Management Cloud" and includes links for Home, Alerts, Dashboards, Data Explorer, APM, Monitoring, Log Analytics, IT Analytics, Orchestration, Security Analytics, Compliance, and Administration. The main content area is titled "ORACLE MANAGEMENT CLOUD" and shows the "Alerts" section. At the top of the alerts page, there are filters for "Service" (All), "Severity" (All), and a search bar. Below these are summary counts for Total (1), Fatal (1), Critical (0), Warning (0), and Informational (0) alerts. A detailed table lists the single critical alert: "apmc/apmc2(Oracle Database Instance) Is Down. Reason : Test event DOWN" with Entity "apmc/apmc2", Entity Type "Oracle Database Instance", Last Updated "2/23/18 4:55:57 AM", and Duration "117d 6h 50m 27s". Navigation arrows for "Previous" and "Next" are visible at the bottom of the table.

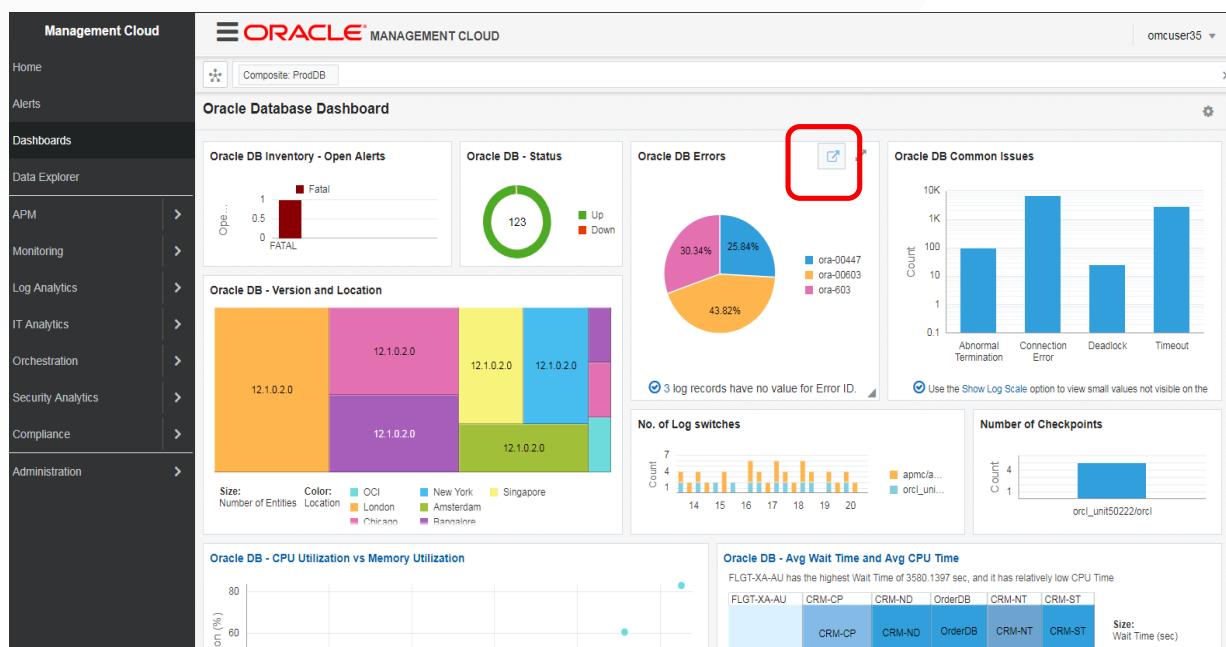
Exercise 3: Rapid Problem Isolation

1. Navigate back to ‘Oracle Database Dashboard’. (Go to Dashboards, click on this Dashboard again and remove **apmc/apmc2** from global context list at the top ... next to the Composite: **ProdDB** in the box with a *)

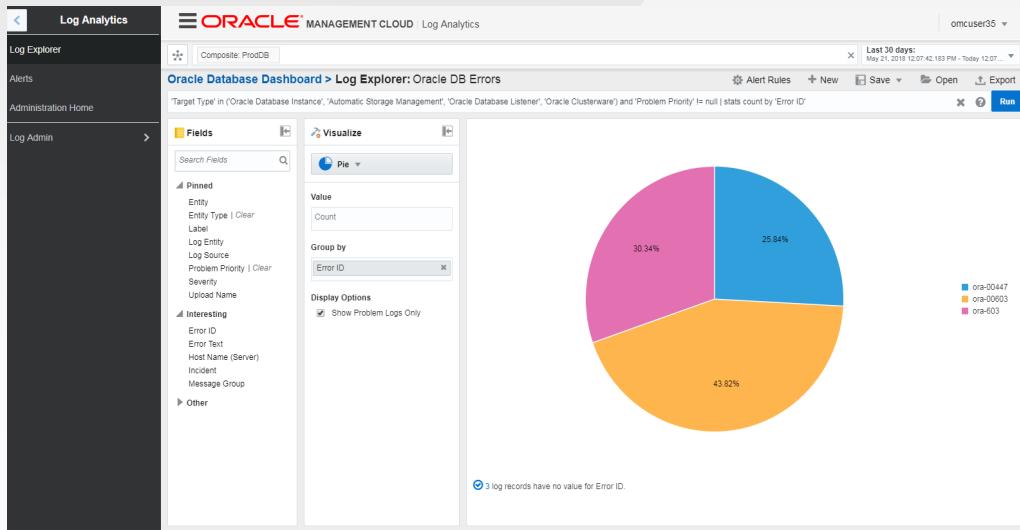
The widgets ‘Oracle DB Errors’ and ‘Oracle DB Common Issues’ give overview of the DB errors/issues in the infrastructure.

Now, let’s see how we can diagnose the potential root cause of one of the issues in the infrastructure.

2. Click on highlighted icon in ‘Oracle DB Errors’ widget



This will open the widget in the Log Explorer



3. Replace the Log Explorer query with “*”. This will bring all the logs from the **ProdDB** infrastructure.
4. Click Run
5. If the ‘Records with Histogram’ is not displayed, Click ‘Pie’ dropdown in Visualize Palette. This will open visualization selector.
6. Select ‘Records with Histogram’

This will show all the logs for the **ProdDB** infrastructure as records with Histogram.

7. Click on the Topology icon on top left if is not already displayed.

The screenshot shows the Oracle Management Cloud Log Analytics interface. On the left, there's a sidebar with 'Log Explorer', 'Alerts', and 'Administration Home'. The main area has a title 'Oracle Database Dashboard > Log Explorer: Oracle DB Errors'. It features a 'Fields' section with pinned and interesting fields like 'Entity', 'Entity Type', 'Label', etc., and a 'Visualize' section with a 'Records with Histogram' option selected. Below this is a 'Field Summary' histogram chart showing log counts over time. At the bottom, there's a 'Original Log Content' section displaying several log entries from June 20, 2018, at 12:06:11 PM. A red box highlights the 'Topology' icon in the top-left corner of the main content area.

This will show the topology of the **ProdDB** group.

8. Click on upward arrow on the bottom right of topology

The screenshot shows the same Oracle Management Cloud Log Analytics interface as the previous one, but with a red box highlighting the upward arrow icon located in the bottom right corner of the main content area. This icon is used to switch between the 'Histogram' and 'Topology' views.

This will show various options for viewing topology.

9. Click on Settings icon and Click ‘Associated Entities’ check box

The screenshot shows the Oracle Management Cloud Log Analytics interface. On the left, there's a sidebar with 'Log Explorer', 'Alerts', 'Administration Home', and 'Log Admin'. The main area has a title 'ORACLE MANAGEMENT CLOUD | Log Analytics' and a sub-section 'Composite: ProdDB'. A red box highlights the 'Associated Entities' checkbox in the top navigation bar, which is part of the 'Entity Status' dropdown menu. Below the navigation, there's a 'Database' section with tabs for 'Entity Map', 'Tier', 'Node Value', and 'Alert Count'. To the right of the Entity Map tab, there's a color legend for 'Entity Status': Down (red), Error (orange), No Value (yellow), Not Heard From (light blue), Unknown (dark blue), and Up (green). The main content area includes a 'Fields' panel on the left with pinned fields like Entity, Entity Type, Label, Log Entry, Log Source, Problem Priority, Severity, and Upload Name; an 'Interesting' section with File, Host Name (Server), Image, OS Process ID, Oracle Process ID, and Other; and a 'Visualize' section with 'Records with Histogram'. The histogram shows data from May 22 to June 19, 2018, with a count of 70K. Below the histogram is a 'Field Summary' section with a 'Histogram' chart and a 'Original Log Content' table showing log entries for Jun 20, 2018, at 12:06:11 PM and 12:06:08 PM.

This will show all the associated entities for the Oracle Databases in the **ProdDB** group.

The screenshot shows the same Oracle Management Cloud Log Analytics interface as the previous one, but with a different view. The 'Associated Entities' checkbox is checked, which changes the visualization to a topology map. The top navigation bar now shows a network diagram with nodes representing various entities. The main content area remains similar, with the 'Fields' panel, 'Visualize' section, and 'Field Summary' histogram. The 'Original Log Content' table also remains the same, showing log entries for Jun 20, 2018, at 12:06:11 PM and 12:06:08 PM.

From here we can see that one Automatic Storage Management Instance i.e. orderAppASM2 is down since Feb 12 2018.

The screenshot shows the Oracle Management Cloud Log Analytics interface. On the left, there's a sidebar with 'Log Explorer', 'Alerts', 'Administration Home', and 'Log Admin'. The main area has a title 'ORACLE MANAGEMENT CLOUD Log Analytics' and a sub-section 'Composite ProdDB'. A red box highlights an alert for 'orderAppASM2' under the 'Storage' section, which is labeled 'Automatic Storage Management Instance' and 'Down since Feb 12, 2018 5:08 PM'. Below this, there's a histogram titled 'Field Summary' with a 'Histogram' tab selected, showing data from May 22 to June 19. The x-axis represents dates, and the y-axis represents count, ranging from 10K to 50K. A tooltip for a bar on May 26 shows the following log entry:

```
*** 2018-06-19T23:36:11.741312-07:00
AUTO SGA_kmpg_parameter_update_timeout gen0 mmon alive 1
@ Entity = apmc/apmc | Entity Type = Oracle Database Instance | Log Source = Database Trace Logs | Host Name (Server) = 96.14.96.2
```

Let's fetch the logs from the time window when the entity went down.

10. Action: Click on 'Last 30 days' in time selector drop down

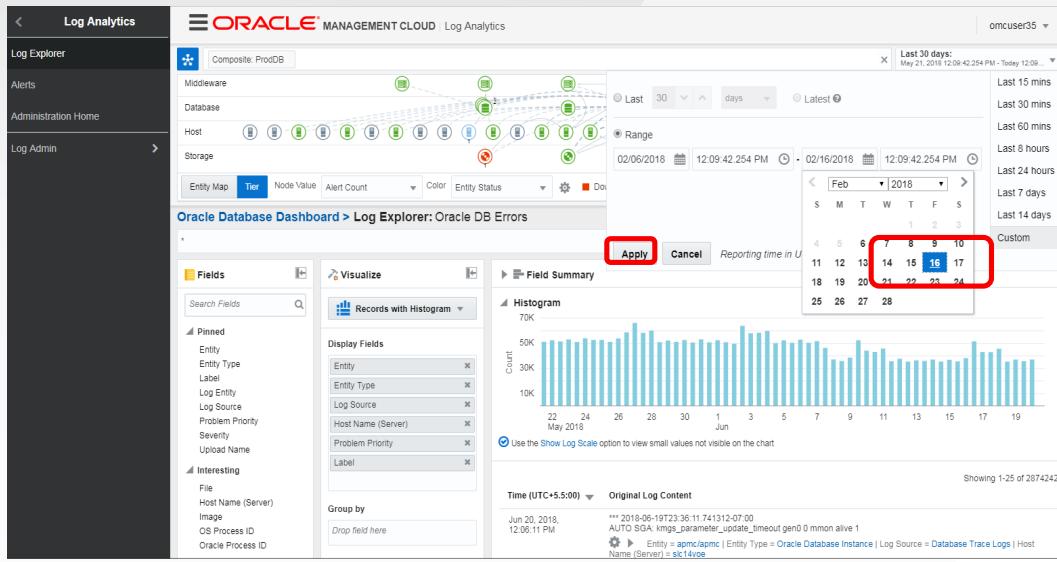
11. Action: Click Custom

12. Action: Select custom Range radio button. Provide start date as 6th Feb 2018.

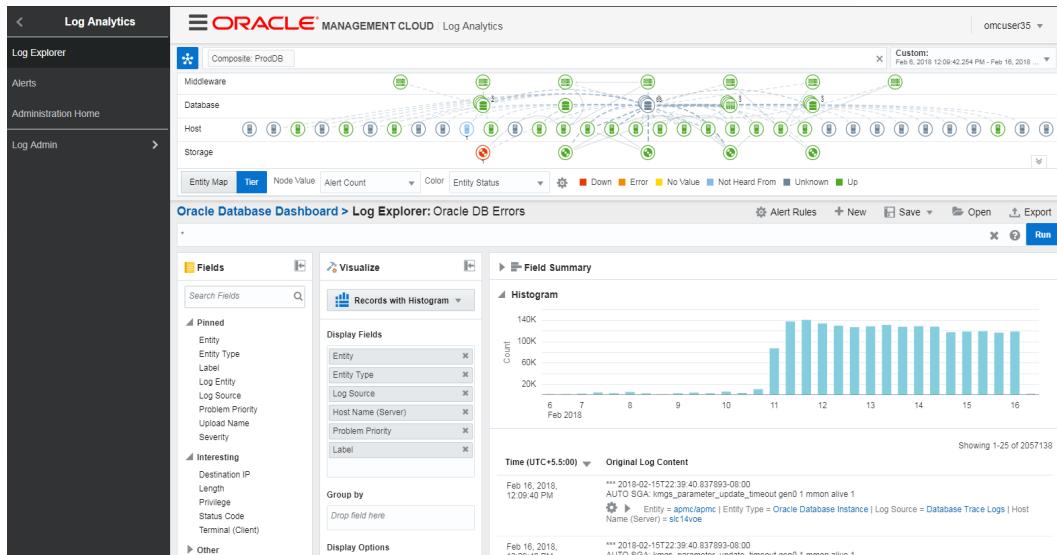
This screenshot shows the same Log Analytics interface as before, but the time selector dropdown is open. A red box highlights the 'Range' radio button and the dropdown menu. The menu shows various time intervals: 'Last 30 days', 'Latest', 'Last 30 mins', 'Last 60 mins', 'Last 8 hours', 'Last 24 hours', 'Last 7 days', and 'Custom'. The 'Custom' option is selected and highlighted with a red box. The calendar below shows the month of February 2018, with the 6th highlighted.

13. Provide end date of Feb 16, 2018

14. Click Apply

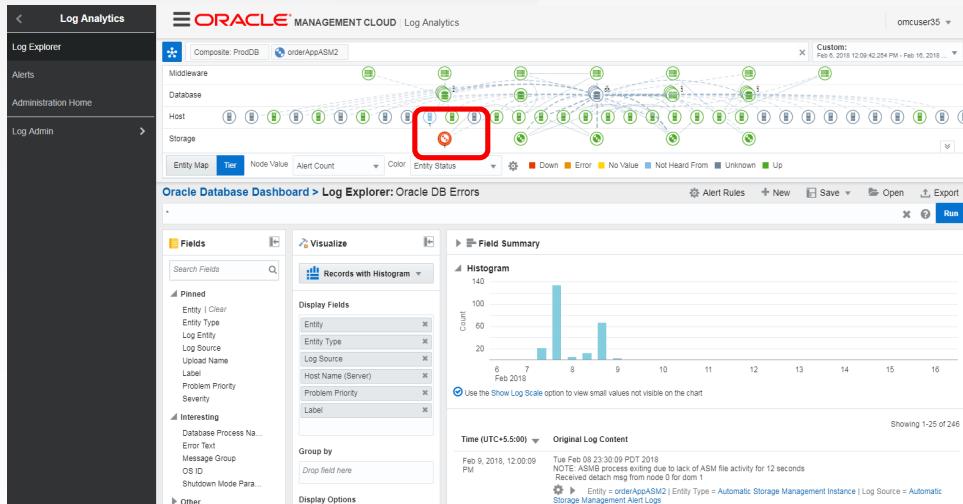


This will filter the logs for the provided custom time Note: Results may delay based on actual environment usage.



15. Click on the down ASM instance 'orderAppASM2' from topology

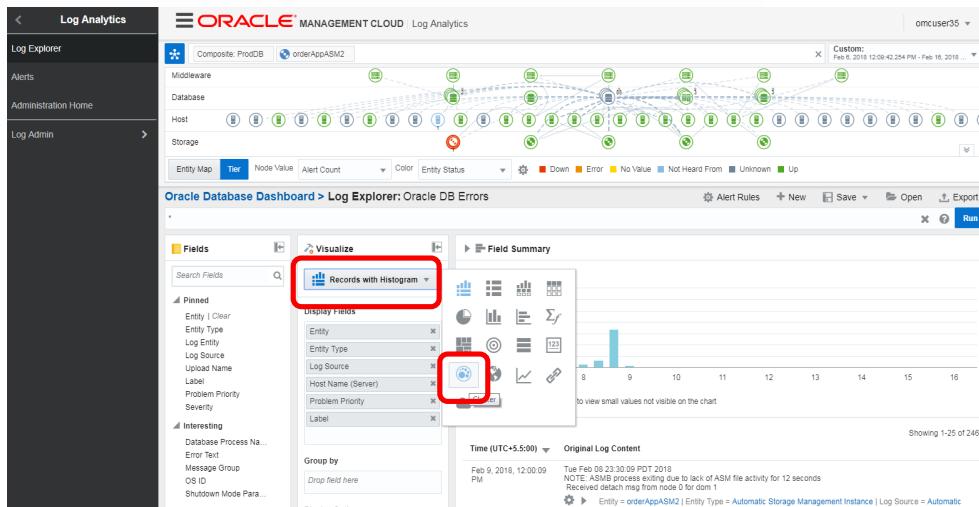
This will add 'orderAppASM2' in global context and filter to show logs coming only from orderAppASM2.



The screenshot shows the Oracle Management Cloud Log Analytics interface. On the left, there's a navigation sidebar with 'Log Analytics' selected. The main area displays a network topology with various nodes representing different systems. A specific node labeled 'orderAppASM2' is highlighted with a red box. Below the topology, a 'Log Explorer' section is visible, showing a histogram of log records. The histogram has a single major peak at value 8, with a count of approximately 140. The x-axis ranges from 6 to 16. The y-axis is labeled 'Count'. The histogram title is 'Histogram'.

16. Click on Records with Histogram

17. Click Cluster icon



This screenshot is similar to the previous one, showing the Oracle Management Cloud Log Analytics interface. The topology view highlights the 'orderAppASM2' node. In the 'Visualize' section of the Log Explorer, there is a 'Records with Histogram' button, which is also highlighted with a red box. Below it, there is a cluster icon (represented by three dots in a triangle) which is also highlighted with a red box. The histogram chart shows the same distribution as in the previous screenshot.

18. Click on Potential Issues

The screenshot shows the Oracle Management Cloud Log Analytics interface. The main dashboard displays various system components like Middleware, Database, Host, and Storage. On the left, there's a navigation sidebar with options like Log Explorer, Alerts, Administration Home, and Log Admin. The central area is titled 'Oracle Database Dashboard > Log Explorer: Oracle DB Errors'. It features a histogram titled '38 Clusters' with a red box highlighting the '5 Potential Issues' section. Below the histogram, a table lists three potential issues:

ID	Log Source	Sample Message
1	Automatic Storage Management Alert Logs	Disk Error: unable to read disk NOTE: ASM instance shutting down abnormally NOTE: cache opening disk 0 of grp 1: ORA_DATA01_0000 path:/dev/raw/raw7
2	Automatic Storage Management Alert Logs	Errors in file /ora_db_home/app/oracle/admin/+ASM/bdump/+asm2_rbal_1 0559.trc ORA-15183: ASMLIB initialization error [/opt/oracle/extmp/64/asm/wrc/l/libasm.so] ORA-15183: ASMLIB initialization error [driver/agent not installed]
3	Automatic Storage Management Alert Logs	Errors in file /ora_db_home/app/oracle/admin/+ASM/bdump/+asm2_rbal_1 0559.trc ORA-15183: ASMLIB initialization error [/opt/oracle/extmp/64/asm/wrc/l/libasm.so] ORA-15183: ASMLIB initialization error [driver/agent not installed]

Go through the details of the potential issues

This shows disk error which could be the potential reason for the ASM instance going down

The screenshot shows the same Oracle Management Cloud Log Analytics interface as the previous one, but with a different focus. A red box highlights the first potential issue in the list:

1 Automatic Storage Management Alert Logs

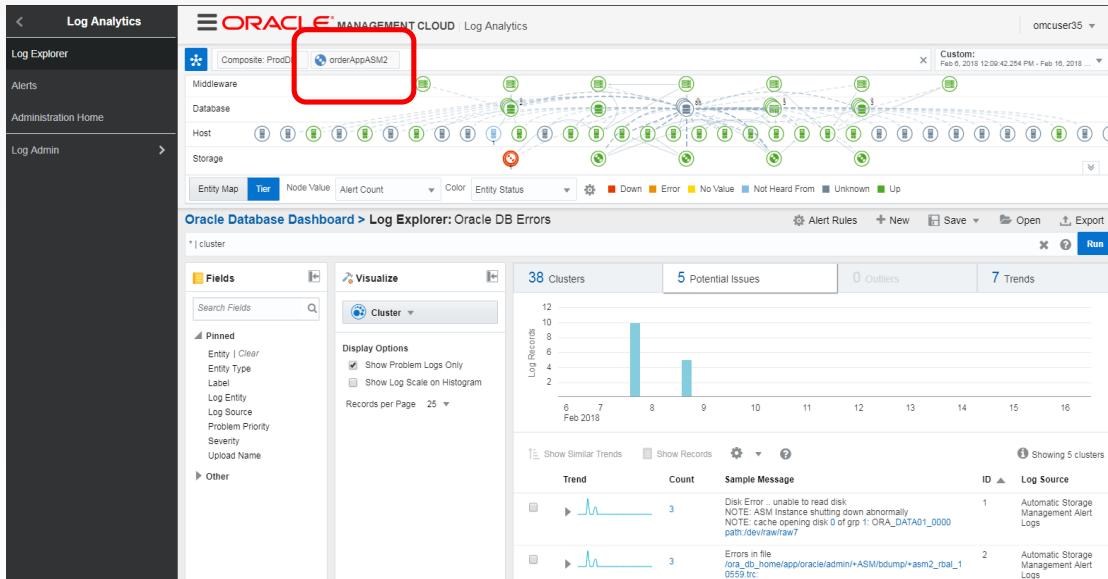
Sample Message:

Disk Error: unable to read disk
NOTE: ASM instance shutting down abnormally
NOTE: cache opening disk 0 of grp 1: ORA_DATA01_0000
path:/dev/raw/raw7

Now, let's see whether the host on which this ASM instance is running shows any error in this time duration.

19. Click on cross icon on **orderAppASM2** in global context bar

This will remove **orderAppASM2** from global context bar.

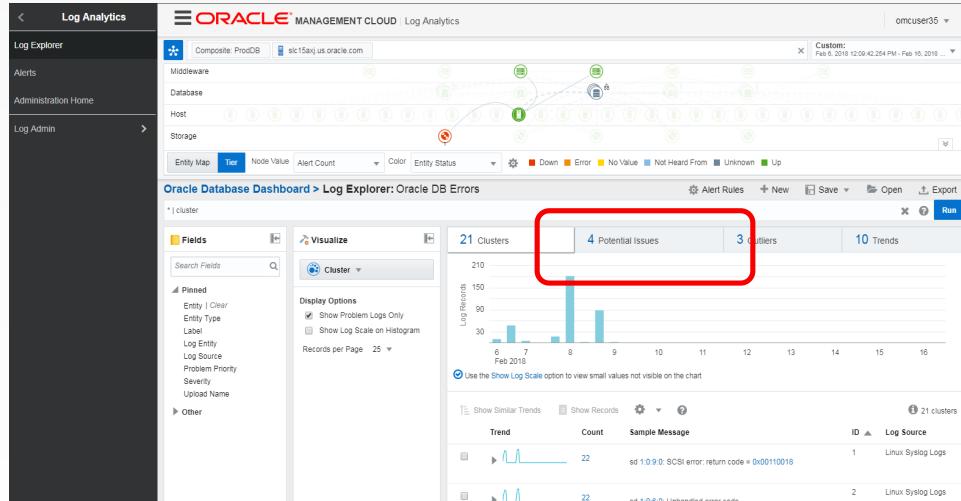


Check the host on which **orderAppASM2** is running from the topology which is '**slc15axj.us.oracle.com**'.

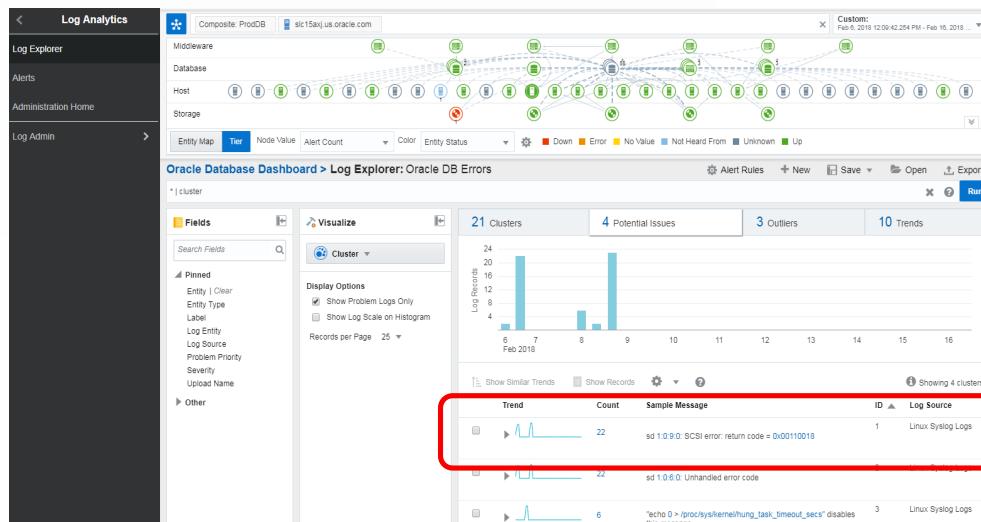
20. Click on the host icon from topology

This will add this host in the global context bar and filter logs for this host.

21. Click on Potential Issues



This shows a SCSI error from the host logs to be the root cause of the disk failure.

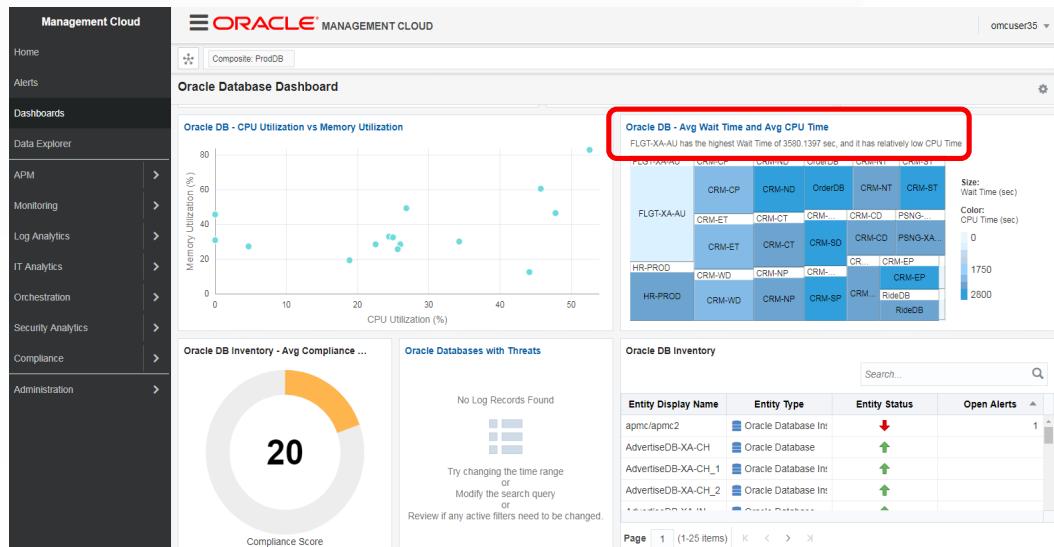


Exercise 4: Identifying Performance Bottlenecks

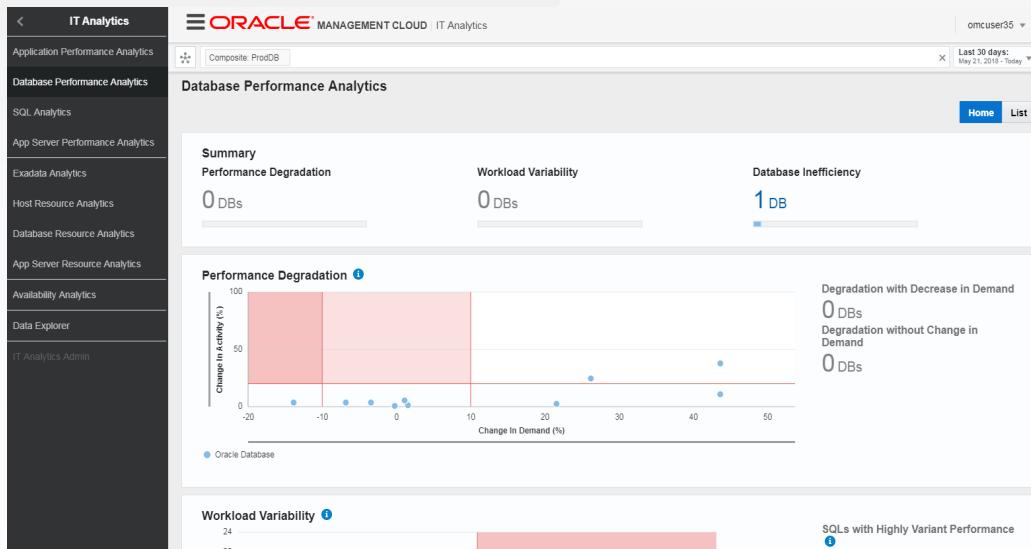
1. Navigate back to 'Oracle Database Dashboard'.

The widget '**Oracle DB - Avg Wait Time and Avg CPU Time**' shows the average wait time and average CPU time for the Oracle Databases. The size denotes wait time and color denotes CPU time. This provides performance overview of the Oracle DBs in the **ProdDB** group and highlights database 'FLGT-XA-AU' which has high wait time but less CPU time. Let's analyze performance further.

2. Click on the "IT Analytics" and then on "Database Performance Analytics"

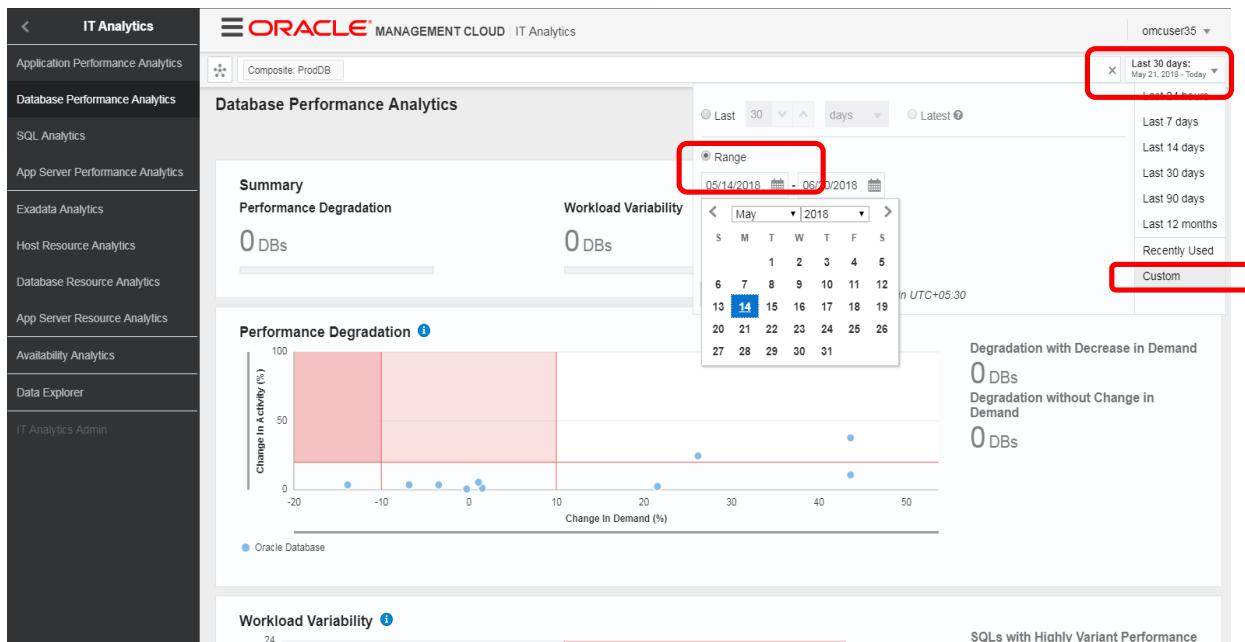


This will open 'Database Performance Analytics' dashboard which is an OOB dashboard provided by OMC for DB performance analysis.



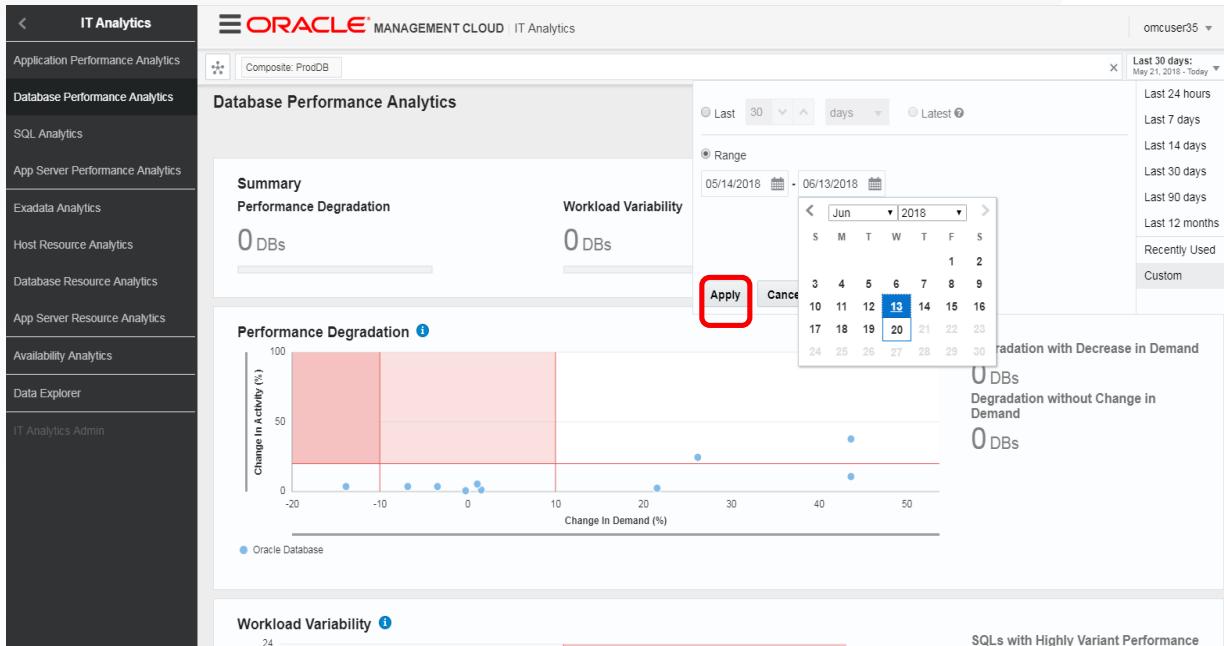
Now, select the period for which the performance analysis needs to be done.

3. Click on 'Last 30 days' in time selector drop down
4. Click Custom
5. Select custom Range radio button. Provide start date as **14th May 2018**



6. Provide end date as 13th June 2018.

7. Click Apply



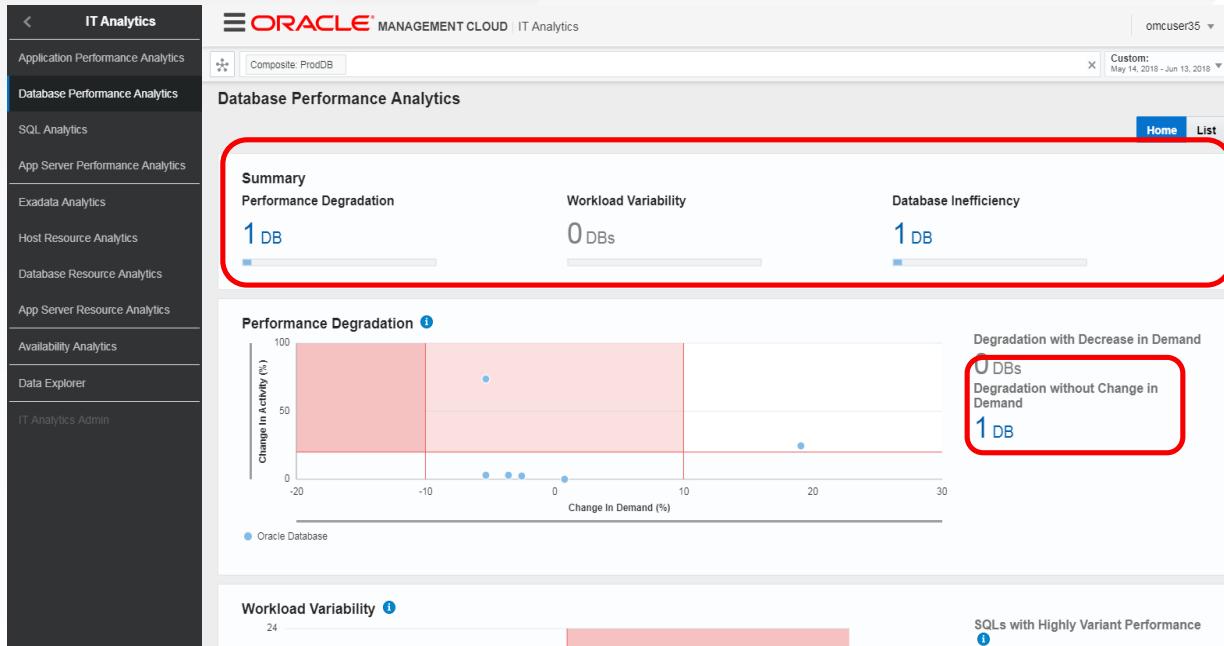
The dashboard now highlights the Oracle DBs in the **ProdDB** group which have following performance issues in the provided period:

- DBs with performance degradation.
- DBs with workload performance variability.
- DBs with inefficiency.

Performance Degradation section shows change in activity (%) vs change in demand (%) for various DBs in **ProdDB** group and highlights the DBs whose activity has increased with decrease in demand or no change in demand.

Note: Values might be subject to changes based on current environment data.

- Click on '1 DB' link under 'Degradation without Change in Demand'

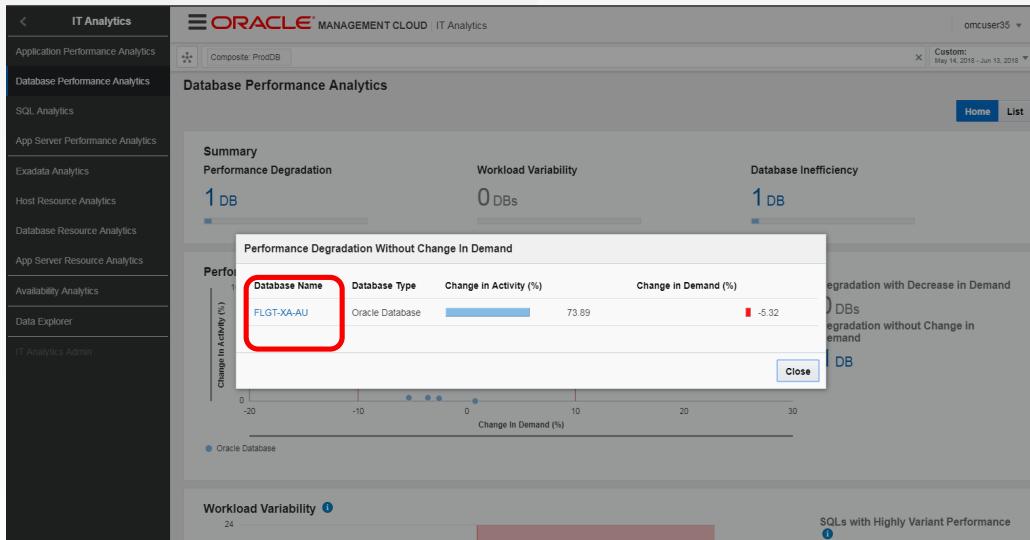


This gives the details of the database i.e. FLGT-XA-AU with performance degradation.

This DB was also highlighted by our custom widget in 'Oracle Database Dashboard'.

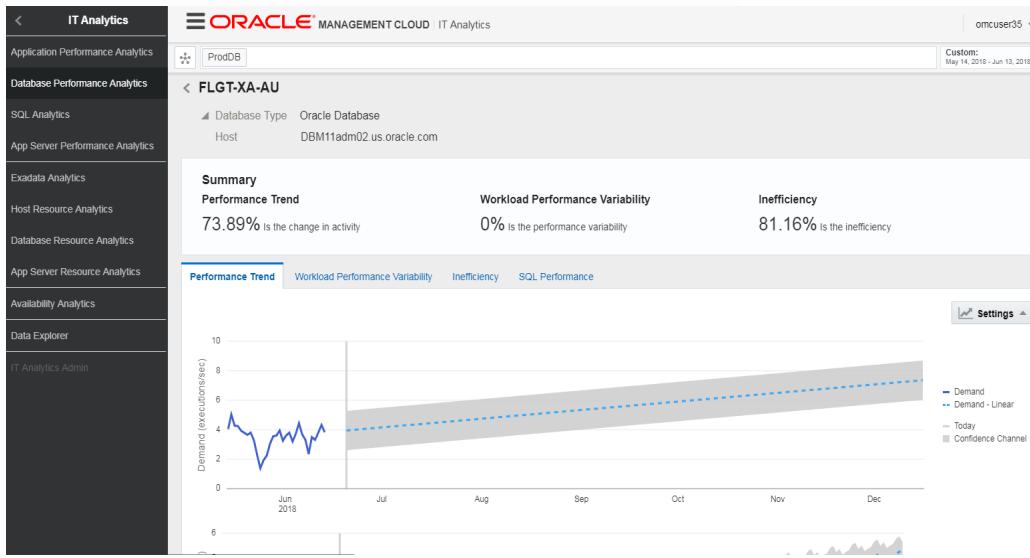
To further drill down

9. Click DB link i.e. FLGT-XA-AU



This navigates to page with more details about this database in terms of performance.

10. Scroll Down

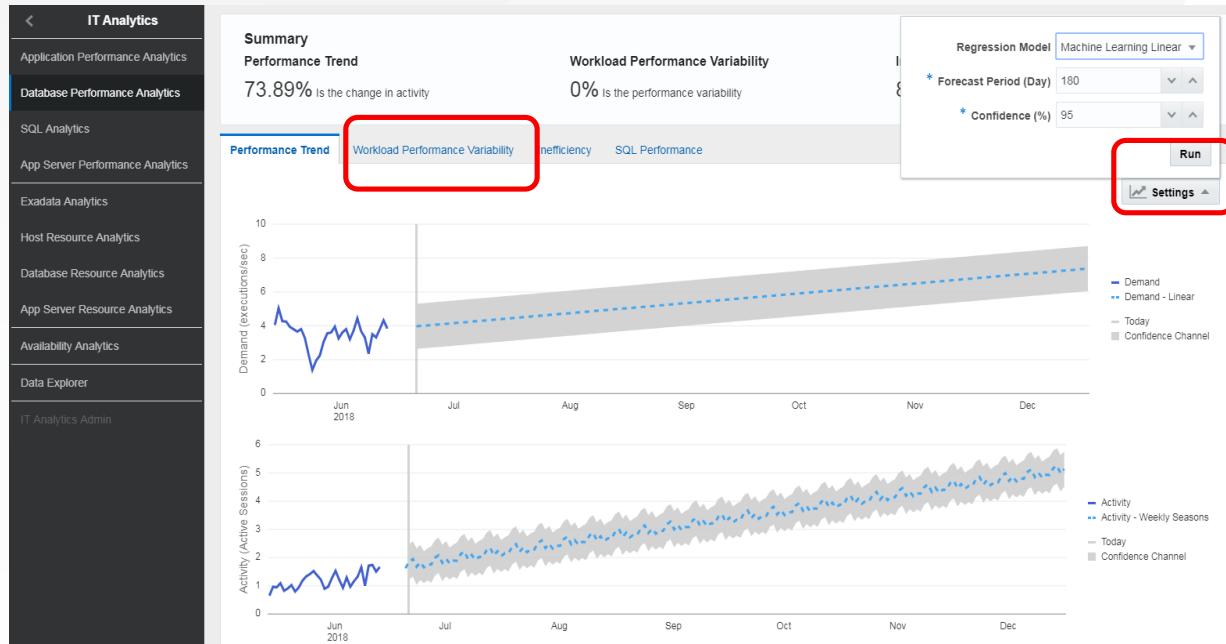


The 'Performance Trend' tab provides the details of the activity and the demand trend for this database.

11. Click on Settings

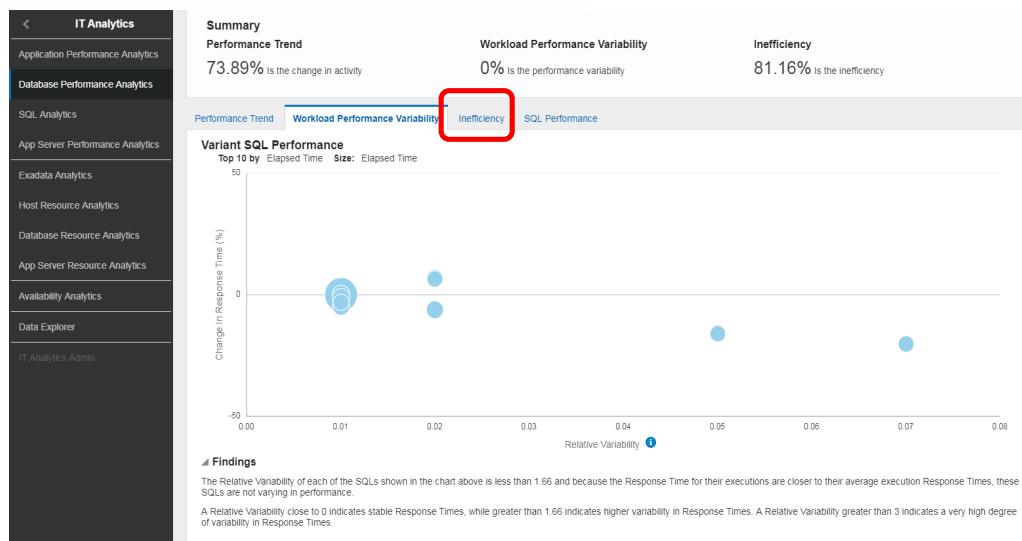
With this, one can also do projections for the activity and demand for the future using different regression models.

12. Click on Workload Performance Variability



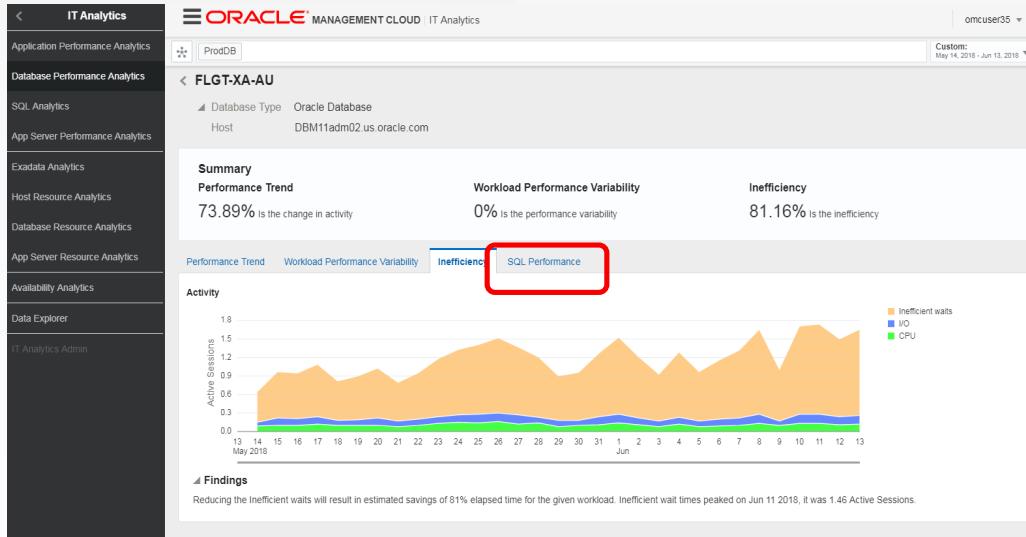
This tab shows the variance in the SQL performance.

13. Click on Inefficiency



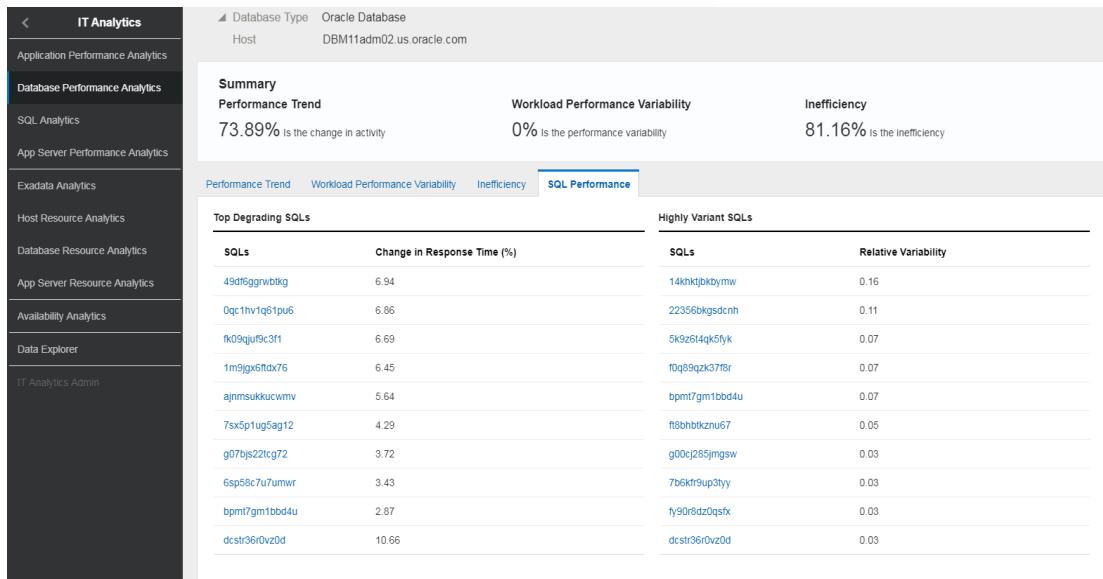
This tab shows activity in terms of active sessions and their breakup by CPU, I/O and Inefficient waits. Reducing the Inefficient Waits improves the performance of the database.

14. Click on SQL Performance



This tab highlights the top degrading and highly variant SQLs on this database.

15. Scroll Up



16. Click on the back button “<” on the top, next to DB name

The screenshot shows the Oracle Management Cloud IT Analytics interface. On the left, a sidebar lists various analytics categories: Application Performance Analytics, Database Performance Analytics (which is selected and highlighted in blue), SQL Analytics, App Server Performance Analytics, Exadata Analytics, Host Resource Analytics, Database Resource Analytics, App Server Resource Analytics, Availability Analytics, Data Explorer, and IT Analytics Admin. The main content area is titled "FLGT-XA-AU". It displays basic database information: Database Type (Oracle Database) and Host (DBM11adm02.us.oracle.com). Below this is a "Summary" section with three metrics: Performance Trend (73.89%), Workload Performance Variability (0%), and Inefficiency (81.16%). A navigation bar at the bottom of the summary section includes tabs for Performance Trend, Workload Performance Variability, Inefficiency, and SQL Performance (which is currently selected). Under the SQL Performance tab, there are two tables: "Top Degrading SQLs" and "Highly Variant SQLs".

SQLs	Change in Response Time (%)
49df6ggrwbtkg	6.94
0qc1hv1q61pu6	6.86
fk09qju9c3f1	6.69
1m9jgx6fdx76	6.45
ajnmsukkucwmv	5.64
7sx5p1ug5ag12	4.29
g07bjs221cg72	3.72
6sb58c7u7umwr	3.43

SQLs	Relative Variability
14khktjbkbymw	0.16
22356bkgscnh	0.11
5k9z6l4qk5fyk	0.07
f0q89qzk37f8r	0.07
bpm7gm1bbd4u	0.07
ft8bhbtkznu67	0.05
g00cj285jmgsw	0.03
7b6kfr9uo3tvv	0.03

This brings us back to the ‘Database Performance Analytics’ dashboard.

17. Scroll Down

'Workload Variability' section shows the SQL performance variance summary for the DBs and highlights SQLs with high performance variance.

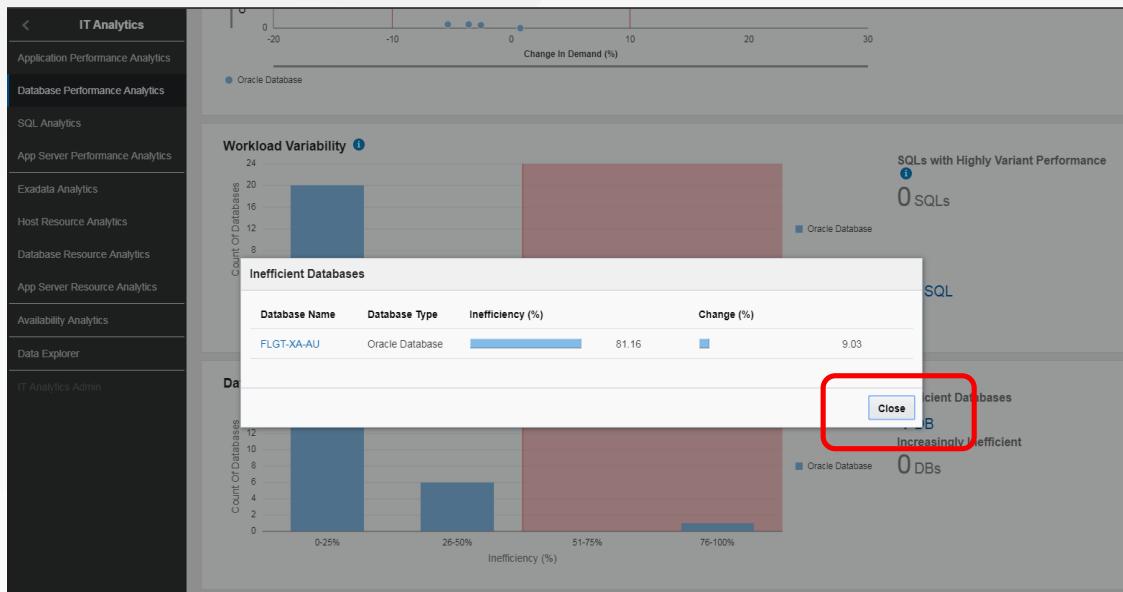
'Database Inefficiency' section shows summary of the inefficiency for all DBs and highlights the inefficient DBs.

18. Click 1 DB under 'Inefficient Databases'



This gives the details of the DB with high inefficiency.

19. Click Close



20. Click 'SQL Analytics' from Global Menu

[Note: the global menu is the icon with three bars on the top-left corner of your display. This menu may not show up fully extended as shown here. If it doesn't, click on the Global menu and these pulldown options will appear]

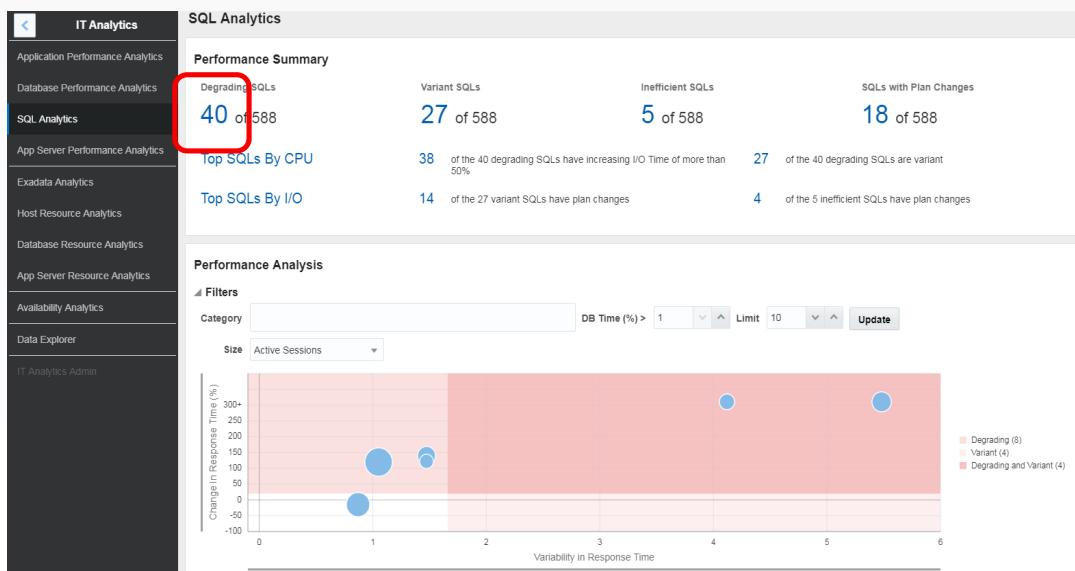


This opens another OOB dashboard provided by OMC for SQL performance analysis.

This shows the degrading, highly variant, inefficient SQLs and SQLs with plan changes running across all DBs in **ProdDB**. Also highlights top SQLs by CPU and I/O.

At the bottom, it shows performance analysis chart for SQLs with various filter options.

21. Click on degrading SQLs count 40 (This value might vary depending on your configuration)



Here one can view all these degrading SQLs and select one to analyze further.

22. Click on SQL ID i.e. 'g3wrkxmxkxzhf2'

The screenshot shows the Oracle Database Performance Analytics interface under the SQL Analytics section. The main area displays a 'loadmap' where database clusters are represented as colored boxes. A specific SQL ID, 'g3wrkxmxkxzhf2', is highlighted in a red box within the DEP-NT cluster. Below the loadmap is a bar chart titled 'Response Time (mins)' showing data from May 13 to June 13. The chart has two data series: 'FLGT-XA-AU' (green bars) and 'DEP-NT' (blue bars). A prominent peak in response time is visible for the DEP-NT series on June 11th, reaching approximately 70 minutes.

From here one can drill down into a specific degrading SQL and analyze to find the reason for slowness.

The screenshot shows the detailed analysis for the selected SQL ID 'g3wrkxmxkxzhf2'. The top half of the screen displays the SQL text and execution plan insights. The SQL text is:

```
SQL Text: > SELECT DISTINCT 'B' || l1.pg_featurevalue_47_id pg_featurevalue_47_idFROM lu_pg_featurevalue_47 t1,lu_element
```

The execution plan insights show the following details:

- Plans Used: 2
- Best Performer: 3207538813
- Plan with Most CPU: 3207538813
- Most Executed: 3207538813
- Worst Performer: 762731496
- Plan with Most I/O: 3207538813

The bottom half of the screen contains four detailed charts:

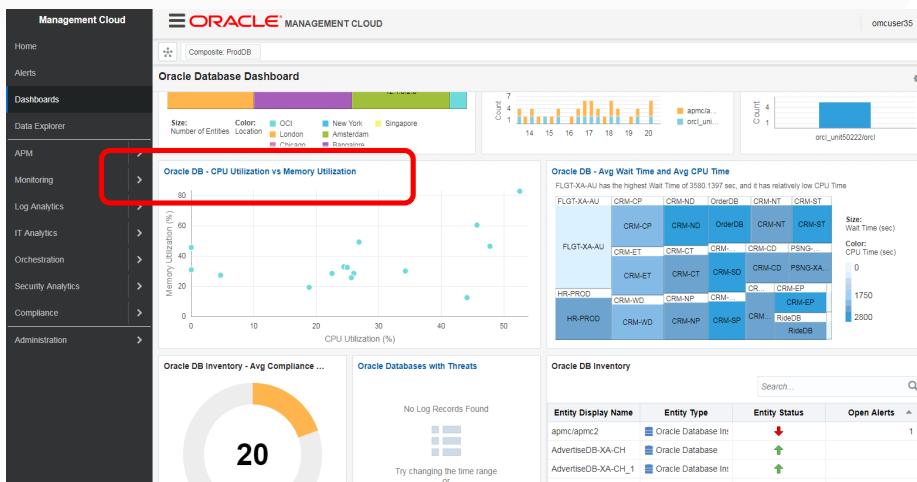
- Performance Trend:** A line chart showing Average Response Time over time, with a sharp spike around June 11th.
- Activity:** A line chart showing Active Sessions over time, with a significant peak around June 11th.
- Response Time Distribution:** A histogram showing the distribution of response times.
- Response Time Breakdown:** A stacked area chart showing the breakdown of response time by plan and component (CPU Time, I/O Time, Other Wait Time, Executions).

Exercise 5: Database Resource and Capacity Planning

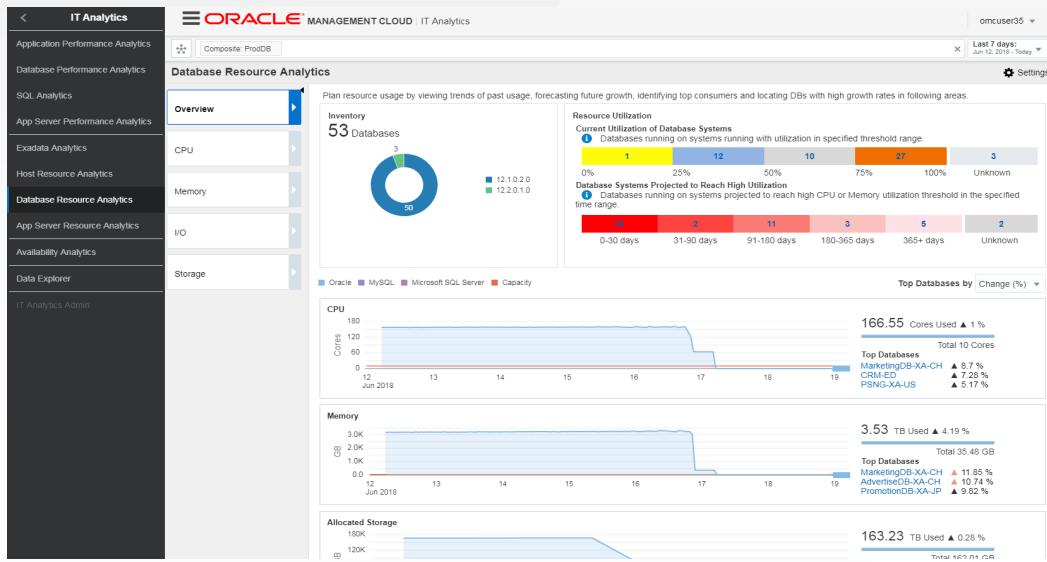
1. Navigate back to ‘Oracle Database Dashboard’.

The widget ‘Oracle DB - CPU Utilization vs Memory Utilization’ shows the CPU and Memory Utilization (in %) for the Oracle Databases in a scatter chart. The high utilization threshold is set to 95% for both CPU and memory. It gives the resource utilization overview of the Oracle DBs and gives an idea regarding which DBs are loaded and which are not.

2. Click on the “IT Analytics” and then on “Database Resource Analytics”

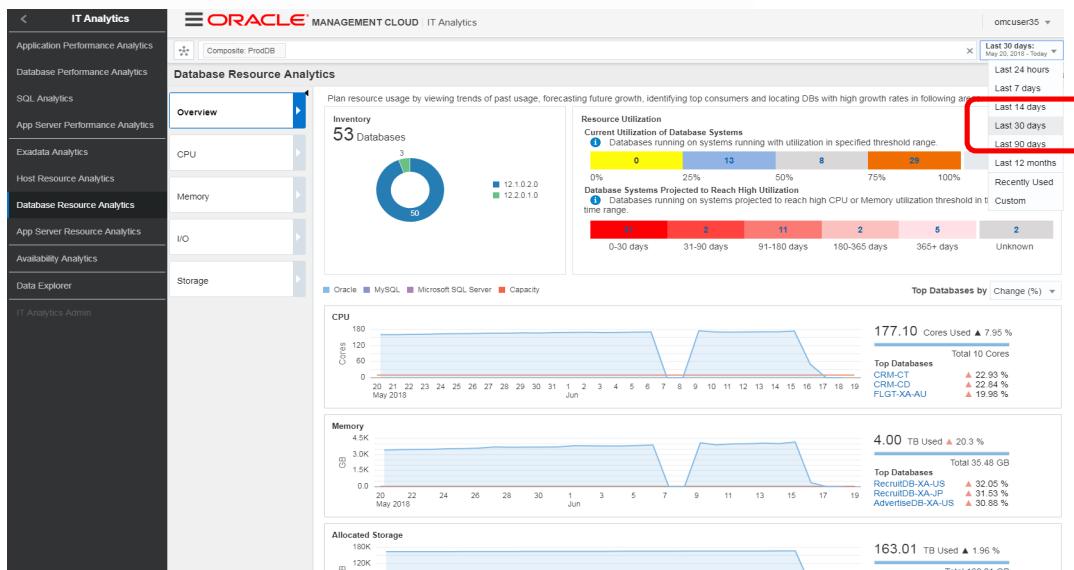


This opens up the ‘Database Resource Analytics’ dashboard. This is an OOB dashboard provided by OMC for doing Database resource analytics.



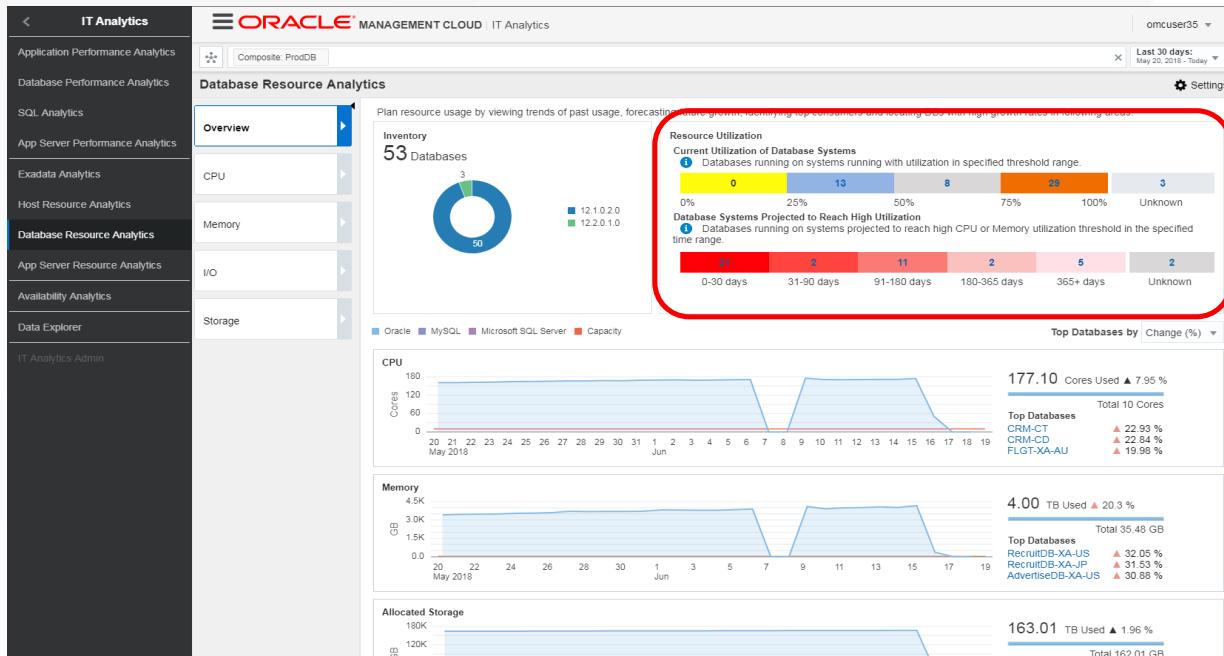
3. Click on time selector drop down

4. Select ‘Last 30 days’



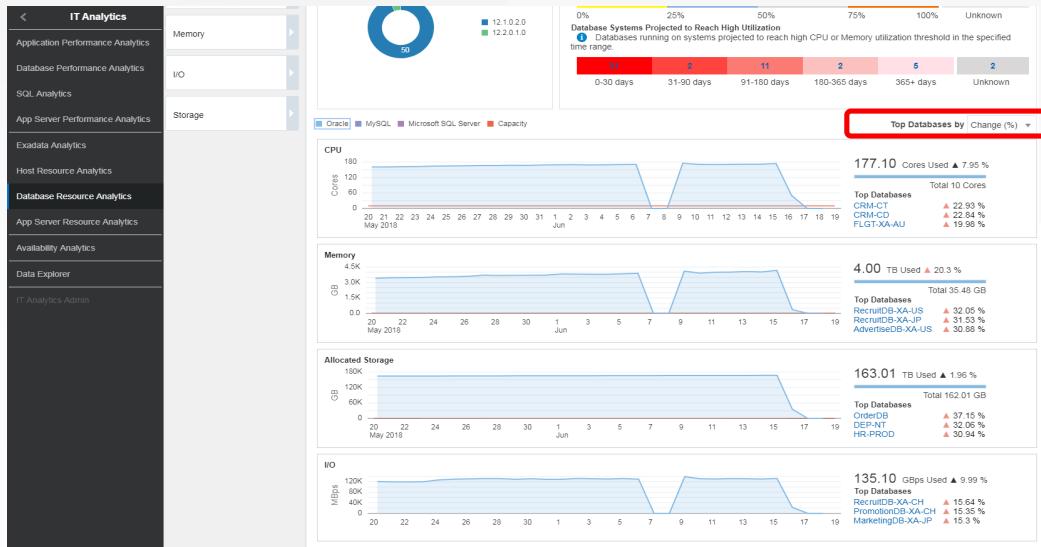
The ‘Resource Utilization’ section of the dashboard categorizes the databases based on their current resource utilization. It also categorizes the databases based on the duration in which they are projected to reach high CPU or Memory utilization threshold by leveraging machine learning techniques.

1. Scroll Down

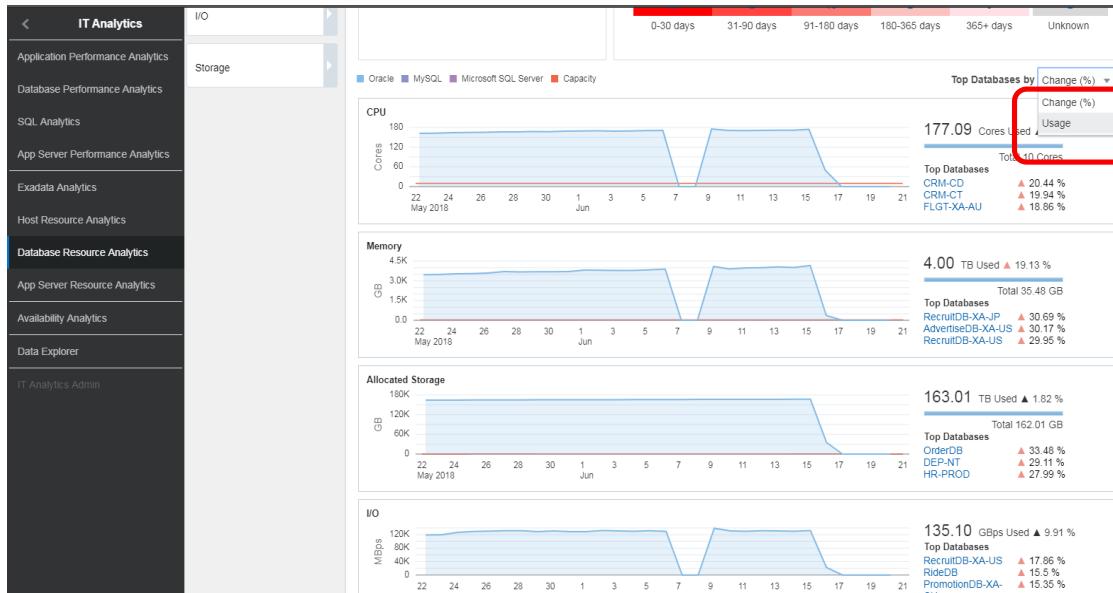


The lower section of the dashboard shows aggregate usage of the CPU, Memory, Allocated Storage and I/O and highlights top databases by percentage change in their usage of these resources.

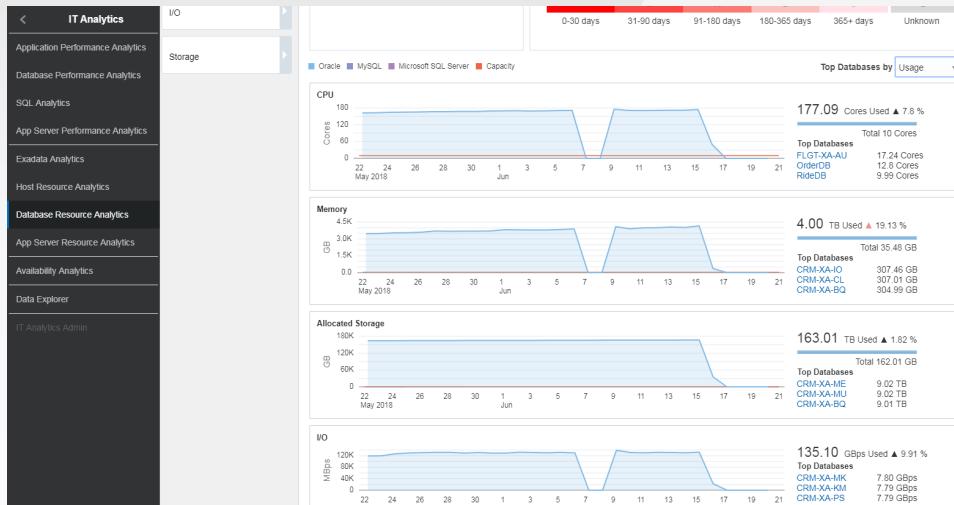
2. Click dropdown 'Top Databases by'



3. Select 'Usage' from the dropdown



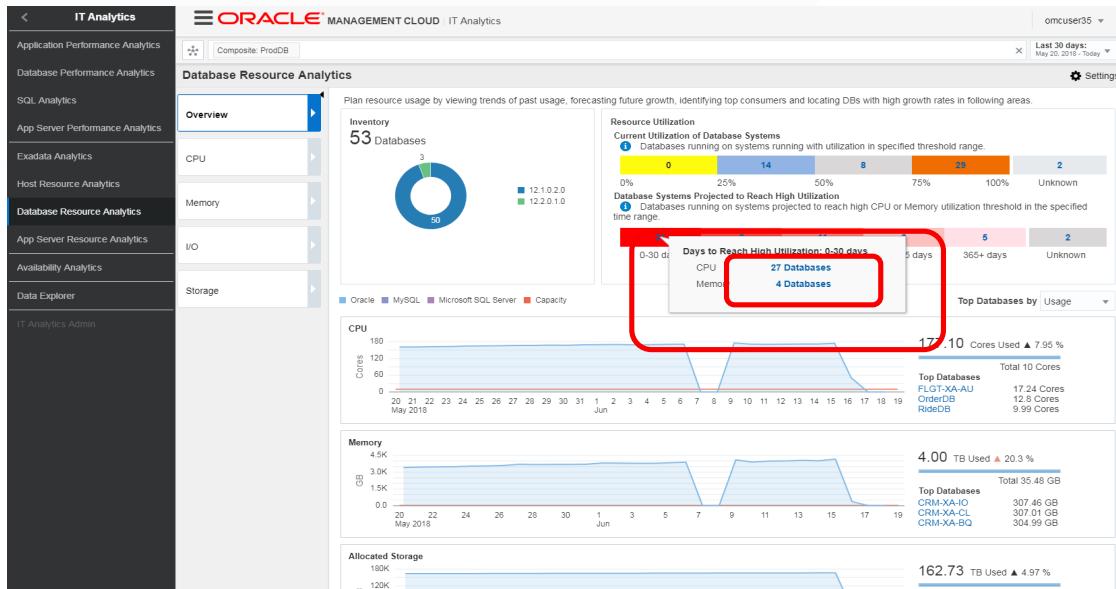
It now shows the top databases by their usage of resources



4. Scroll Up
5. Hover over number '31' for the DBs which are reaching resource usage threshold in 0-30 days

It shows how many DBs are projected to reach CPU utilization and memory utilization maximum thresholds in next 30 days.

6. Click on '27 databases' which are reaching CPU threshold limit in next 30 days



This will open the CPU tab. This gives more details on CPU usage. It also provides forecast for the CPU usage of these DBs

The screenshot shows the Oracle Management Cloud IT Analytics interface. On the left, a sidebar lists various analytics categories. The main area is titled 'Database Resource Analytics' under the 'CPU' tab. A dropdown menu is open for 'Days to Reach High Utilization', showing options like '0 - 30 Days' and '30+ Days'. Other tabs include 'Memory', 'I/O', and 'Storage'. Below the dropdown is a treemap visualization of database utilization by pluggable databases. At the bottom, there's a forecast chart for CPU cores from June to December.

7. Click on dropdown '0-30 Days to reach High Utilization'

From here one can filter the databases based on their current utilization or Days to Reach High Utilization.

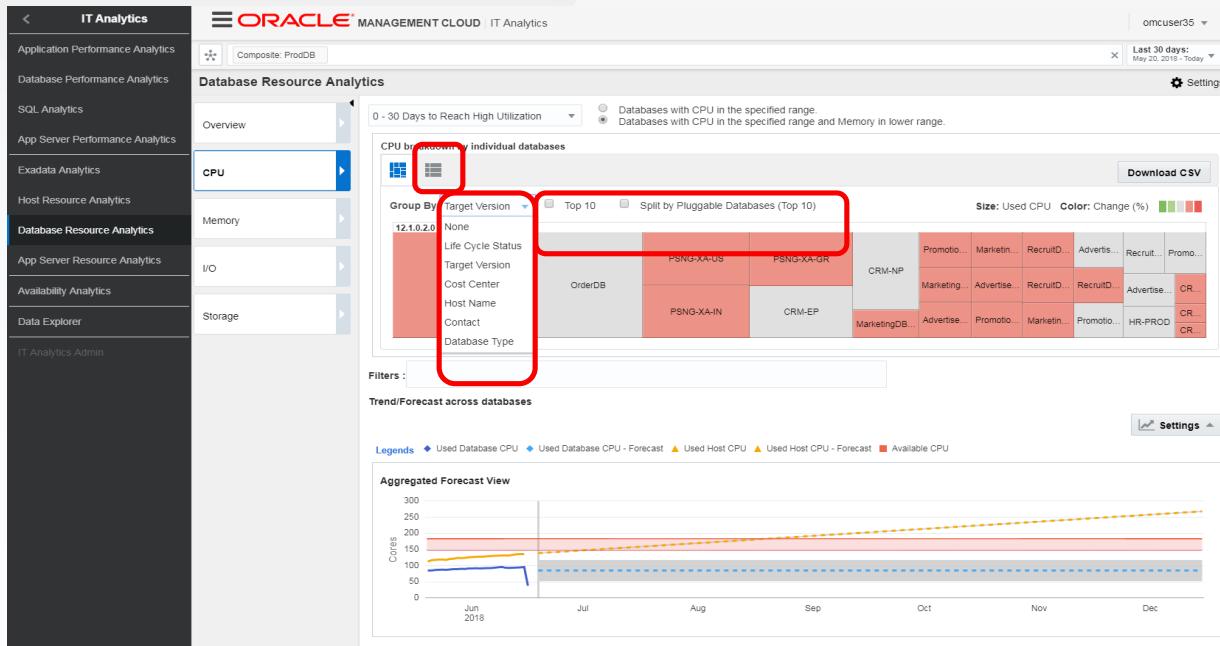
This screenshot is similar to the previous one but with a red box highlighting the 'Days to Reach High Utilization' dropdown in the 'Capacity Utilization' section. The '0 - 30 Days' option is clearly visible and selected.

8. Click on 'Target Version' in Group By dropdown

From here one can select group by option by various properties for the treemap.

There are check boxes to view only “Top 10” DBs and “Split by Pluggable Databases (Top 10)”.

There is also an option to view these DBs in table instead of treemap by clicking on the table icon next to the treemap icon.

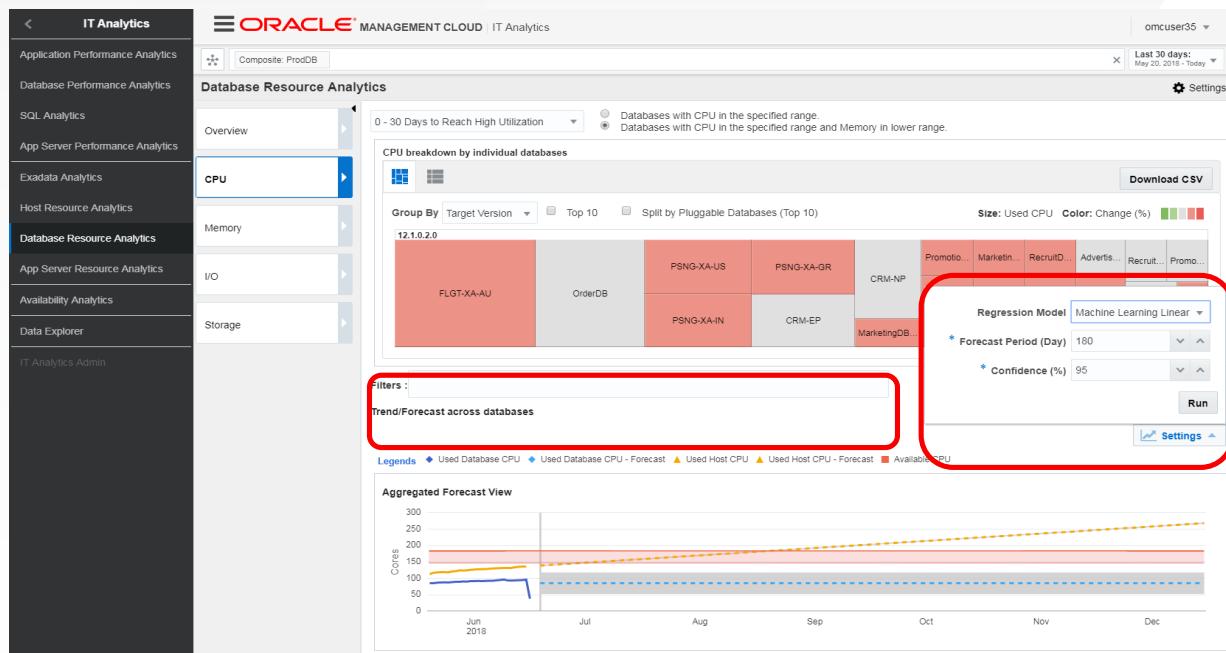


9. Click Settings

From here one can provide various options to predict the CPU utilization for the DBs.

The 'Filters' can be used to limit the forecast to selected set of databases.

Similar functionalities are available for the analysis of the utilization of other resources i.e. Memory, I/O and Storage.



Exercise 6: OMC to De-Risk Lift and Shift

To walk through the lift-and-shift process we will show how you would use OMC to establish a performance baseline of your on-premises application, understand capacity needs of that application, compare the lifted-and-shifted version of that application to your on-premises baseline, and manage the lifted-and-shifted application going forward. The application in question is called **OrderApp**.

Let's start with the on-premises baseline.

Navigate to “Home” and “Dashboards” and select as shown

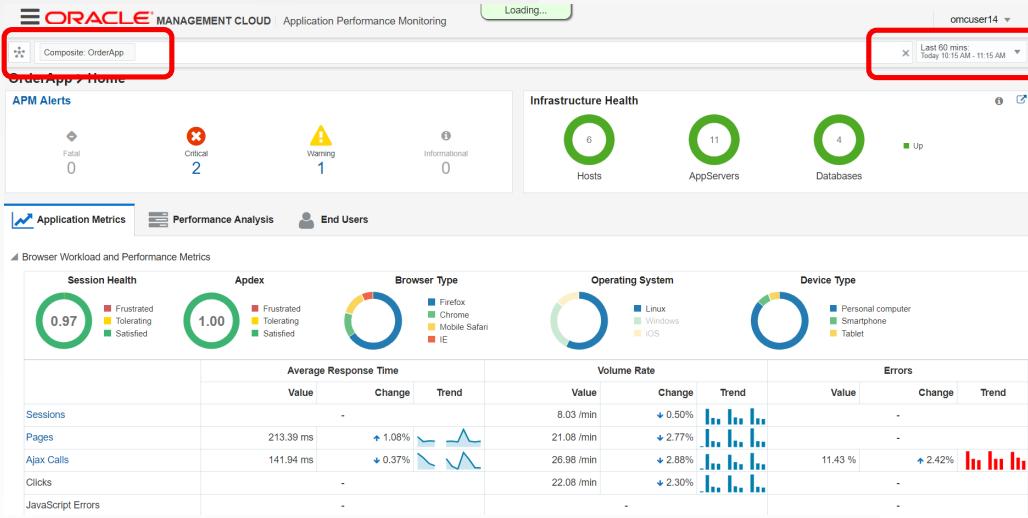
The screenshot shows the Oracle Management Cloud (OMC) interface. On the left, there is a navigation sidebar with the following menu items:

- Management Cloud
- Home
- Alerts
- Dashboards
- Data Explorer
- APM
- Monitoring
- Log Analytics
- IT Analytics
- Orchestration
- Security Analytics
- Compliance
- Administration

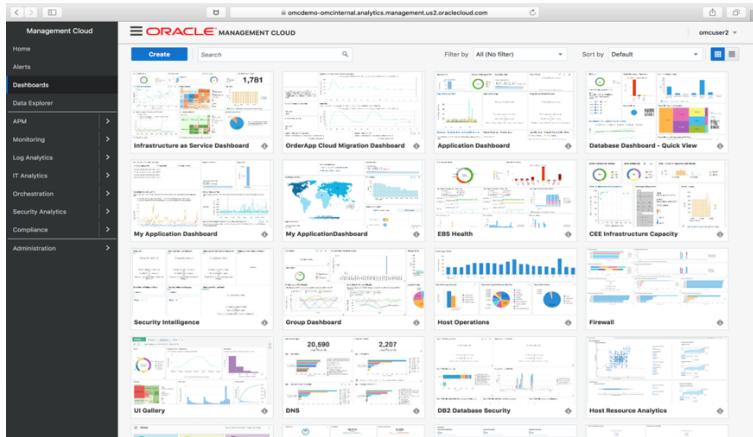
The main area displays a grid of various dashboards. One dashboard, titled "Application Dashboard", is highlighted with a red box. Other visible dashboards include "Infrastructure as Service Dashboard", "OrderApp Cloud Migration Dashboard", "My Application Dashboard", "EBS Health", "CEE Infrastructure Capacity", "Firewall", and "Host Resource Analytics".

You should start using OMC immediately to get several months of performance baseline against OrderApp on-premises. OMC automatically learns normal system behavior, system topology and expected performance so you can get a true sense of your application performance and inform SLAs.

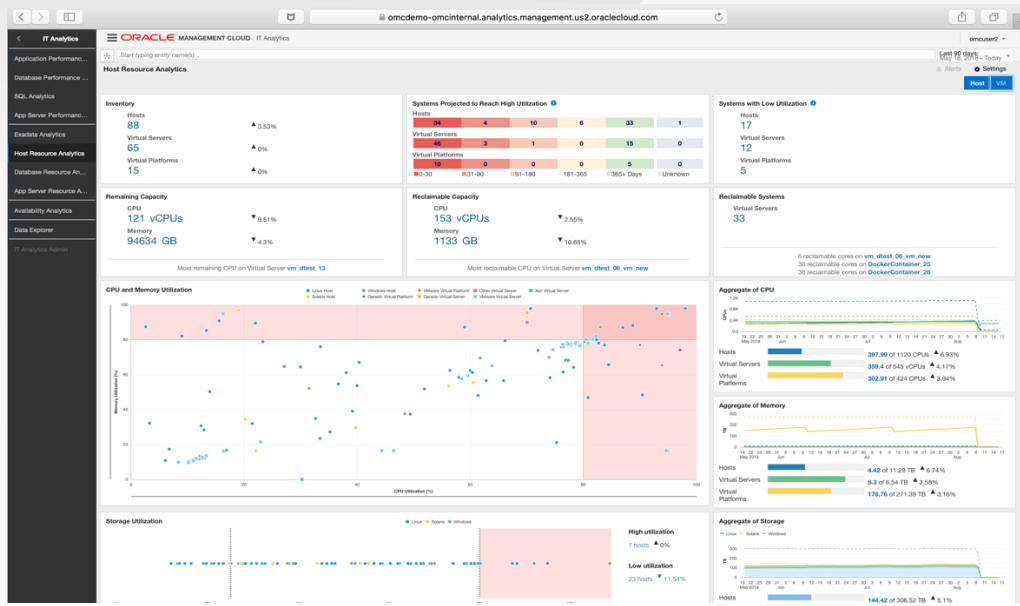
1. Start this Vignette by removing any other selected entities in the Topology sections (*) and select “OrderApp” as shown above and Select “Last 60 mins” as shown in the timeline (right hand top).
2. Select APM from the Global Menu. This is the starting point for Deep dive troubleshooting on the Server Requests or the Browser side (Pages, AJAX)



3. Let's look at how to understand capacity planning needs. To get here, click on Home in the Global menu, then to IT Analytics (and keep the OrderApp in the Topology selection) and then on “**Host Resource Analytics**”

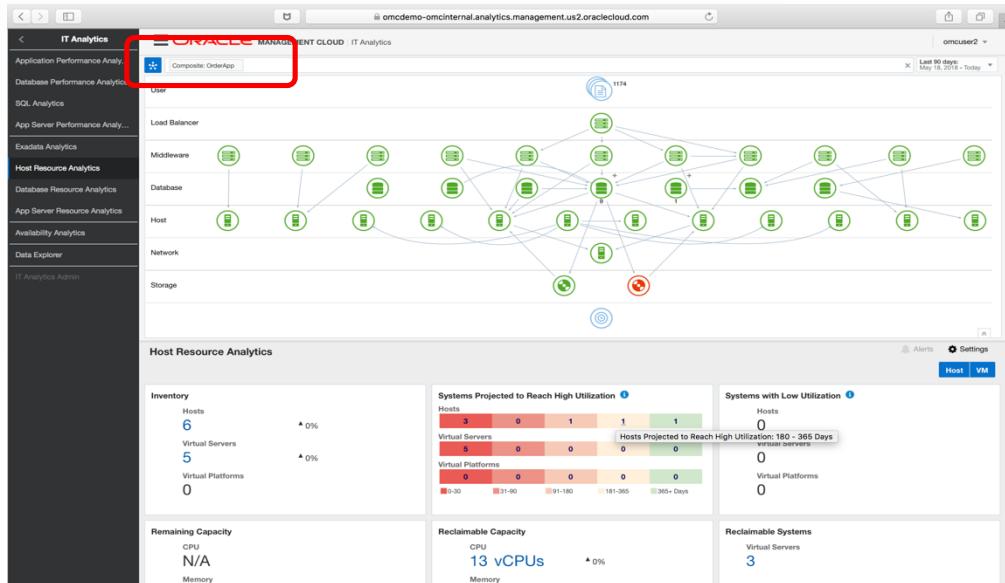


This is the Host Resource Analytics application, which looks at utilization and trending across our enterprise. We're going to subset the data to look only at our **OrderApp**.

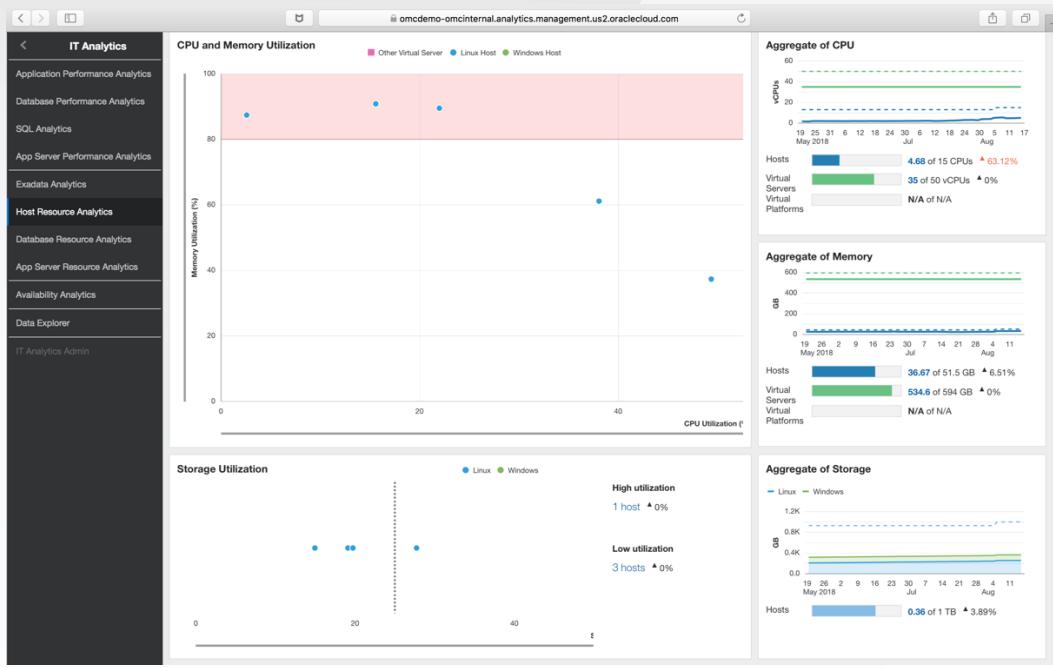


4. Click on Topology (*) to expand the Tier View

Here's our **OrderApp** on-premises. You can see the topology is the same discovered topology we saw in the APM app. Here you can see that we have a variety of physical and virtual hosts that are in various degrees of utilization. We can use this info to size our OCI capacity needs (as well as optimize our on-premises resources in the process).

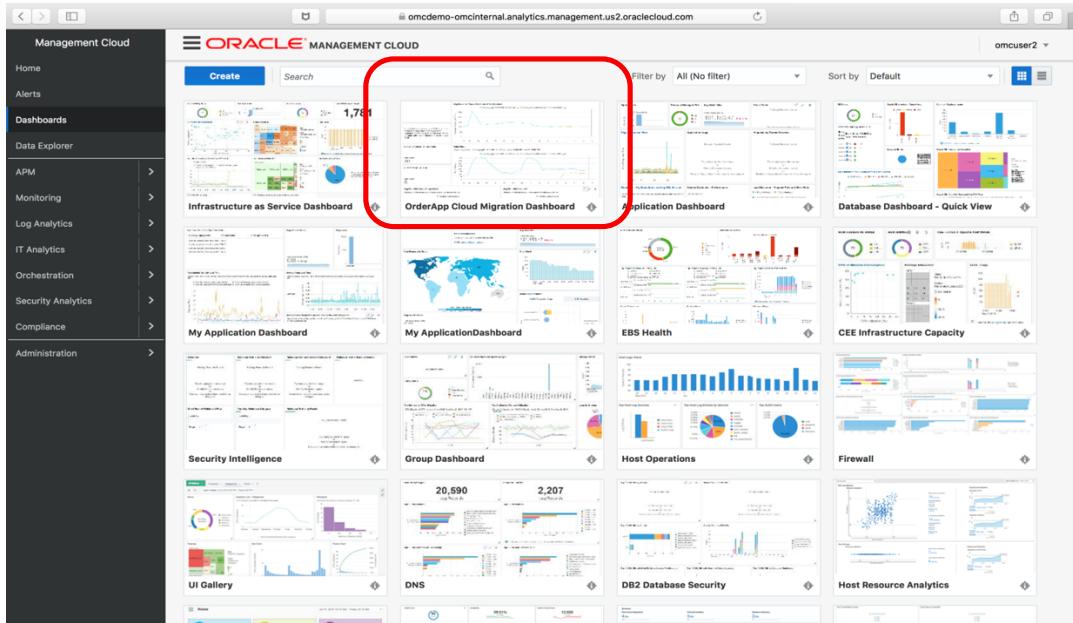


We can quickly get a sense of where we have excess capacity and where we are over-burdened.

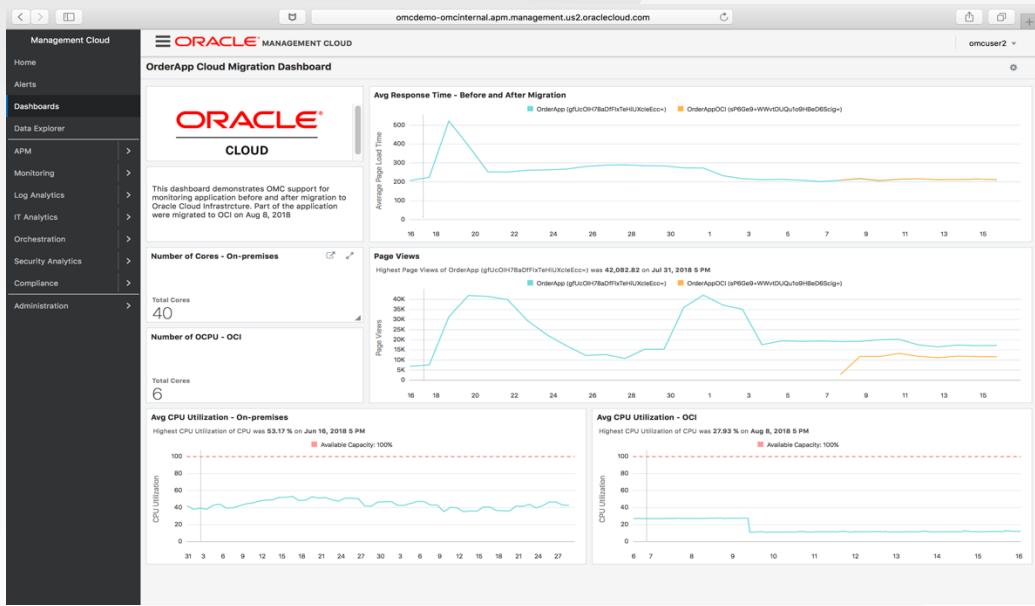


Let's look at the Lift-and-Shift comparison.

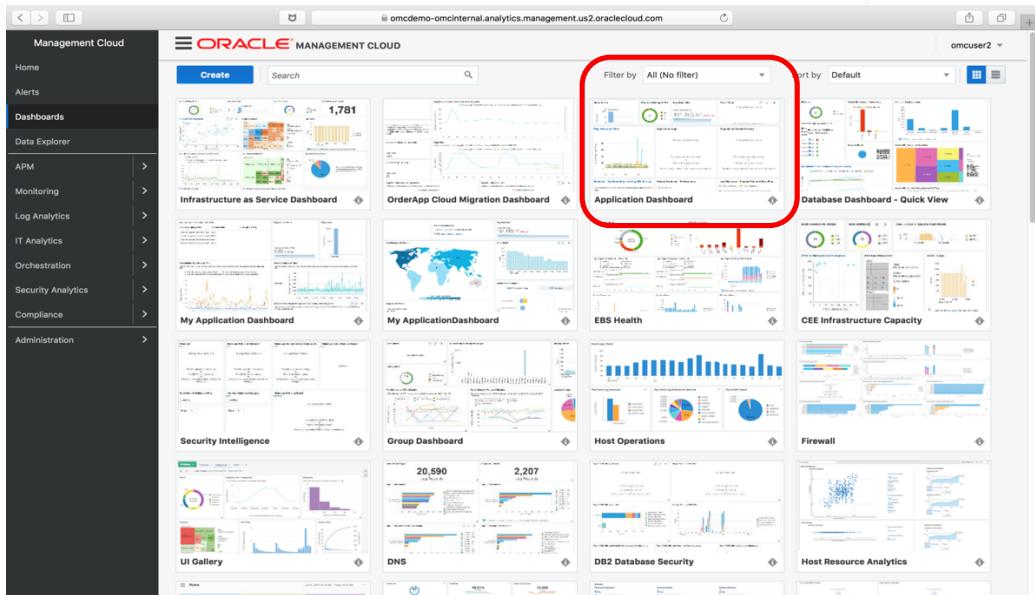
5. Navigate in Global Menu back to “Home” and then “Dashboards” and search for “Migration” and select as shown



Once we've made our initial lift-and-shift, we compare the performance and utilization metrics in OCI against the performance and utilization of our on-premises app. Here we have combined metrics from **OrderApp** (on-premises) with **OrderAppOCI** (lifted into OCI). This both de-risks the move and demonstrates the value. Note the lower CPU utilization in OCI.



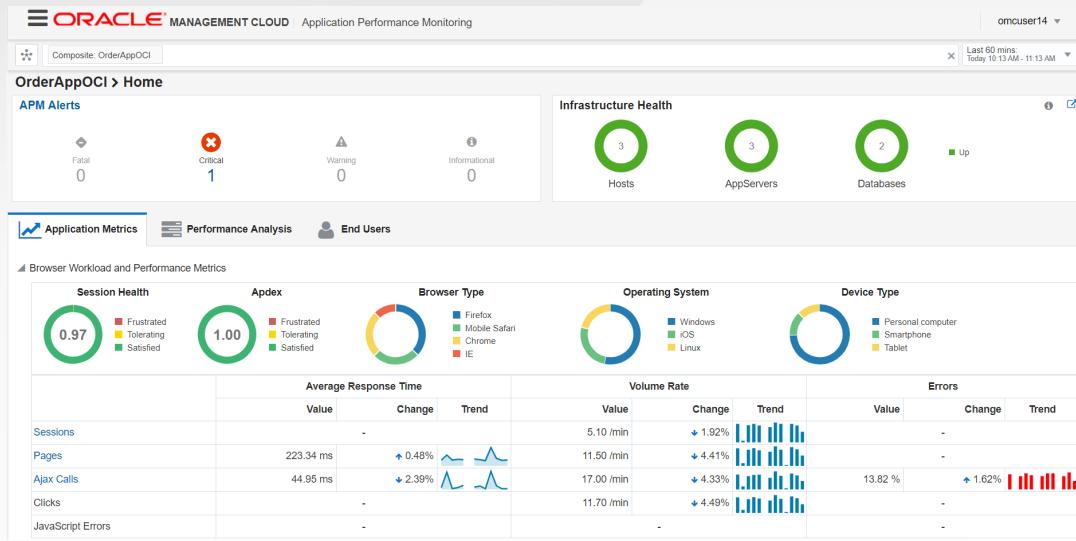
Let's look at OrderApp in OCI



Here is the **OrderApp** that has been lifted-and-shifted into OCI. We can manage it going forward like any other app.

- Select APM from Global Menu. Remove **OrderApp** and Type “**OrderAppOCI**” into Topology bar and select it as shown.

The OCI lifted **OrderApp** portion can be now managed the same as **OrderApp** is managed, on-premises.



Let's look at our IaaS estate across the board

An on ongoing basis, we can use all of OMC's capabilities to monitor the IaaS estate and maximize both out utilization and its performance and security. Here you can see resources across Oracle Cloud, our on-premises private cloud and Amazon, for example.

