

# Choosing the Right Management Solution for Oracle Databases

—  
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Product Management – Observability and Management

April 30, 2026

# Safe harbor statement

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# Agenda

Understand Observability

Today's deployment strategies

Monitoring platforms flexibility

Examining Database Management and Enterprise Manager

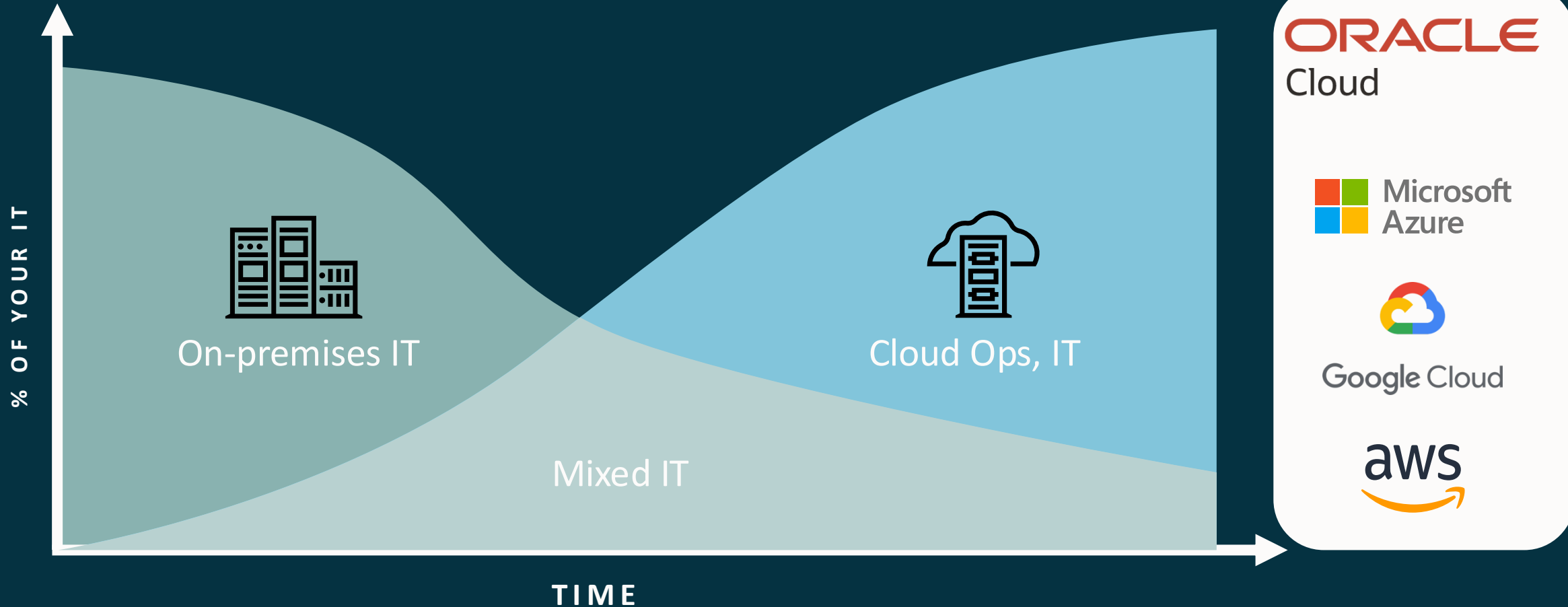
Demo

Next steps



# Enterprises have mixed environments

On-premises, hybrid, multicloud



# Digital transformation has businesses reevaluating

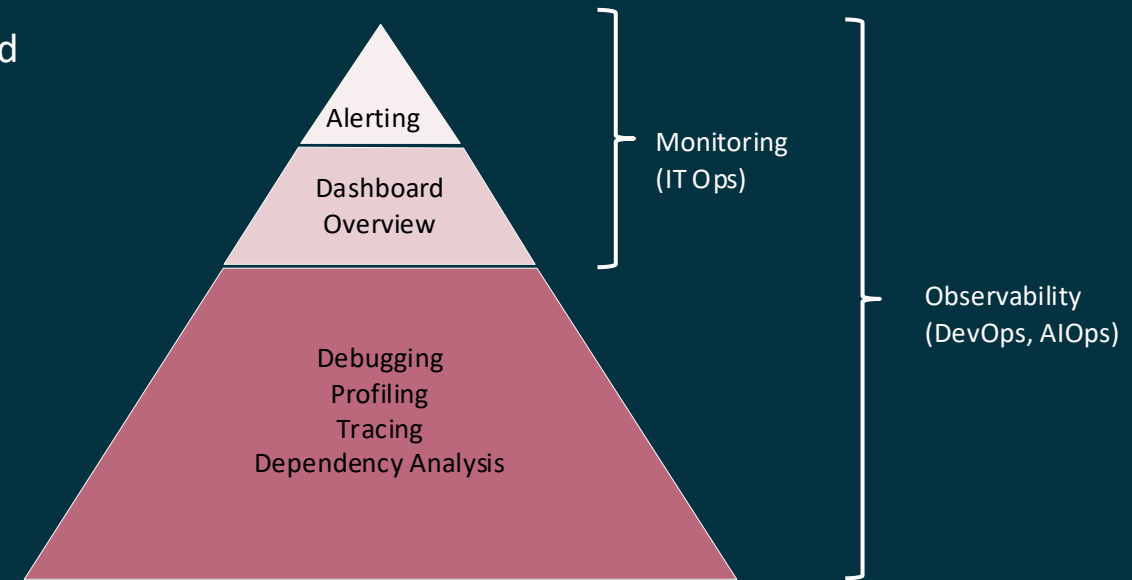
Methods, monitoring and tools

**Monitoring** is based on gathering predefined sets of metrics

- Typically performed by scripts or tools so teams can watch/be alerted about the state of a system change (working / not working)

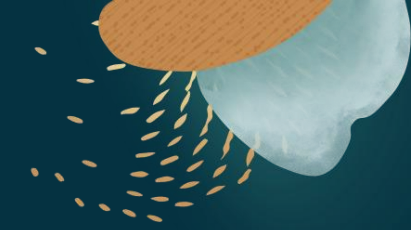
**Observability** is based on having insight and the ability to watch for and explore properties and patterns not defined in advance

- Usually comprised of metric, log, tracing, and user experience data that enables teams to actively watch and debug their app and its stack (why its not working)



There has been a shift in today's monitoring to observability to provide quicker analysis, improve incident outcomes and reduce impact to business systems

# What Is Oracle Database Observability



## Real-Time Observability

Automatic Workload Repository (AWR), Active Session History (ASH), and Real-Time SQL Monitoring for continuous performance visibility

## Proactive Optimization

SQL Tuning Advisor, Automatic Database Diagnostic Monitor (ADDM), and SQL Plan Management for query optimization

## Intelligent Analytics

ML-based capacity planning and database performance management (SQL Insights)

## Manage Fleet at Scale

Hybrid, on-premises and multicloud support

Available in Enterprise Manager and natively in OCI as Observability services

# Modern database management capabilities



## Monitoring

Continuous real-time monitoring and alerting ensures reduced issue resolution time and minimal impact to production systems



## Performance Management

Tools providing administrators better insight into database performance allow faster, more efficient access to applications



## Lifecycle Management

Complex and time consuming, lifecycle management requires keeping up with patching and upgrades while tracking organizational drift across multiple configurations



## Security Compliance

Security vulnerabilities tracking and reporting provides quick resolution to security risks and ensures the highest level of threat protection is available



## Capacity Planning

Analyzing past performance trends to forecast future growth enables administrators to plan ahead to prevent performance bottlenecks and downtime events

# Providing maximum choice to customers

Platforms supporting specific customer needs

Provide maximum choice to customers through continued investment in both Enterprise Manager and cloud services

## Enterprise Manager (EM)

- Deep management of Oracle stack
- Hybrid, on-premises and multicloud support
- Cloud Extensions provide integration with OCI; net-new use cases
- Platform modernization for DevOps, improved resilience and extensibility

**You install, maintain and manage it**



## Observability and Management

- Complete set of core observability services
- New advanced cloud services for database mgmt, insights, and log analytics
- Heterogeneous data, stack, and language support
- Hybrid, on-premises and multicloud support

**Managed and updated for you**

# Oracle Enterprise Manager 24ai

GenAI-powered observability and management



# Oracle Enterprise Manager 24ai

## Modern management platform

**Zero Downtime Job Service \***

4

Uninterrupted jobs even during EM planned maintenance

**Remote Agents**

3

Remote agents for streamlined database fleet monitoring with smaller agent footprint



**Zero Downtime Monitoring Service**

1

Uninterrupted monitoring and alerting even during EM planned downtime

**GenAI AskEM Assistant**

2

Provides visual insights, analytics and documentation references helping users make informed decisions



# Multicloud

# Oracle Cloud Observability and Management Platform

**ORACLE**  
Cloud Infrastructure

 Microsoft  
Azure

 aws

 Google Cloud

  
On-Premises



## Observability and Management Advanced Services



Database  
Management



Ops Insights  
(Capacity Planning, SQL Insights)



Log Analytics

## Observability and Management Data Sources



Metrics



Events



Logs



Traces



SQL



Dashboard

## Infrastructure Services



Compute



Storage



Network



Security

# Database Management

## Real-time Oracle database performance monitoring and administration

### Fleet monitoring and management

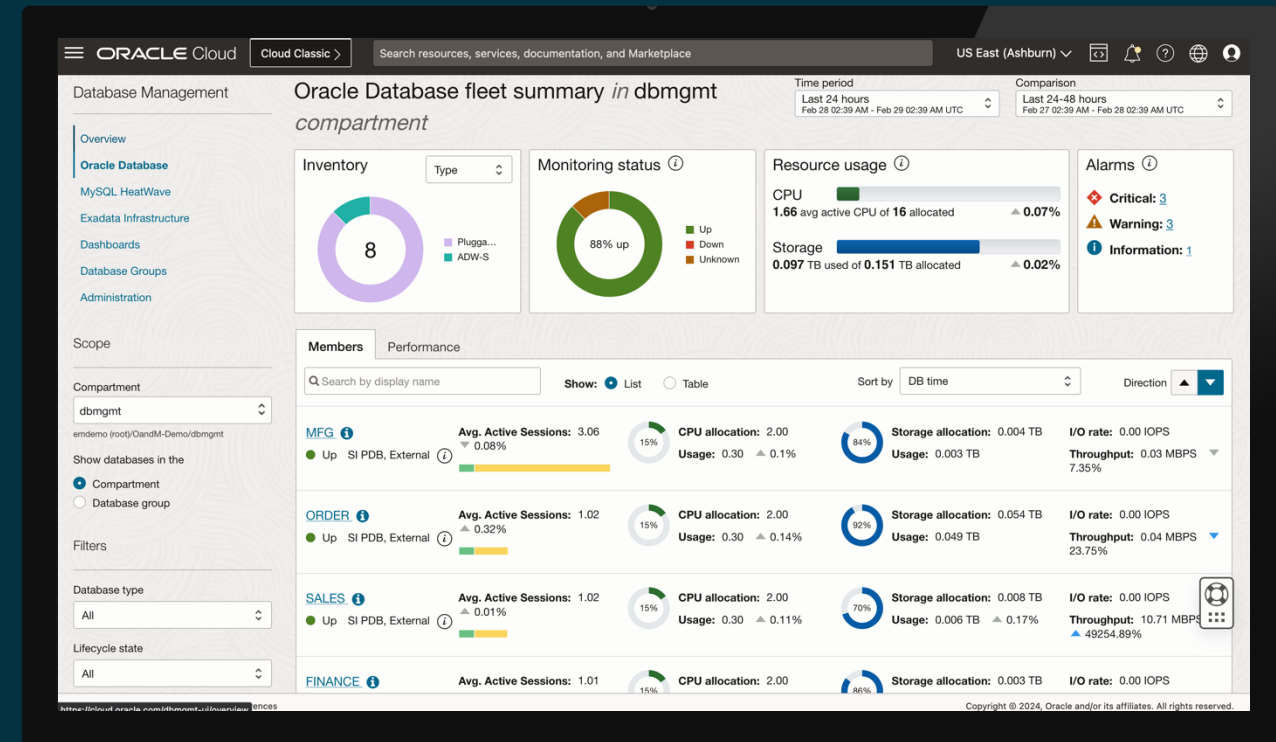
- Unified view monitoring and managing Oracle Database fleet across on-premises and cloud
- Performance Hub – performance at a glance

### Integrated view of database activity for easy performance diagnostics

- Features include ASH Analytics, SQL / session details, blocking sessions
- Real-time SQL monitoring

### Advanced execution plan analysis for monitoring and optimization

- Database administration
- Simplified space, configuration, users and backup management





# Ops Insights

Make informed, data-driven decisions using long term analysis

## Capacity Planning

- Analyze and forecast database and host resource usage based on long-term historical data across the enterprise
- Improve costs by identifying over and underutilized database and servers

## Exadata Insights

- Enterprise-wide analysis of resource utilization, trending, capacity planning and performance insights for Exadata

## ADDM Spotlight

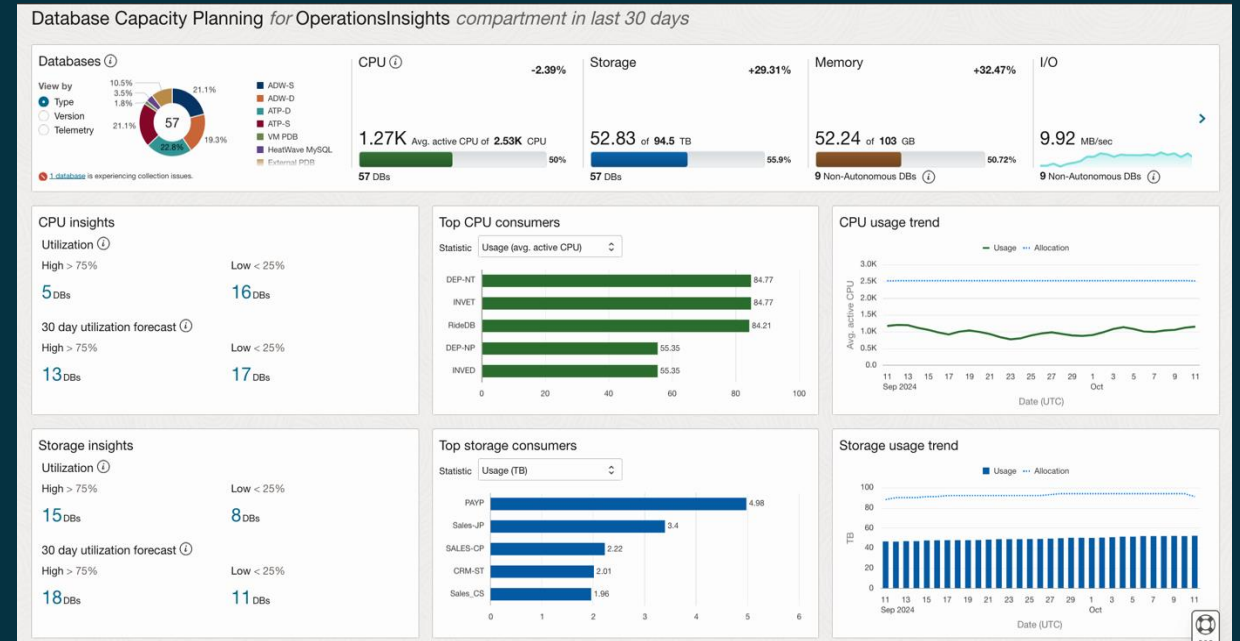
- Strategic database performance insights

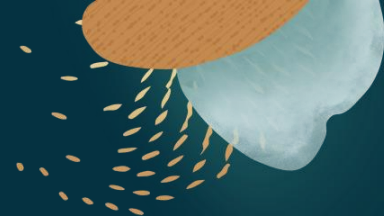
## SQL Insights

- Long-term SQL store for performance and trend analysis, with interactive data exploration of SQL statistics
- Interconnected dashboards with context-sensitive drill-downs from fleet-level to database to individual SQL level

## AWR Hub, EM Warehouse and Exadata Warehouse

- O&M telemetry Data Lakehouse for deep operational analytics integrated with Oracle Analytics Cloud, Oracle Machine Learning or notebooks





# Monitoring features

## Oracle Database Fleet Overview

### EM 24ai

- Status overview
- Inventory and configuration of resources
- Compliance summary
- Similar fleet overview on roadmap

### OCI DBM

- Status overview
- Resource usage trend analysis
- Alarms summary

**Enterprise Summary** | Auto Refresh: Off | Page Refreshed Nov 22, 2022 3:52:39 PM UTC

**Overview** | View: All Targets (146)

**Status**

Targets with Status: 115

- Up (102): 89%
- Down (12): 10%
- Unknown (1): 0.87%

**Inventory and Usage**

Show: Databases | Details

- Pluggable Database 19.16.0.0.0: 55%
- Database Instance 19.16.0.0.0 (Container Database): 18%
- Pluggable Database 12.2.0.1.0: 7%
- Cluster Database 19.16.0.0.0 (Container Database): 7%
- Database Instance 12.1.0.2.200114: 7%
- Database Instance 19.3.0.0.0: 2%
- Others: 7%

**Compliance Summary**

Standards | Targets

Use: Compliance Score | Violations | View Trends | Target Type | Host

Target Name	Target Type	Average Compliance Score (%)
No data to display		

**Patch Recommendations**

View by: Classification | Target Type

Patch recommendations are not available.

My Oracle Support refresh job has not run successfully in 72 hours. Patch Recommendations information may be stale or unavailable. Either set the preferred My Oracle Support credentials, in online mode or manually upload the metadata required in offline mode to submit a "Refresh From My Oracle Support" job.

No recommendations to report | Learn More

**Incidents**

Updated in the last 24 hours: 1

Updated in last 7 days: 2

Breakdown of incidents updated in the last 7 days

Category	Incidents
Availability	1
Performance	0
Security	0
Others	1

**Problems**

Total Open: 26

Without Service Request: 26

**Jobs**

Executions in last 3 days

Suspended Executions: 0

**ORACLE Cloud** | Cloud Classic | Search resources, services, documentation, and Marketplace | US East (Ashburn)

**Database Management** | Oracle Database fleet summary in dbmgmt compartment

Time period: Last 60 min | Comparison: Same 60 min yesterday

**Inventory** | 13 databases

**Monitoring status** | 77% up

**Resource usage**

- CPU: 3.98 avg active CPU of 24 allocated (▲ 4.97%)
- Storage: 0.249 TB used of 1.736 TB allocated (▲ 0.6%)

**Alarms**

- Critical: 3
- Warning: 3

**Members** | Performance

Search by display name | Show: List | Table | Sort by: DB time | Direction: ▲

Member	Avg. Active Sessions	CPU allocation	Storage allocation	I/O rate
PROD (SI_CDB_External)	2.06 ▲ 1.16%	2.00 Usage: 0.29 ▼ 0.17%	0.007 TB Usage: 0.005 TB ▲ 0.19%	0.00 IOPS Throughput: < 0.01 MBPS ▲ 8.15%
MFG (SI_PDB_External)	1.02 ▲ 0.96%	2.00 Usage: 0.29 ▼ 0.44%	0.054 TB Usage: 0.049 TB ▼ 0.02%	0.00 IOPS Throughput: < 0.01 MBPS ▲ 0.66%
ORDER (SI_PDB_External)	1.01 ▼ 0.02%	2.00 Usage: 0.29 ▼ 0.11%	0.003 TB Usage: 0.003 TB	0.00 IOPS Throughput: < 0.01 MBPS ▼ 3.18%
FINANCE (SI_PDB_External)	1.01 ▼ 0.38%	2.00 Usage: 0.29 ▼ 0.41%	0.015 TB Usage: 0.013 TB	0.00 IOPS Throughput: < 0.01 MBPS ▼ 1.25%
HRUAT (SI_PDB_External)	1.01 ▼ 0.47%	2.00 Usage: 0.29 ▼ 0.31%	0.008 TB Usage: 0.006 TB	0.00 IOPS Throughput: < 0.01 MBPS ▼ 2.14%
SALES (SI_PDB_External)	1.01 ▼ 0.47%	2.00 Usage: 0.29 ▼ 0.31%	0.008 TB Usage: 0.006 TB	0.00 IOPS Throughput: < 0.01 MBPS ▼ 2.14%

View CDB-PDB | Terms of Use and Privacy | Cookie Preferences

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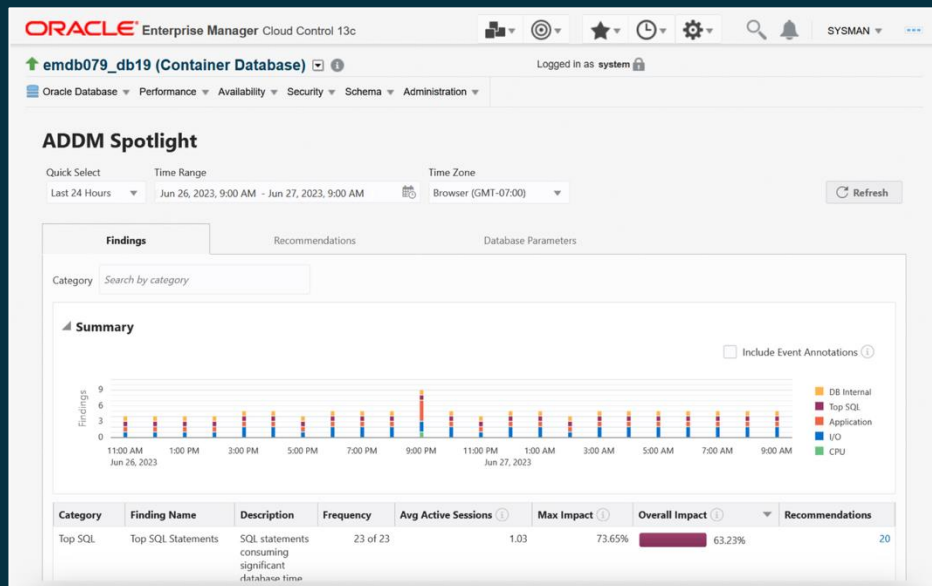
# Performance Management Features

## ADDM Spotlight



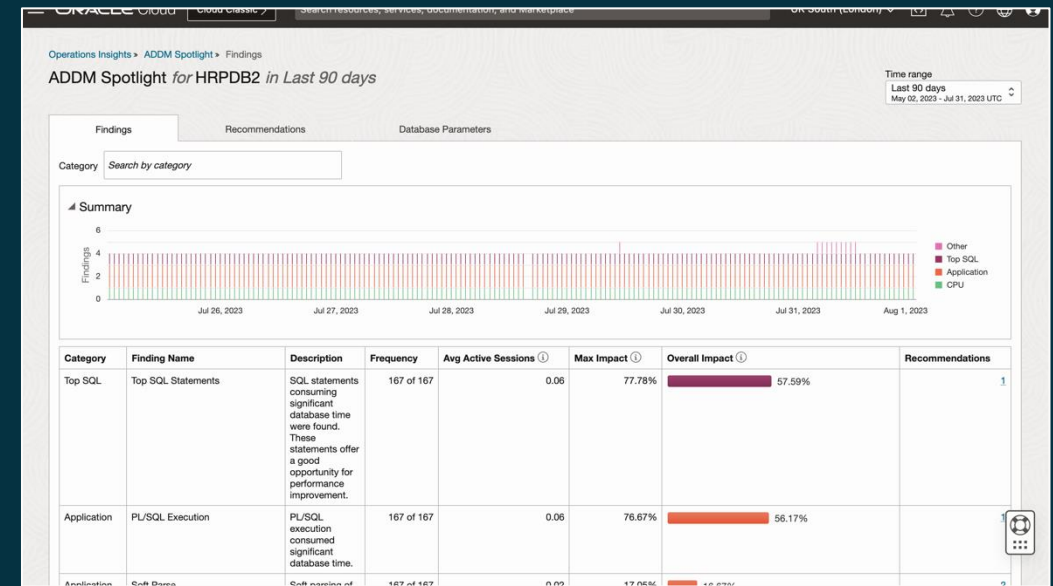
### EM 24ai

- Single database ADDM visualization
- Event annotation allows correlation of incidents with findings
- Aggregates by findings



### OCI DBM

- Long-term (25 month) historical analysis of ADDM findings over time in compartment
- Identify chronic issues over entire workload
- High-level fleet overview



# Performance Management Features

## Performance Hub - Exadata tab

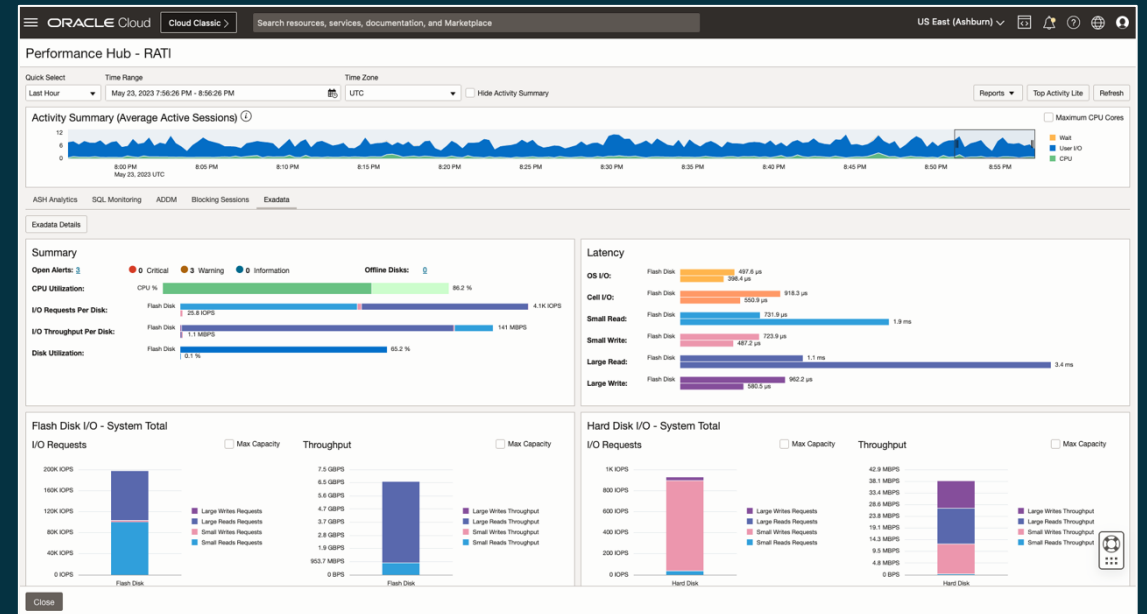
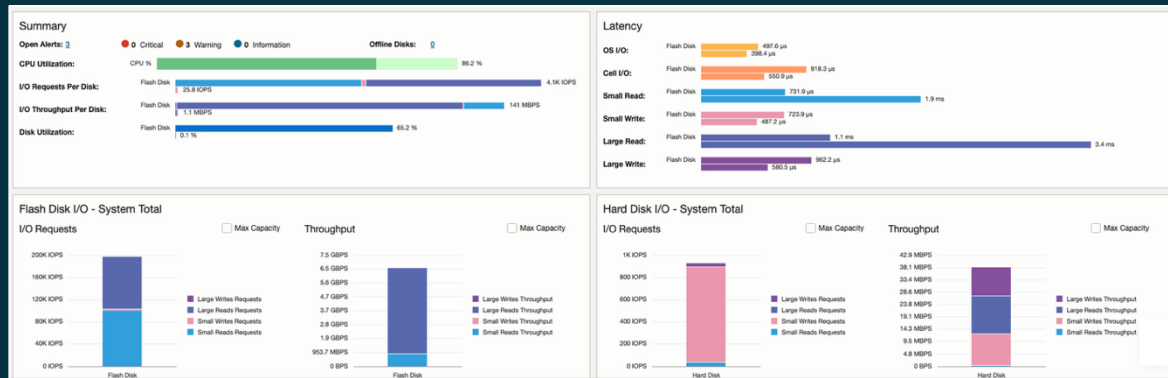


### EM 24ai

- In-depth Exadata performance
- Visualization of Exadata storage server metrics
- Identify bottlenecks or "noisy neighbor"

### OCI DBM

- In-depth Exadata performance
- Visualization of Exadata storage server metrics
- Identify bottlenecks or "noisy neighbor"

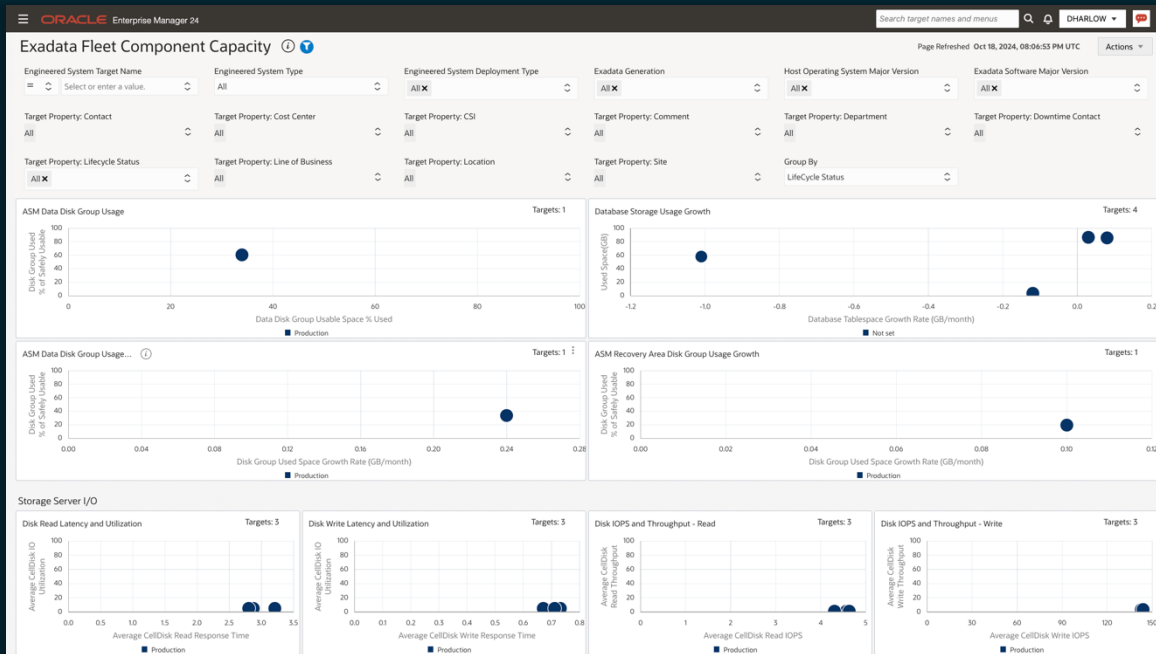


# Monitoring Features

## Custom dashboards

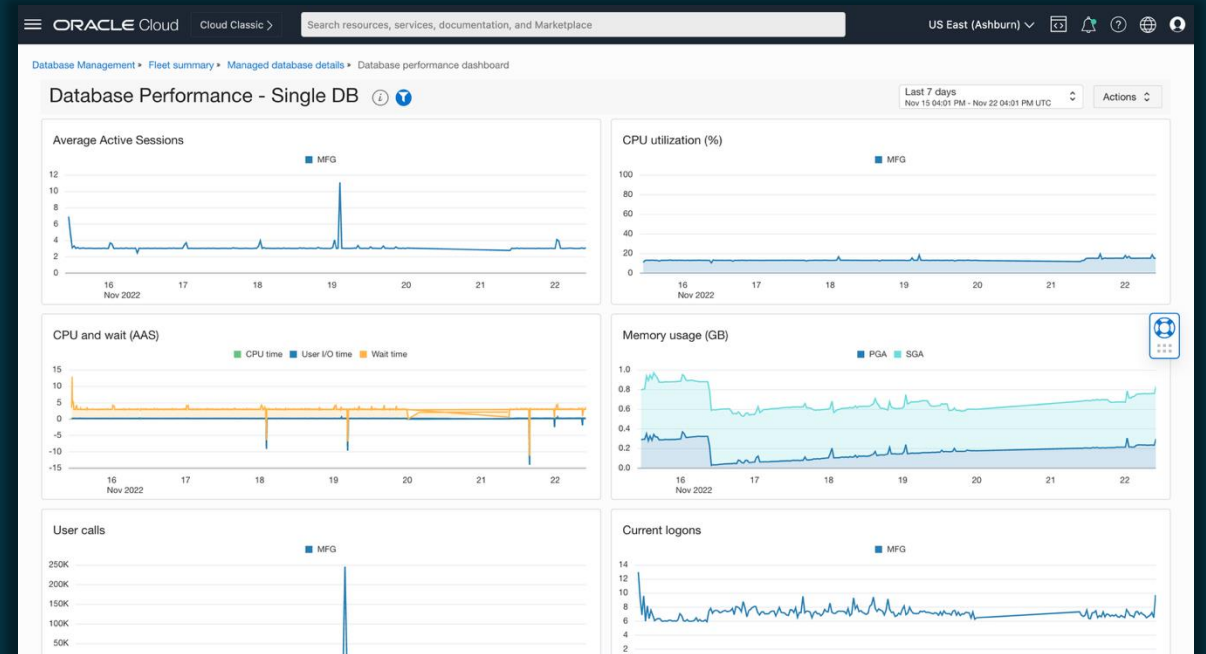
### EM 24ai

- Dashboard framework and API
- Manual configuration for target groups
- Can leverage tags



### OCI DBM

- Dashboard framework and API
- Quick out of the box configuration



# Performance Management Features

## Database System monitoring



### EM 24ai

- Single target monitoring for cluster, host, ASM, listener resources
- Topology view of system
- Integrated navigation to system components from database target

### OCI DBM

- Resource group encompassing individual components for system overview
- Integrated navigation to system components from database target
- Out-of-the-box performance dashboards

The screenshot shows the Oracle Enterprise Manager Cloud Control 13c interface for monitoring a database system named 'Oemrep\_Database\_sys'. The interface is divided into several sections:

- General:** Shows the database name 'Oemrep\_Database' and the last backup status as 'N/A'.
- Status:** Displays 'Availability' as 100% until April 21, 2023, 5:07:45 AM IST, with 1 member.
- Issues Overview:** Shows 0 incidents updated in the last 7 days. A breakdown table shows 0 incidents for Availability, Performance, Security, and Others.
- Problems:** Shows 2 total open problems, with 2 without service requests.
- Job Activity:** Shows a summary of jobs whose start date is within the last 7 days.
- Compliance Summary:** Shows compliance standards and members, with a note that no data is to be displayed.
- Dependent Targets:** Shows a table of dependent targets, including one for 'Stores On Database' with a status of 'Up'.

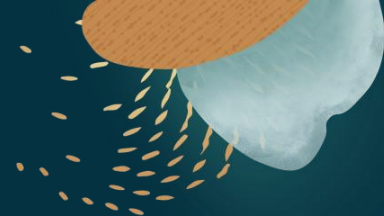
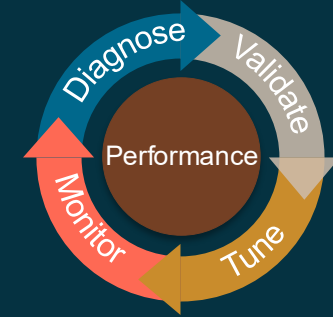
The screenshot shows the OCI DBM interface for a database system. It features an 'Availability timeline' at the top, which is a grid of green squares indicating 100% availability from 19:42 on April 20, 2023, to 20:36 on April 20, 2023. Below the timeline are several sections:

- Cluster:** A table showing the cluster status and availability for 'dbSsysq3bxh7a', 'final1', and 'final2', all of which are 'Up' with 100% availability.
- Databases:** A table showing the status and availability for databases 'DBFINAL\_lex3nw', 'DBFINAL\_lex3nw\_PDB1', and 'DBFINAL\_lex3nw\_PDB2', all of which are 'Up' with 100% availability.
- ASM:** A table showing the status and availability for ASM components 'ASM\_dbSsysq3bxh7a', '+ASM1\_dbSsysq3bxh7a', and '+ASM2\_dbSsysq3bxh7a', all of which are 'Up' with 100% availability.



# Performance Management Features

## SQL performance tuning



### EM 24ai

- Full SQL performance management capabilities
- SQL Tuning Set administration, SQL Plan Management, SQL Tuning Advisor

### OCI DBM

- SQL Insights provides advanced, fleet-wide monitoring of SQL data
- Groups performance trends and identifies most impactful SQL IDs for tuning

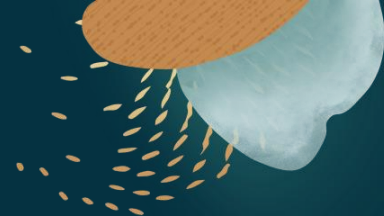
The screenshot shows the 'Schedule SQL Tuning Advisor' page. It includes a form to specify parameters like Name (SQL\_TUNING\_1669132573016), Description, and SQL Tuning Set. There is an 'Overview' section explaining that the SQL Tuning Advisor analyzes individual SQL statements and suggests indexes, SQL profiles, and restructured SQL. The 'Scope' section allows setting a Total Time Limit (30 minutes) and Scope of Analysis (Limited or Comprehensive). The 'Schedule' section includes Time Zone (UTC+00:00 Coordinated Universal Time (UTC)), Frequency (Immediately or Later), Date (Nov 22, 2022), and Time (3:56:00 AM or PM).

The screenshot shows the 'SQL plan management' page in Oracle Cloud. It features a 'Summary' section with 'Total SQL plan baselines: 64' and 'SQL plan baseline: Disabled'. A pie chart shows 'Baseline last executions' with 20% in blue and 80% in yellow. A bar chart shows 'SQL plan statistics' with categories: Enabled, Auto purge, Reproduced, Accepted, Fixed, and Disabled. Below these are 'SQL plans' listed in a table with columns: SQL text, Last executed, Enabled, Accepted, Reproduced, Fixed, Auto purge, and Origin.

SQL text	Last executed	Enabled	Accepted	Reproduced	Fixed	Auto purge	Origin
DELETE FROM SYS.SCHEDULERS_JOB_RUN_DET...		-	-	-	-	-	-
SQL_PLAN_2o0u4bz63rmm7e8e7b8	> 180 days ago	✓	✓	-	-	✓	Auto capture
SQL_PLAN_2o0u4bz63rmmeeect0be	-	✓	-	✓	-	✓	Auto capture
SQL_PLAN_2o0u4bz63rmm50fdd9f2	-	✓	-	-	-	✓	Auto capture
SELECT VALUE FROM SYS.V_\$PARAMETER WHER...		-	-	-	-	-	-
SQL_PLAN_f7phtxjwkt80be6e0439	6 days ago	✓	✓	✓	-	✓	Auto capture
SQL_PLAN_f7phtxjwkt80be6e0446	-	✓	-	✓	-	-	Auto capture
SELECT VALUE FROM SYS.V_\$PARAMETER WHER...		-	-	-	-	-	-
SQL_PLAN_6d1zbdhkwpm3be6e0439	6 days ago	✓	✓	✓	-	✓	Auto capture
SQL_PLAN_6d1zbdhkwpm3bf94c446	-	✓	-	-	-	✓	Auto capture
SELECT VALUE FROM V\$PARAMETER WHERE NA...		-	-	-	-	-	-



# Performance Management Features



## EM 24ai

- Supports rich HA monitoring and management capabilities

## OCI DBM

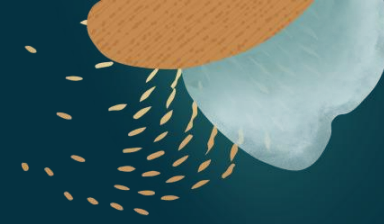
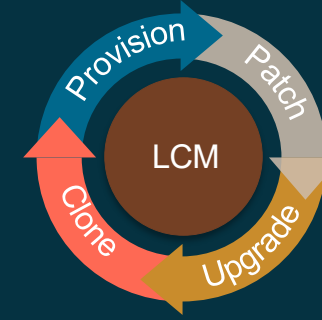
- Monitor fleet backups and Data Guard
- Resource backup and Data Guard metrics available with drill down

The screenshot shows the Oracle Enterprise Manager Cloud Control 13c interface for a container database. The 'Availability' tab is selected, showing a 'Fast Recovery Area Usage' section with a 'Backup & Recovery' dropdown menu. The menu options include: MAA Advisor, Backup & Recovery, Schedule Backup..., Manage Current Backups, Backup Reports, Configure Oracle Cloud Backup, Restore Points, Perform Recovery..., Backup Settings, Recovery Settings, and Recovery Catalog Settings. Below the menu, a 'Data Guard Summary' section is visible with fields for Last Backup (N/A), Next Backup (N/A), Recovery Time (15 sec), and Flashback Database (Disabled).

The screenshot shows the Oracle Cloud Database Management High Availability dashboard. It features several key metrics: Last backup (15), Last backup time (15), Data Guard (15), and Backup destination (15). A table below lists database instances with their status, backup level, Data Guard status, and FRA usage. The table includes columns for Database, Last backup, Last backup time, Backup level, Data Guard, FRA usage, and Backup destination.

Database	Last backup	Last backup time	Backup level	Data Guard	FRA usage	Backup destination
Up CDB External	Completed	Tue, Jul 15, 2023 08:46:51 UT	Full	Enabled	49 GB (95%)	Local
Up Non-CDB Cloud	Warnings	Tue, Jul 15, 2023 08:46:51 UT	Incremental	Enabled	45 GB (89%)	Recovery appliance
Up Non-CDB External	Failed	Tue, Jul 15, 2023 08:46:51 UT	Incremental	Not Enabled	39 GB (76%)	Object storage
Up Non-CDB Cloud	No data	No data	No data	Enabled	39 GB (76%)	No data





# Lifecycle Management

## Fleet LCM

### EM 24ai

- Patch/upgrade all supported databases at fleet level, and standardize configurations
- Pre-checks for reliability and diagnosability
- Migration Workbench for on-premises and cloud databases
- Choice of interface: REST APIs, EMCLI and UI

### OCI DBM

- OCI Database Migration Service and Golden Gate available in console
- Option to use OCI CLI, API, Terraform for automation

ORACLE Enterprise Manager Cloud Control 13c

Fleet Maintenance

Getting Started

1 Targets 2 Operations 3 Review Refresh Close

Targets

Image: Tier 1 S1 19.10 Jan 2021 Target Type: Pluggable Database Operation: Upgrade Type to filter

Platform: Linux x86-64 Created By: SYSMAN Created Date: Feb 6, 2022 2:00:39 PM UTC+05:30 Current Version: Version 19.10 Show only targets with Update Recommended

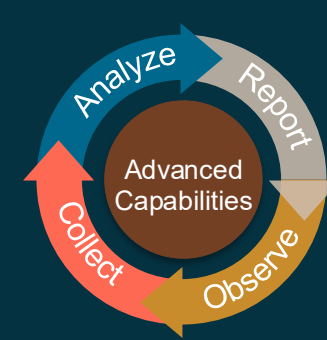
Pluggable Database (PDB)	Target Status	Container Database (CDB)	Release	Deploy Software	Migrate Listener	Destination CDB	Upgrade
<input type="checkbox"/> pdbupg_PDB5	↑	pdbupg	18.10.0.0.0	✔	✔	✔	⚠
<input type="checkbox"/> pdbupg_PDB4	↑	pdbupg	18.10.0.0.0	✔	✔	✔	⚠
<input type="checkbox"/> pdbupg_pdb2	↑	pdbupg	18.10.0.0.0	✔	✔	✔	⚠
<input checked="" type="checkbox"/> emv12c.us.oracle.com_HB	↑	emv12c.us.oracle.com	12.2.0.1.0	⚠	⚠	⚠	⚠

Page: 1 of 1 (1-4 of 4 Items) Total Selected Targets: 1



# Advanced Capabilities

## AIOps

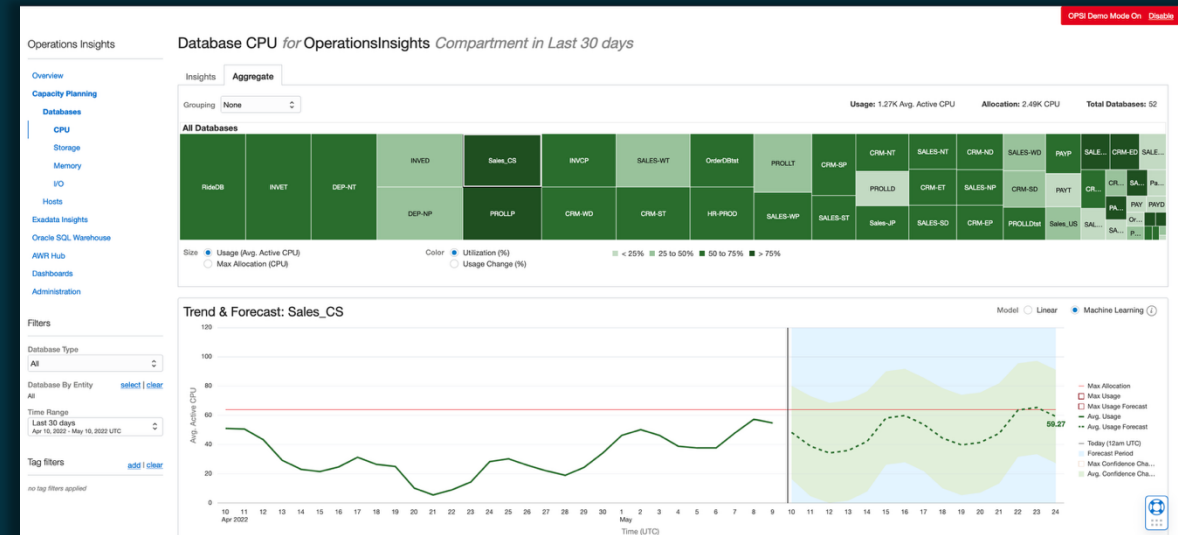
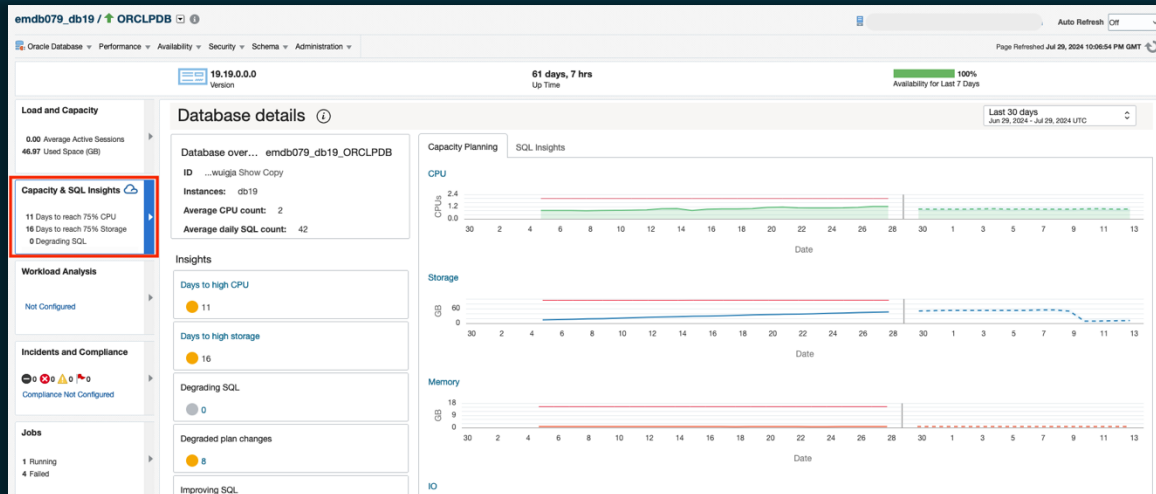


### EM 24ai

- Cloud Extension will provide capacity planning and SQL Insights details in EM
- Per resource view of capacity forecasting

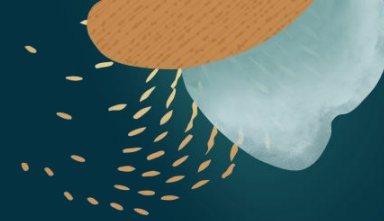
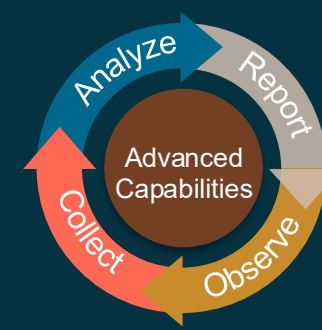
### OCI DBM

- Data lake comprised of AWR, EM, Exadata, and metric and logging data
- Predictive insights and analytics
- Long term retention (25 months)



# Advanced Capabilities

## SQL monitoring

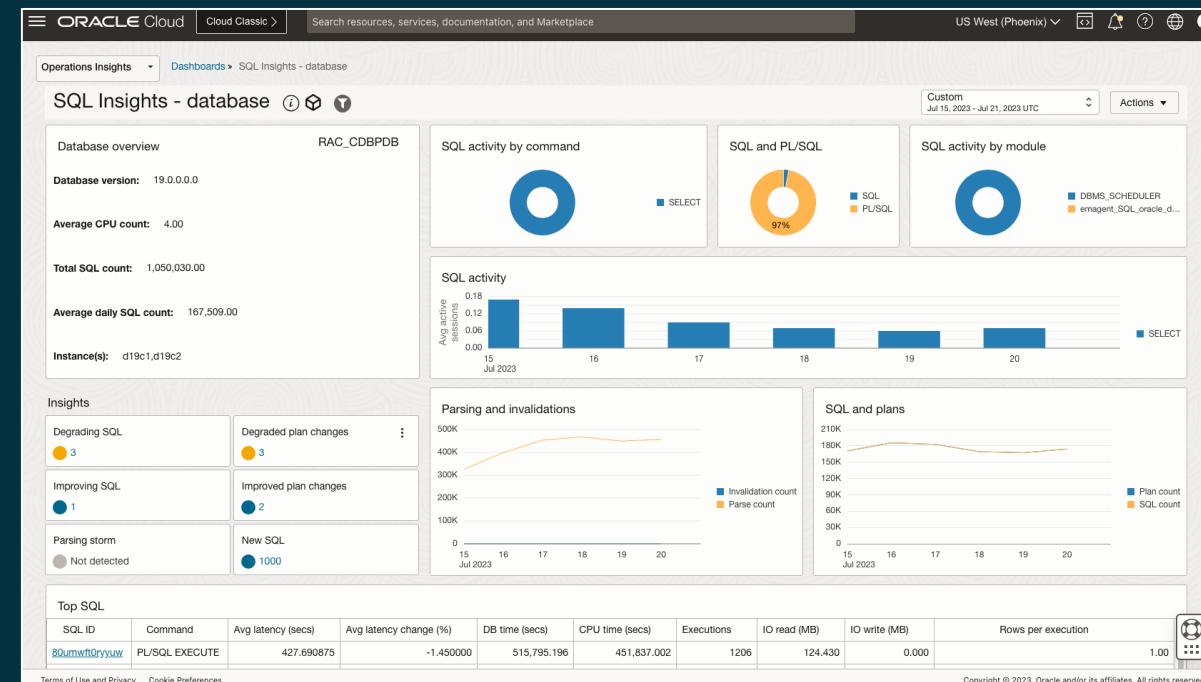
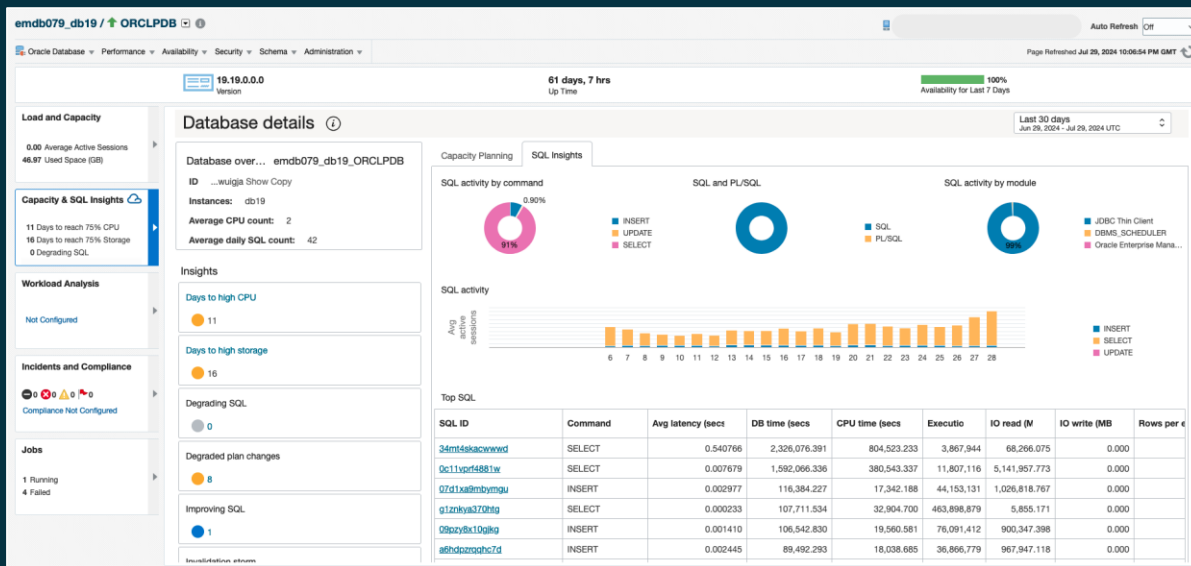


### EM 24ai

- Cloud extensions support SQL Insights for EM
- Single target view of SQL performance and statistics
- Identify SQL regression quickly

### OCI DBM

- Full SQL performance management capabilities
- SQL Tuning Set administration, SQL Plan Management, SQL Tuning Advisor



# Advanced Capabilities

## Chargeback

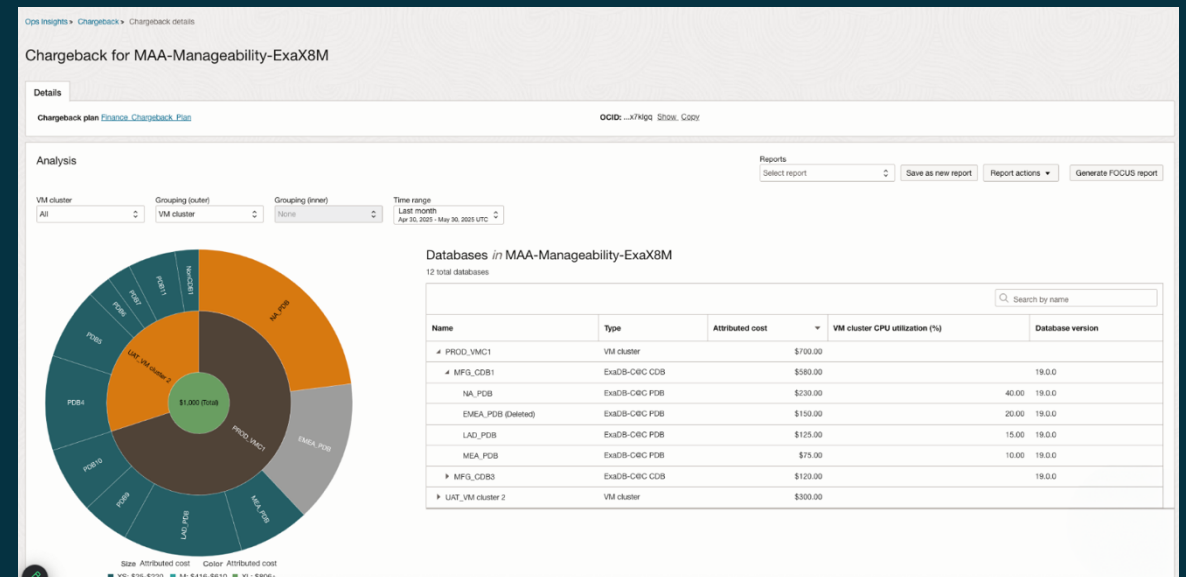
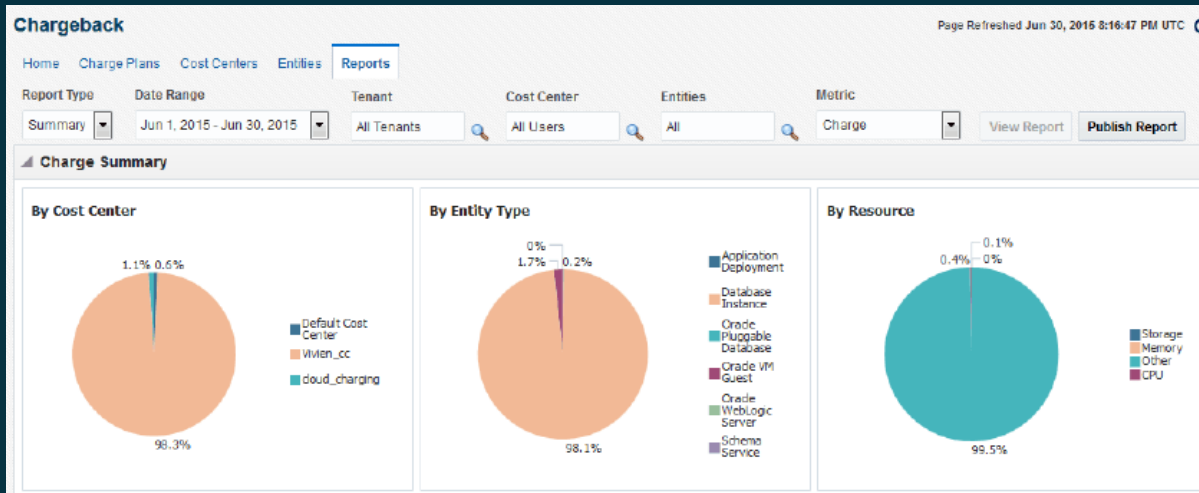


### EM 24ai

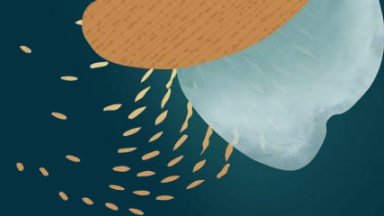
- Chargeback enables IT resource usage to LoB's, departments, organizations, etc.
- Better visibility on IT spend for large customers, more granular Exadata cost analysis

### OCI DBM

- Allow flexible and convenient PDB cost attribution based on collected metrics
  - Multiple attribution algorithms provided
- Dynamic tag-based grouping and advanced visualization options



# Comparison criteria



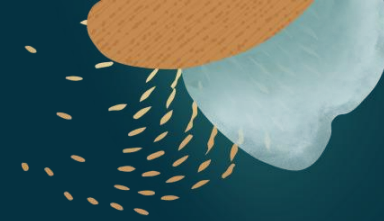
## Considerations when comparing database management solutions

- Administration tasks
  - Install, Upgrade, User Management, Performance Management, Patching, Configuration Management, Security, Agent requirements, etc.
- Frequency of tasks – daily, weekly, monthly, yearly categories
  - Database install/upgrade is **one-time task**: Category **Low**
  - Patching is done **every month**: Category **High**
  - Performance diagnosis, SQL Tuning, etc. are **daily tasks**: Category **High**

- EM 24ai patching and deployment overhead
- Coverage for different types of database flavors
- Service comparisons define the following:
  - OCI DBM will include Database Management and Operations Insights services
  - EM 24ai will include Database Diagnostics and Tuning, Lifecycle Management licensing



# Features comparison

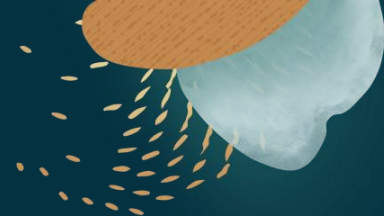


Tasks	EM 24ai	OCI DBM	Task Frequency
<b>Monitoring</b>			
Fleet view monitoring	×	√	High
Real-time monitoring	√	√	High
Metric threshold alarms	√	√	High
Alert based corrective actions	√	× <sup>1</sup>	High
ML log-based analysis	√ <sup>2</sup>	√	High
<b>Performance management</b>			
Top Activity Lite	√	√	High
AWR Explorer	√	√	Medium
ADDM Spotlight	√	√	High
SQL Tuning Advisor, SQL Tuning Sets, SQL plan management	√	√	High
SQL Insights	√ <sup>2</sup>	√	High
Custom dashboard framework	√	√	High

<sup>1</sup>Available via Oracle Functions

<sup>2</sup>Available via Cloud Extension





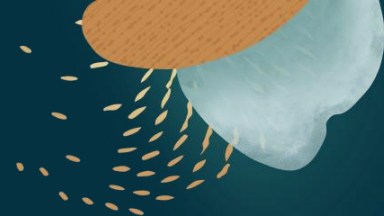
# Features comparison

Tasks	EM 24ai	OCI DBM	Task Frequency
<b>Deployment and Lifecycle Management</b>			
Provision/upgrade fleet of databases	√	× <sup>1</sup>	Low
Patch fleet of databases	√	×	Medium
Clone databases	√	× <sup>1</sup>	Low
Consolidate and migrate databases	√	× <sup>2</sup>	Low
<b>High availability</b>			
Monitoring	√	√	Medium
Configuration	√	× <sup>1</sup>	Medium

<sup>1</sup>Available via the DBaaS OCI console for cloud databases

<sup>2</sup>Available via Golden Gate and Data Migration Service





# Features comparison

Tasks	EM 24ai	OCI DBM	Task Frequency
<b>Security and compliance</b>			
User monitoring and privilege analysis	√	√	Low
Secure configuration management	√	× <sup>1</sup>	High
DBSAT support	√	× <sup>1</sup>	High
Health checks for databases and Exadata	√	× <sup>1</sup>	High
Regulatory/industry standards assessment	√	× <sup>1</sup>	High
<b>Capacity planning</b>			
Database resource capacity forecasting	√ <sup>2</sup>	√	Medium
Host resource capacity forecasting	√ <sup>2</sup>	√	Medium
Exadata Insights	×	√	Medium

<sup>1</sup>Available via OCI Data Safe

<sup>2</sup>Available via Cloud Extension



# Demo

# Resources

## Database Management

1. [oracle.com/manageability](https://oracle.com/manageability)
2. [Videos](#)
3. [Blogs](#)
4. [Documentation](#)
5. [Hands-on lab: Get Started with Oracle Cloud Infrastructure Database Management](#)

## Ops Insights

1. [Explore Ops Insights](#)
2. [Hands-on lab: Get Started with Oracle Cloud Infrastructure Ops Insights](#)
3. [Ops Insights Videos](#)
4. [Ops Insights Blogs](#)
5. [Ops Insights Technical Content](#)



# Q&A

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Blogs: [blogs.oracle.com/observability](https://blogs.oracle.com/observability)

Docs: <http://docs.oracle.com/en/enterprise-manager>

[Try it now](#)



Hands-on-labs

ORACLE 24<sup>ai</sup>  
Enterprise Manager

