Cloud at Customer Academy 3.0

Exadata Cloud - Monitoring

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Licenses and Systems

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LAD Partner Enablement Knowledge Team

August, 2023

Nossos Valores

Integridade

Ética

Compliance

Inovação

Trabalho em Equipe

Respeito Mútuo

Satisfação do Cliente

Justiça

Qualidade

Comunicação

Como empresa líder em tecnologia, abraçamos a **diversidade** em todas as suas formas. Acreditamos realmente que a **inovação** começa com a **inclusão**. E isso só pode ser alcançado com a cooperação de nossos **parceiros**. Afirmamos nosso **compromisso** em manter um **ambiente respeitoso** e **livre de discriminação** e esperamos isso dos nossos **parceiros de negócios.**

A Oracle espera que seus **parceiros** conduzam os negócios de forma **justa** e **ética**, para cumprir as leis anticorrupção em todo o mundo, para cooperar com os pedidos de informação da Oracle e evitar envolver-se em qualquer atividade que envolva até mesmo a aparência de impropriedade.

É vital que os nossos parceiros sejam aderentes aos valores do **Código de Ética e Conduta Empresarial da Oracle**, que baseia-se e implementa os valores que são essenciais para o nosso sucesso como empresa. Nossos valores são a base de tudo o que fazemos e todos nós devemos viver esses valores todos os dias.

Utilize o QR code para acessar o Código de Ética e Conduta Empresarial da Oracle.

MARCEL LAMARCA

Exadata Cloud Specialist
Upgrade, Utilities, Patching, Performance & Migrations
Exadata X9M Implementation Certified Specialist
and more 14 Oracle Certifications

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OCI Databases and App's DBA

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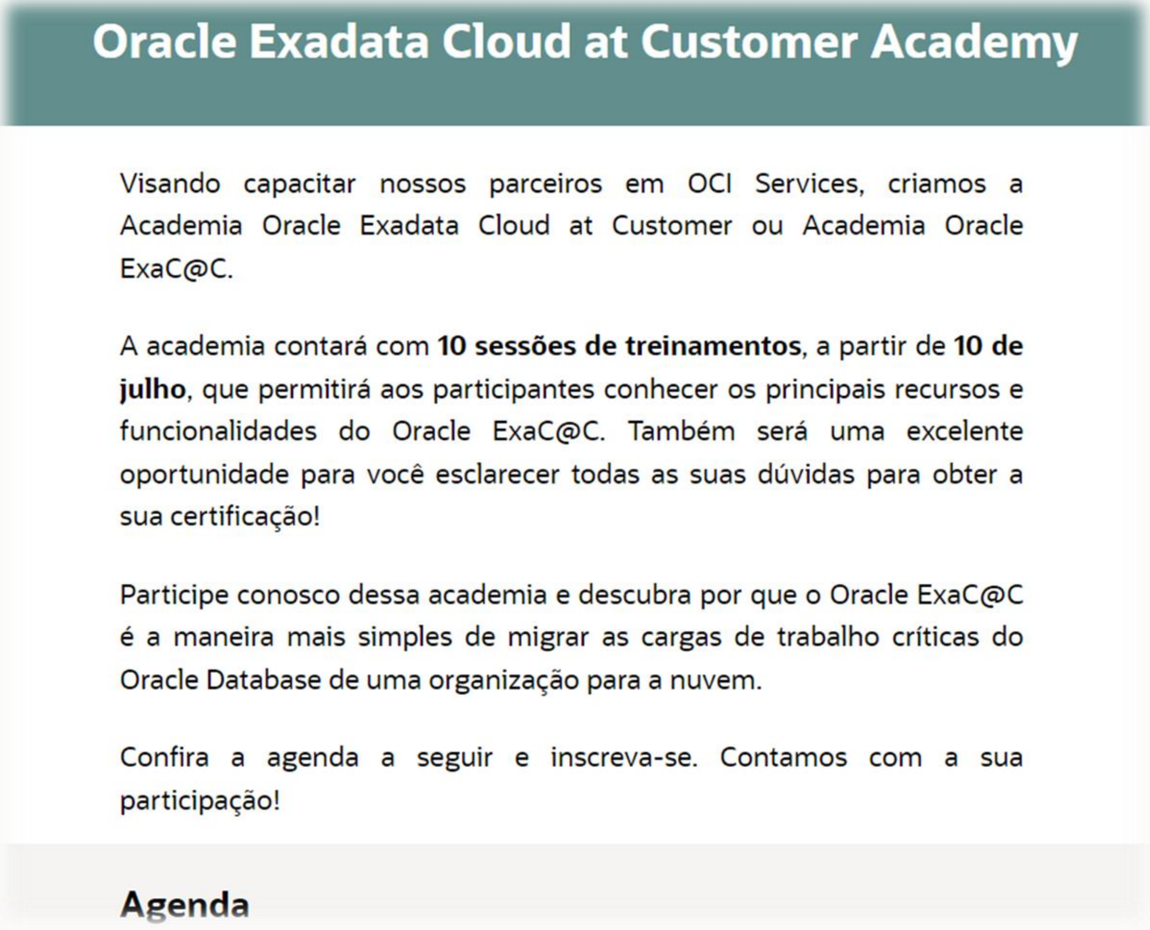
Exadata Academy 3.0 | Register Now



Oracle Exadata Cloud at Customer Academy

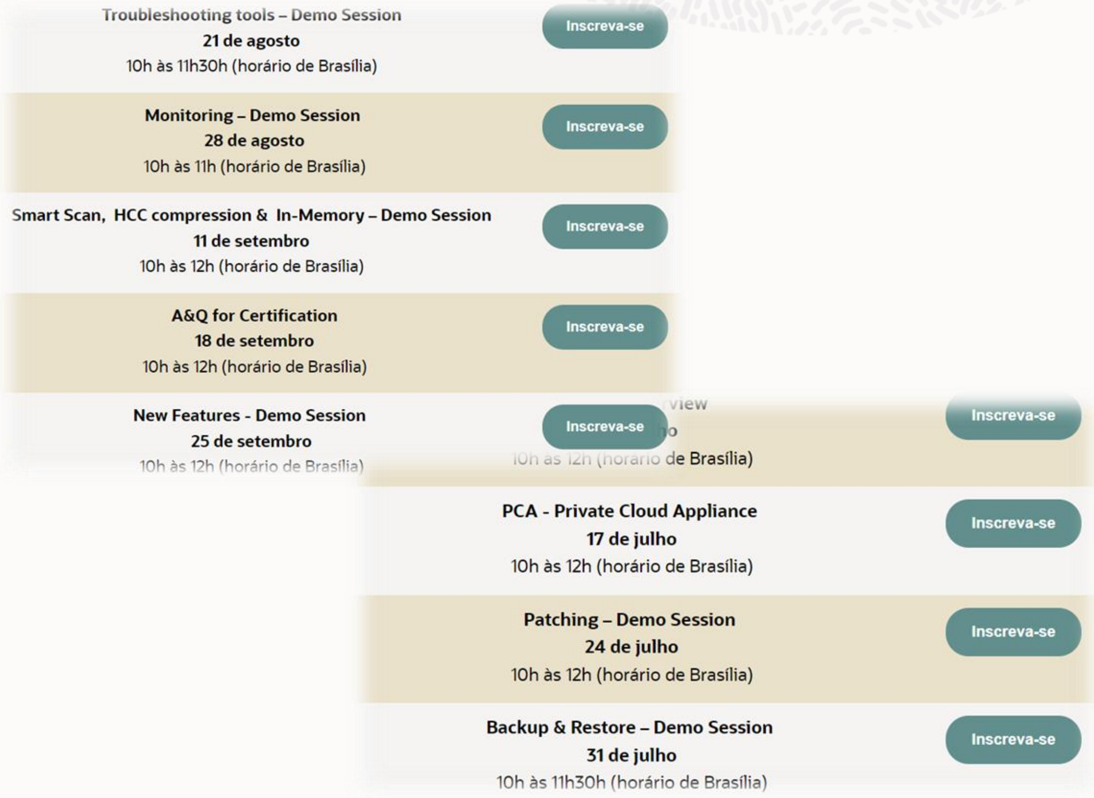
Visando capacitar nossos parceiros em OCI Services, criamos a Academia Oracle Exadata Cloud at Customer ou Academia Oracle ExaC@C.

A academia contará com **10 sessões de treinamentos**, a partir de **10 de julho**, que permitirá aos participantes conhecer os principais recursos e funcionalidades do Oracle ExaC@C. Também será uma excelente oportunidade para você esclarecer todas as suas dúvidas para obter a sua certificação!

Participe conosco dessa academia e descubra por que o Oracle ExaC@C é a maneira mais simples de migrar as cargas de trabalho críticas do Oracle Database de uma organização para a nuvem.

Confira a agenda a seguir e inscreva-se. Contamos com a sua participação!

Agenda



Troubleshooting tools – Demo Session **21 de agosto** 10h às 11h30h (horário de Brasília)	Inscreva-se
Monitoring – Demo Session **28 de agosto** 10h às 11h (horário de Brasília)	Inscreva-se
Smart Scan, HCC compression & In-Memory – Demo Session **11 de setembro** 10h às 12h (horário de Brasília)	Inscreva-se
A&Q for Certification **18 de setembro** 10h às 12h (horário de Brasília)	Inscreva-se
New Features - Demo Session **25 de setembro** 10h às 12h (horário de Brasília)	Inscreva-se

view o 10h às 12h (horário de Brasília)	Inscreva-se
PCA - Private Cloud Appliance **17 de julho** 10h às 12h (horário de Brasília)	Inscreva-se
Patching – Demo Session **24 de julho** 10h às 12h (horário de Brasília)	Inscreva-se
Backup & Restore – Demo Session **31 de julho** 10h às 11h30h (horário de Brasília)	Inscreva-se

SCAN ME

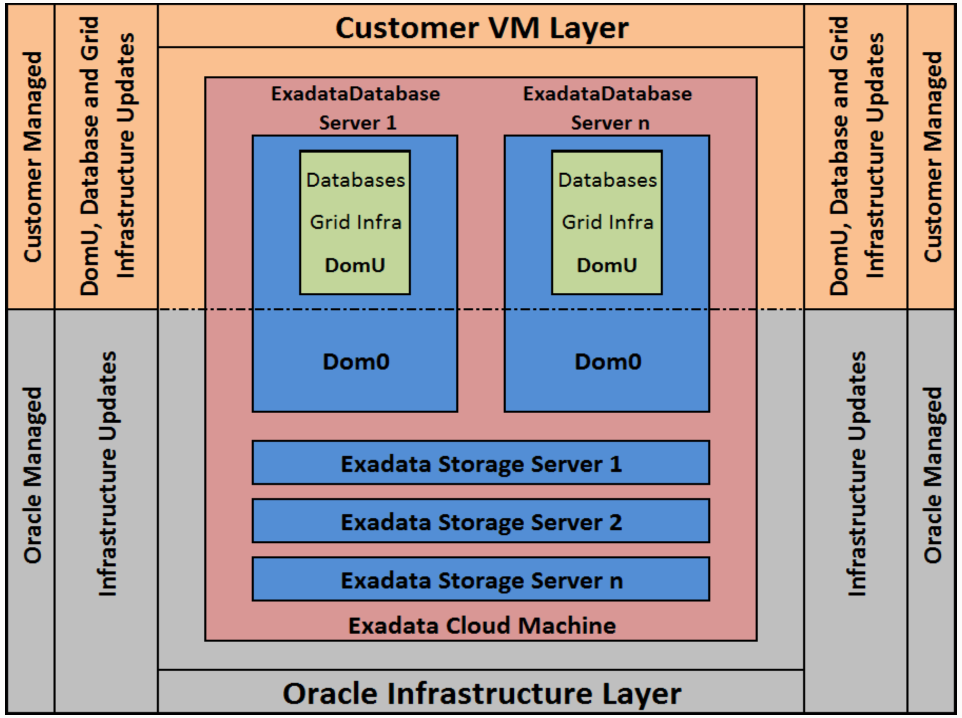
Click Here

Agenda

- ExaC@C – Dom0 vs DomU
- ExaC@C - Enterprise Manager
- Trace File Analysis (TFA) - *Oratop*
- Exadata Operations Inside
- ExaC@C Auditing
- Demo – Data Safe Report
- Demo – TFA Oratop Tool
- Demo – Configuring CPTA

Dom0 VS DomU

Exadata Cloud at Customer - Dom0 vs DomU


Customer Managed
DomU, Database and Grid Infrastructure Updates
Customer VM Layer
DomU, Database and Grid Infrastructure Updates
Customer Managed
ExadataDatabase Server 1
ExadataDatabase Server n
Databases
Grid Infra
DomU
Databases
Grid Infra
DomU
Dom0
Dom0
Oracle Managed
Infrastructure Updates
Exadata Storage Server 1
Exadata Storage Server 2
Exadata Storage Server n
Exadata Cloud Machine
Infrastructure Updates
Oracle Managed
Oracle Infrastructure Layer

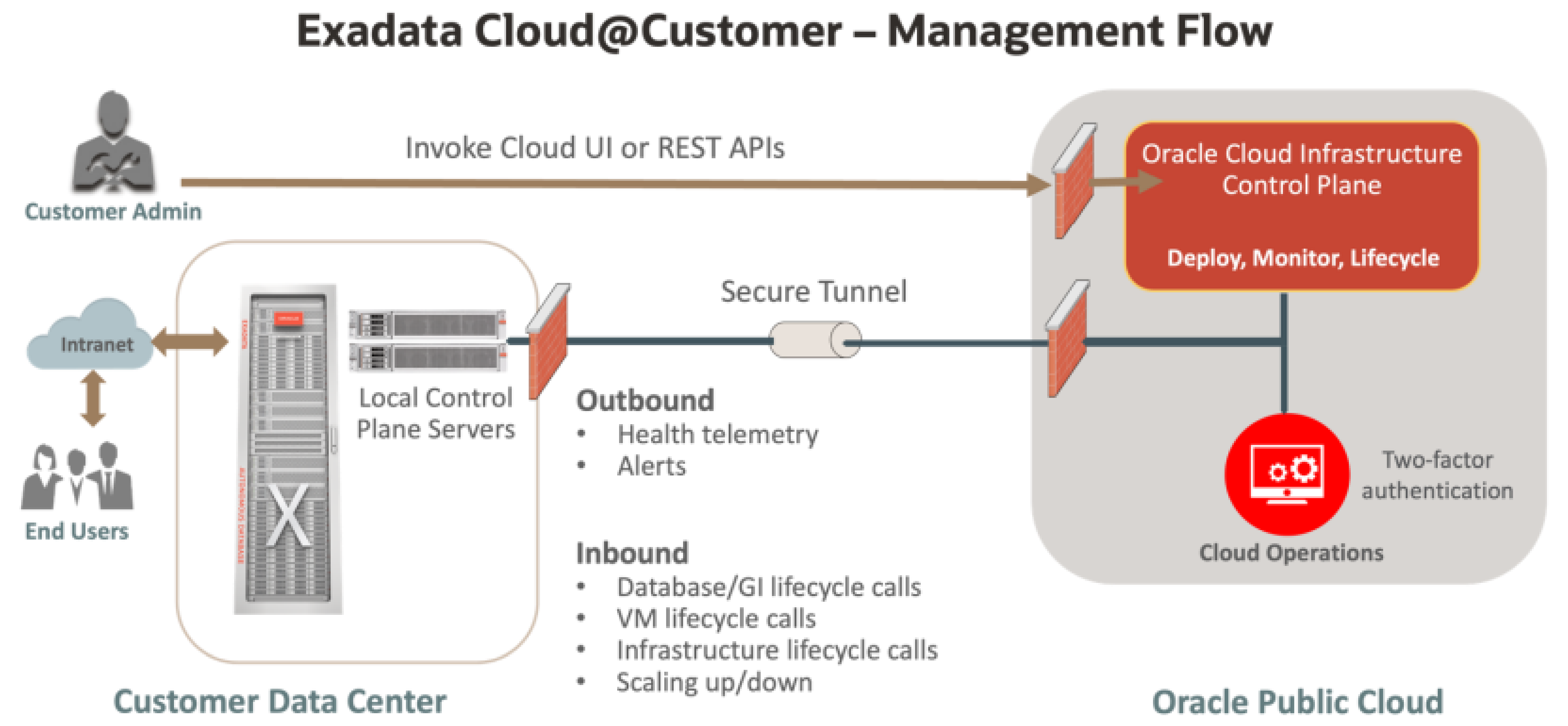
DOMU - Customer-managed platform and databases

- Virtual machine (VM) operating systems running the Exadata Compute Node software
- Grid Infrastructure on the Compute Node VM
- Database software on the Compute Node VM

DOM0 - Oracle-managed infrastructure

- Ethernet switches
- InfiniBand switches
- Power supplies
- Exadata Storage Servers
- Exadata Database Nodes
- Hypervisor running on the physical servers

Exadata Console Management and Control Plane Diagram



Exadata Cloud@Customer – Management Flow

Customer Admin
Invoke Cloud UI or REST APIs
Oracle Cloud Infrastructure Control Plane
Deploy, Monitor, Lifecycle
Intranet
End Users
Local Control Plane Servers
Secure Tunnel
Two-factor authentication
Cloud Operations
Customer Data Center
Oracle Public Cloud

Outbound

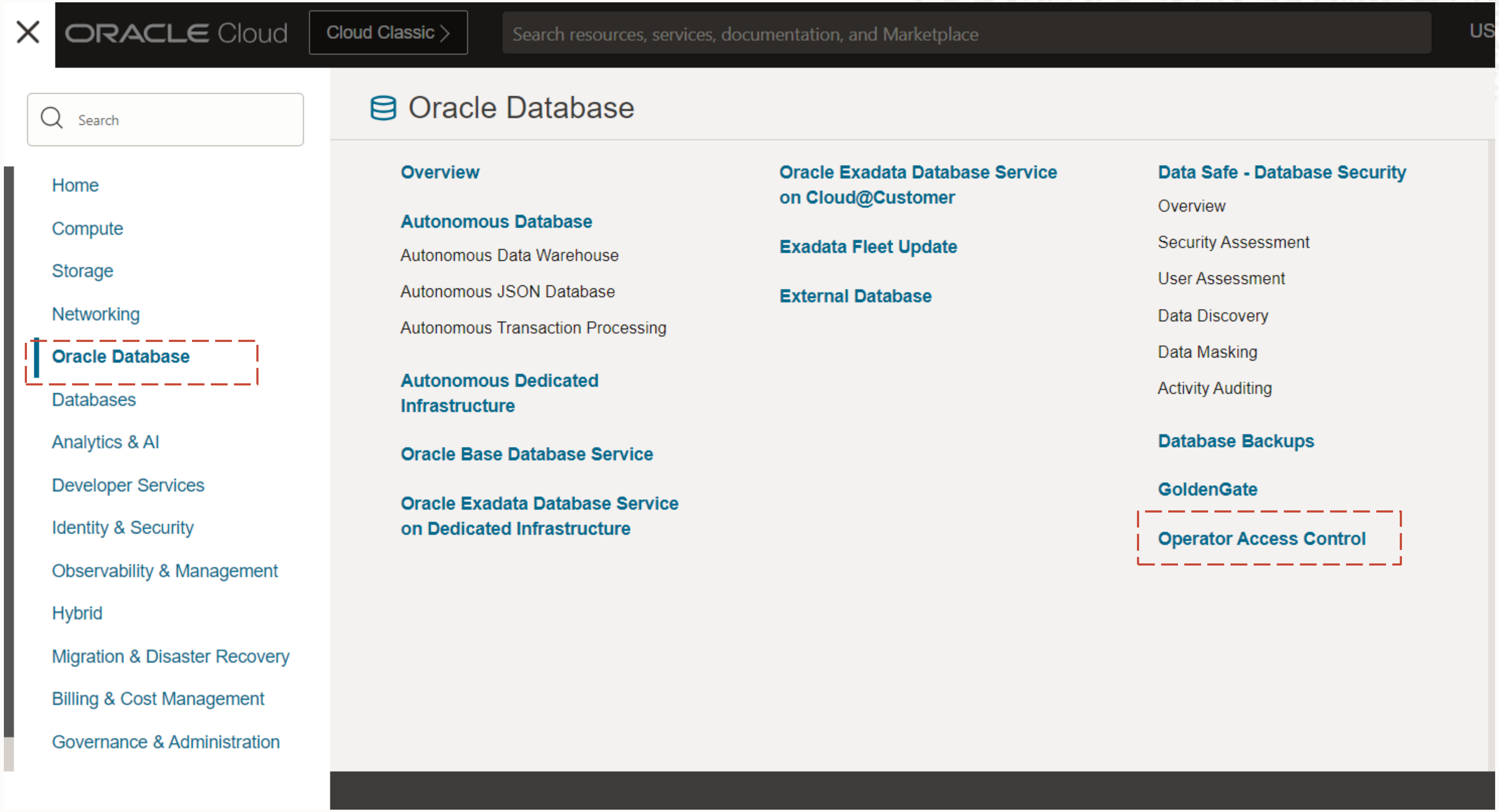
- Health telemetry
- Alerts

Inbound

- Database/GI lifecycle calls
- VM lifecycle calls
- Infrastructure lifecycle calls
- Scaling up/down

Operator Access Control

Operator Access Control on OCI Console menu

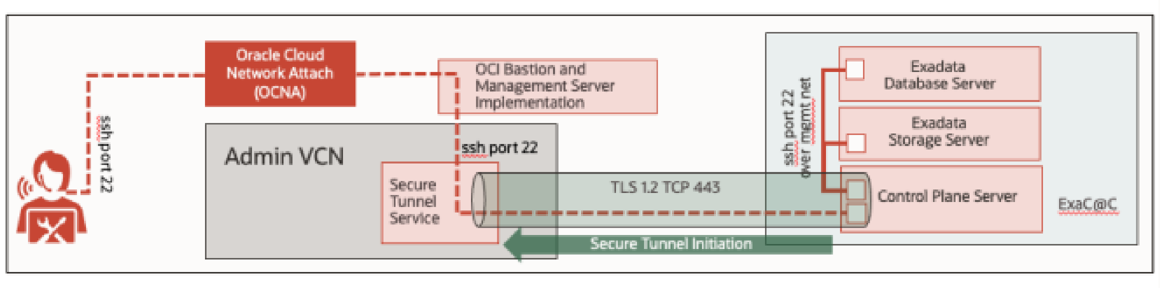


ORACLE Cloud
Cloud Classic >
Search resources, services, documentation, and Marketplace
US
Search
Home
Compute
Storage
Networking
Oracle Database
Databases
Analytics & AI
Developer Services
Identity & Security
Observability & Management
Hybrid
Migration & Disaster Recovery
Billing & Cost Management
Governance & Administration
Oracle Database
Overview
Autonomous Database
Autonomous Data Warehouse
Autonomous JSON Database
Autonomous Transaction Processing
Autonomous Dedicated Infrastructure
Oracle Base Database Service
Oracle Exadata Database Service on Dedicated Infrastructure
Oracle Exadata Database Service on Cloud@Customer
Exadata Fleet Update
External Database
Data Safe - Database Security
Overview
Security Assessment
User Assessment
Data Discovery
Data Masking
Activity Auditing
Database Backups
GoldenGate
Operator Access Control

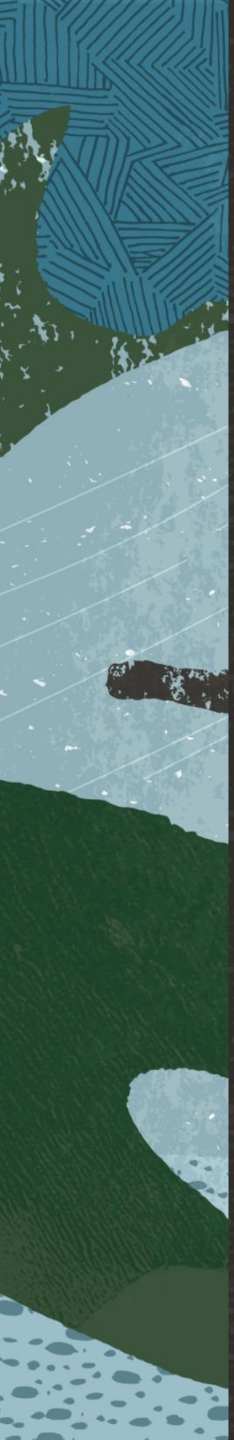
Exadata Cloud at Customer | Oracle Operation Acess Control

OAC enables you to grant, audit, and revoke the access **Oracle has to your Exadata Infrastructure**, **Exadata Infrastructure hosting an Oracle Autonomous Database on Exadata Cloud@Customer**

By "manage" **Autonomous Database on ExaC@C infrastructure** we mean the typical database admin or DBA tasks such as the following :


ssh port 22
Oracle Cloud Network Attach (OCNA)
OCI Bastion and Management Server Implementation
Admin VCN
ssh port 22
Secure Tunnel Service
TLS 1.2 TCP 443
Secure Tunnel Initiation
ssh port 22 over mgmt net
Exadata Database Server
Exadata Storage Server
Control Plane Server
ExaC@C

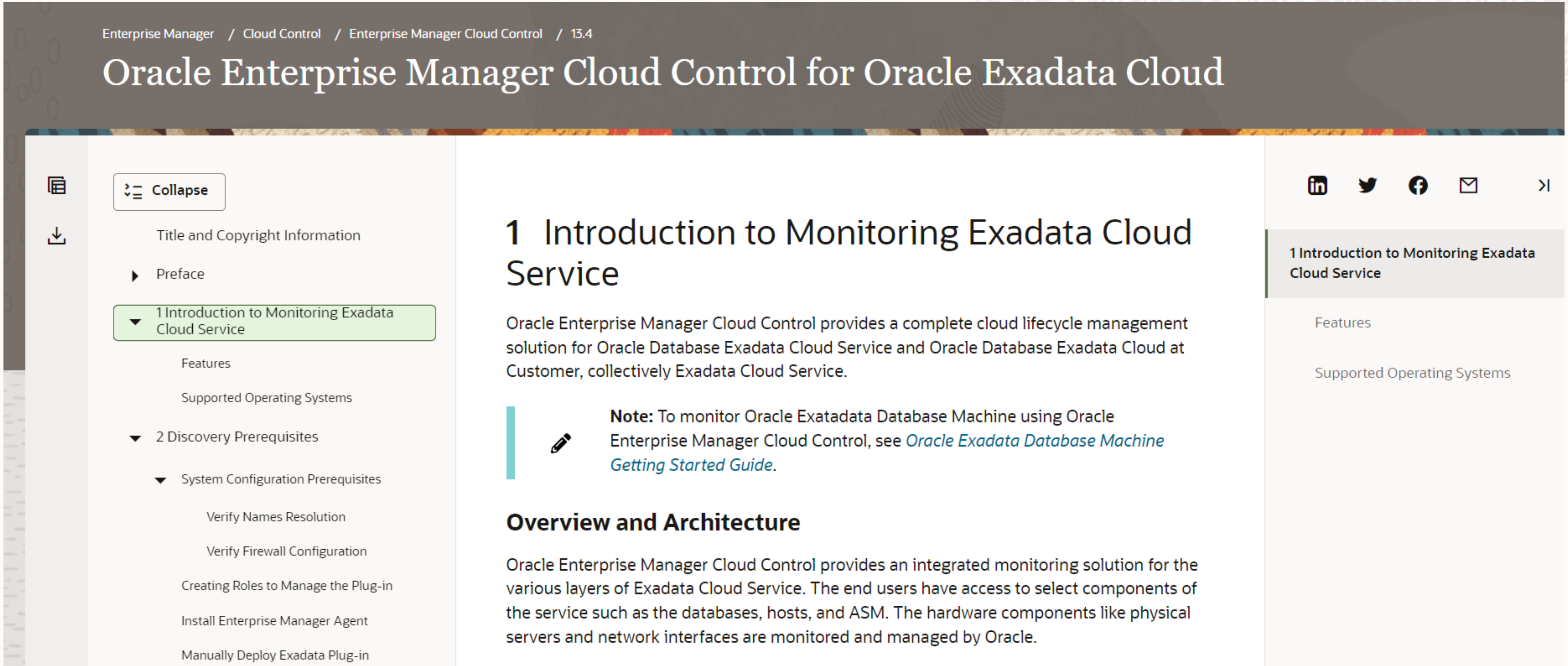
- Provisioning Autonomous Database resources;
- Backing up databases;
- Recovering a database;
- Patching and upgrading;
- Scaling Monitoring service health;
- Auditing Alerts



Oracle Enterprise Manager

Oracle Enterprise Manager For Exadata Cloud

SCAN ME



Enterprise Manager / Cloud Control / Enterprise Manager Cloud Control / 13.4

Oracle Enterprise Manager Cloud Control for Oracle Exadata Cloud

Collapse
Title and Copyright Information
Preface
1 Introduction to Monitoring Exadata Cloud Service
Features
Supported Operating Systems
2 Discovery Prerequisites
System Configuration Prerequisites
Verify Names Resolution
Verify Firewall Configuration
Creating Roles to Manage the Plug-in
Install Enterprise Manager Agent
Manually Deploy Exadata Plug-in

1 Introduction to Monitoring Exadata Cloud Service

Oracle Enterprise Manager Cloud Control provides a complete cloud lifecycle management solution for Oracle Database Exadata Cloud Service and Oracle Database Exadata Cloud at Customer, collectively Exadata Cloud Service.

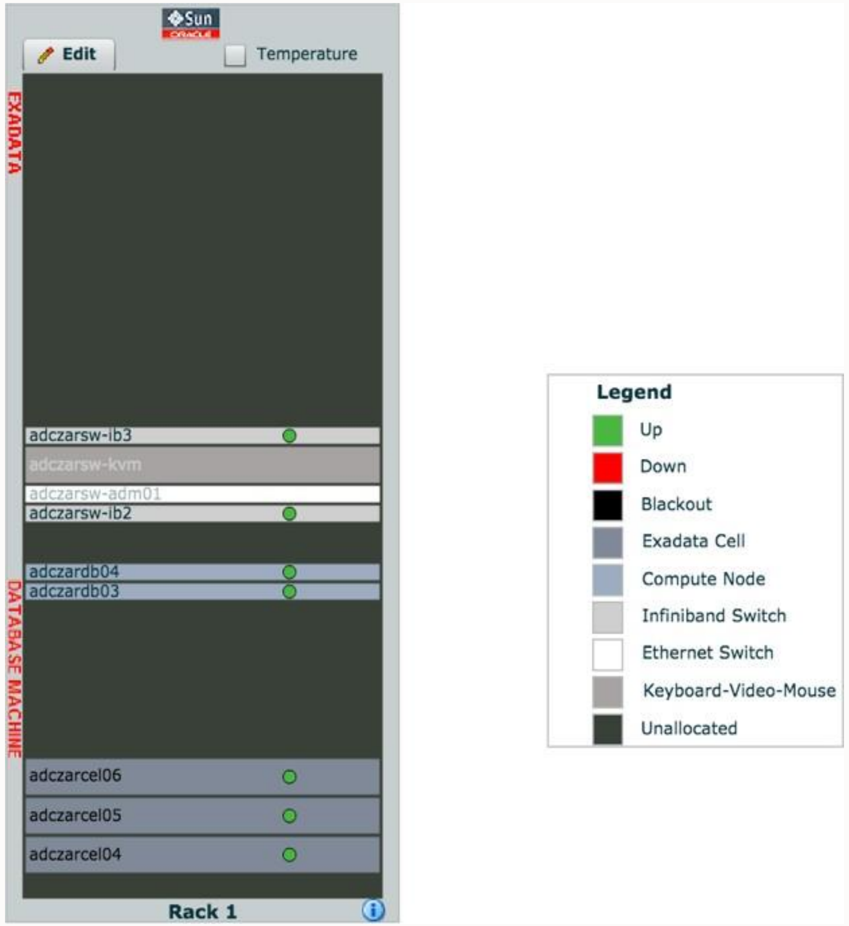
Note: To monitor Oracle Exatadata Database Machine using Oracle Enterprise Manager Cloud Control, see *Oracle Exadata Database Machine Getting Started Guide*.

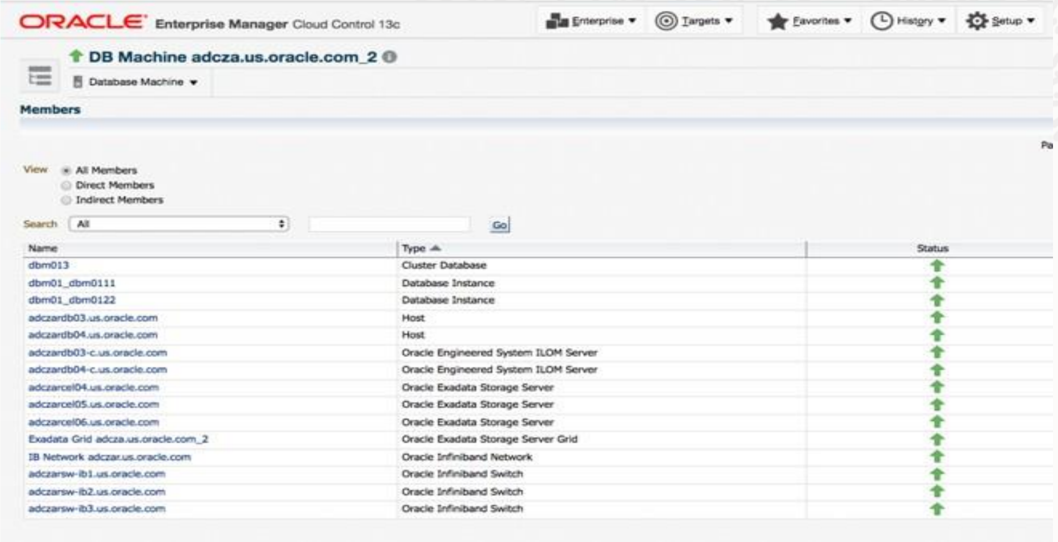
Overview and Architecture

Oracle Enterprise Manager Cloud Control provides an integrated monitoring solution for the various layers of Exadata Cloud Service. The end users have access to select components of the service such as the databases, hosts, and ASM. The hardware components like physical servers and network interfaces are monitored and managed by Oracle.

1 Introduction to Monitoring Exadata Cloud Service
Features
Supported Operating Systems

Oracle Enterprise Manager For Exadata Cloud Console Prints sample


Sun
ORACLE
Edit
Temperature
EXADATA
adczarsw-ib3
adczarsw-kvm
adczarsw-adm01
adczarsw-ib2
adczardb04
adczardb03
DATABASE MACHINE
adczarcel06
adczarcel05
adczarcel04
Rack 1
Legend
Up
Down
Blackout
Exadata Cell
Compute Node
Infiniband Switch
Ethernet Switch
Keyboard-Video-Mouse
Unallocated


ORACLE Enterprise Manager Cloud Control 13c
Enterprise
Targets
Favorites
History
Setup
Database Machine

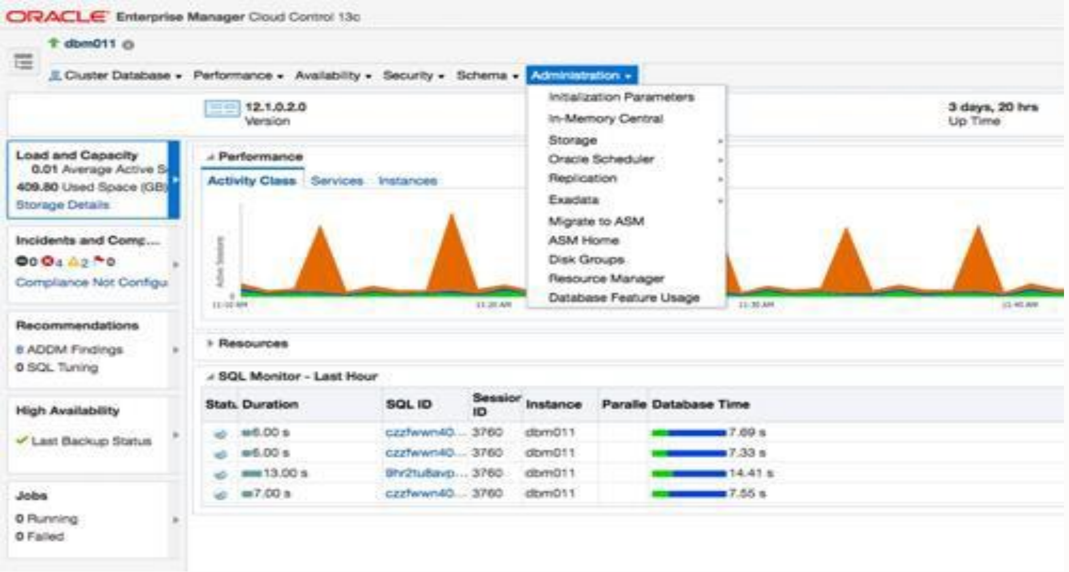
DB Machine adcza.us.oracle.com_2

Members

View
● All Members
○ Direct Members
○ Indirect Members

Search: All ☐ Go

Name	Type	Status
dbm013	Cluster Database	↑
dbm01_dbm0111	Database Instance	↑
dbm01_dbm0122	Database Instance	↑
adczardb03.us.oracle.com	Host	↑
adczardb04.us.oracle.com	Host	↑
adczardb03-c.us.oracle.com	Oracle Engineered System ILOM Server	↑
adczardb04-c.us.oracle.com	Oracle Engineered System ILOM Server	↑
adczarcel04.us.oracle.com	Oracle Exadata Storage Server	↑
adczarcel05.us.oracle.com	Oracle Exadata Storage Server	↑
adczarcel06.us.oracle.com	Oracle Exadata Storage Server	↑
Exadata Grid adcza.us.oracle.com_2	Oracle Exadata Storage Server Grid	↑
IB Network adczar.us.oracle.com	Oracle Infiniband Network	↑
adczarsw-ib1.us.oracle.com	Oracle Infiniband Switch	↑
adczarsw-ib2.us.oracle.com	Oracle Infiniband Switch	↑
adczarsw-ib3.us.oracle.com	Oracle Infiniband Switch	↑


ORACLE Enterprise Manager Cloud Control 13c
dbm011
Cluster Database
Performance
Availability
Security
Schema
Administration
Initialization Parameters
In-Memory Central
Storage
Oracle Scheduler
Replication
Exadata
Migrate to ASM
ASM Home
Disk Groups
Resource Manager
Database Feature Usage
Performance
Activity Class
Services
Instances
Resources
Storage Details
Compliance Not Configu

12.1.0.2.0 Version

3 days, 20 hrs Up Time

Load and Capacity
0.01 Average Active S
409.80 Used Space (GB)

Incidents and Comp...
0 4 2 0

Recommendations
8 ADDM Findings
0 SQL Tuning

High Availability
✓ Last Backup Status

Jobs
0 Running
0 Failed

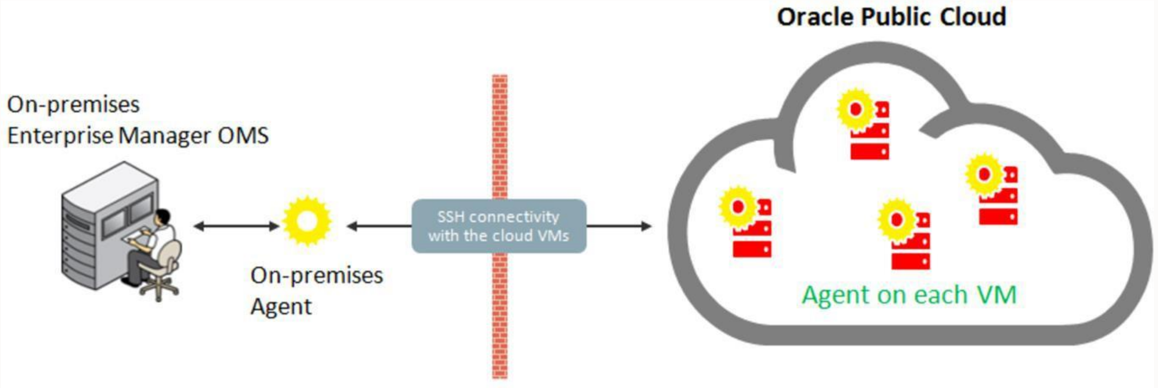
SQL Monitor - Last Hour

Stat.	Duration	SQL ID	Session ID	Instance	Paralle	Database Time
	6.00 s	czzfwwn40...	3760	dbm011		7.69 s
	6.00 s	czzfwwn40...	3760	dbm011		7.33 s
	13.00 s	9hr2tu8avp...	3760	dbm011		14.41 s
	7.00 s	czzfwwn40...	3760	dbm011		7.55 s

Oracle Enterprise Manager agents for Exadata C@C

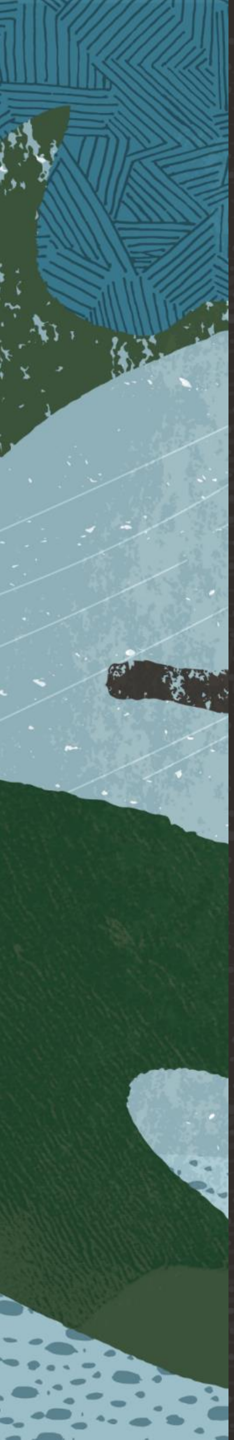
The **EM** Agent is deployed and configured for Exadata through the following process:

- Identify deployment model
- Complete deployment pre-installation tasks
- Create named credentials
- Deploy agents
- Discover Cluster
- Discover ASM, Database, and Listener
- Discover Exadata Cloud Infrastructure


Oracle Public Cloud
On-premises
Enterprise Manager OMS
On-premises
Agent
SSH connectivity
with the cloud VMs
Agent on each VM

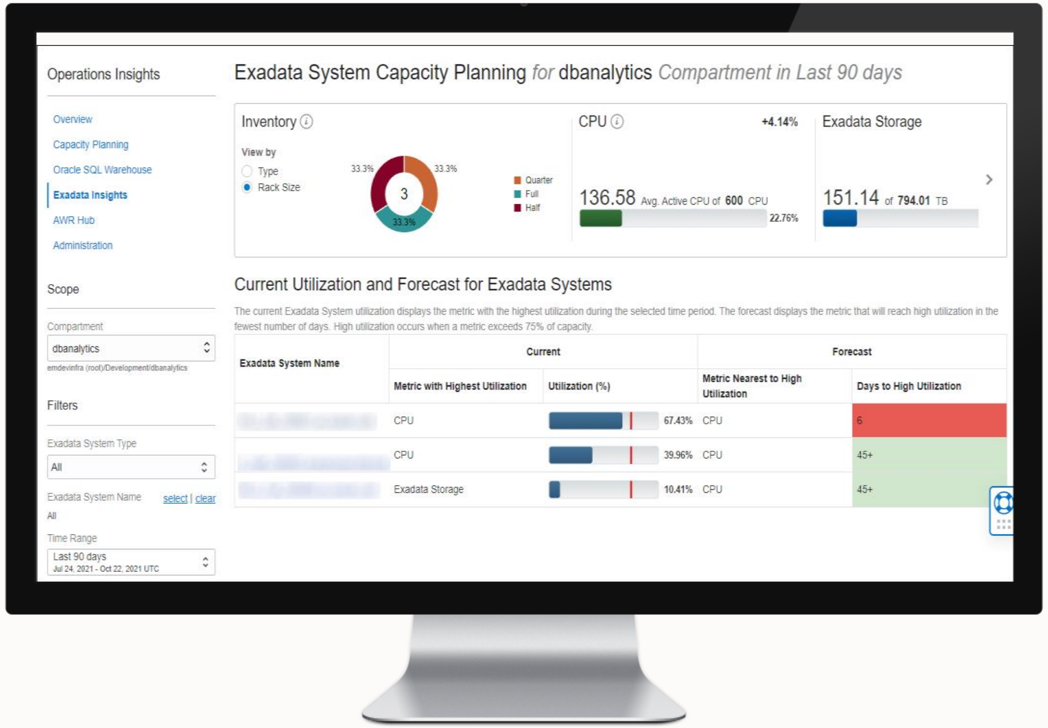
There are two deployment models EM agents for Exadata Cloud:

- Standard agents for Exadata Cloud at Customer and Exadata Cloud Service with VPN
- Hybrid Cloud Agents for Exadata Cloud at Customer without V



Exadata Operations Inside

Performance diagnostics, monitoring capabilities for Exadata Cloud


Operations Insights
Overview
Capacity Planning
Oracle SQL Warehouse
Exadata Insights
AWR Hub
Administration
Inventory ⓘ
View by
○ Type
● Rack Size
33.3%
33.3%
3
33.3%
Quarter
Full
Half
CPU ⓘ
+4.14%
136.58 Avg. Active CPU of 600 CPU
22.76%
Exadata Storage
151.14 of 794.01 TB
›

Exadata System Capacity Planning *for* dbanalytics *Compartment in Last 90 days*

Current Utilization and Forecast for Exadata Systems

The current Exadata System utilization displays the metric with the highest utilization during the selected time period. The forecast displays the metric that will reach high utilization in the fewest number of days. High utilization occurs when a metric exceeds 75% of capacity.

Exadata System Name	Current		Forecast	
	Metric with Highest Utilization	Utilization (%)	Metric Nearest to High Utilization	Days to High Utilization
[redacted]	CPU	67.43%	CPU	6
[redacted]	CPU	39.96%	CPU	45+
[redacted]	Exadata Storage	10.41%	CPU	45+

Scope

Compartment: dbanalytics
emdevinfra (root)/Development/dbanalytics

Filters

Exadata System Type: All

Exadata System Name: All

Time Range: Last 90 days
Jul 24, 2021 - Oct 22, 2021 UTC

select | clear

Capacity planning

- Analyze and forecast database resource usage based on long-term historical data
- Optimize cost of operations by identifying over- and under-utilized servers

SQL trend analysis

- Long term performance and trend analysis of Oracle Databases with SQL warehouse
- Proactively identify and mitigate SQL issues
- Find common patterns in SQL behavior across databases and applications

ExaC@C Auditing

Oracle Database **Privilege Analysis** | DBMS_PRIVILEGE_CAPTURE

Basically, there are six steps that must to be completed to enable this feature :

- dbms_privilege_capure.create_capture ('');
- dbms_privilege_capture.enable_capture('');
- dbms_privilege_capture.generate_result('');
- dbms_privilege_capture.disable_capture('');
- dbms_privilege_capture.enable_capture('');
- dbms_privilege_capture.drop_capture('');

“Database privilege analysis enables you to create a policy that records the usage of system and object privileges that have been granted to users. You then can determine the privileges that your users are using and not using. “

You can get capture results on :

PRIV_TEST_USER
DBA_USED_PRIVS
DBA_USED_PUBPRIVS
DBA_USED_SYSPRIVS...

“If you are configuring this feature for **Oracle 19c database version** and later, this feature is **already included on Enterprise Edition and there is no extra cost** to the customer.
For all other versions, customer most to have audit vault licensing (Ex. 12c,18c..)”

Introducing OCI Oracle Data Safe

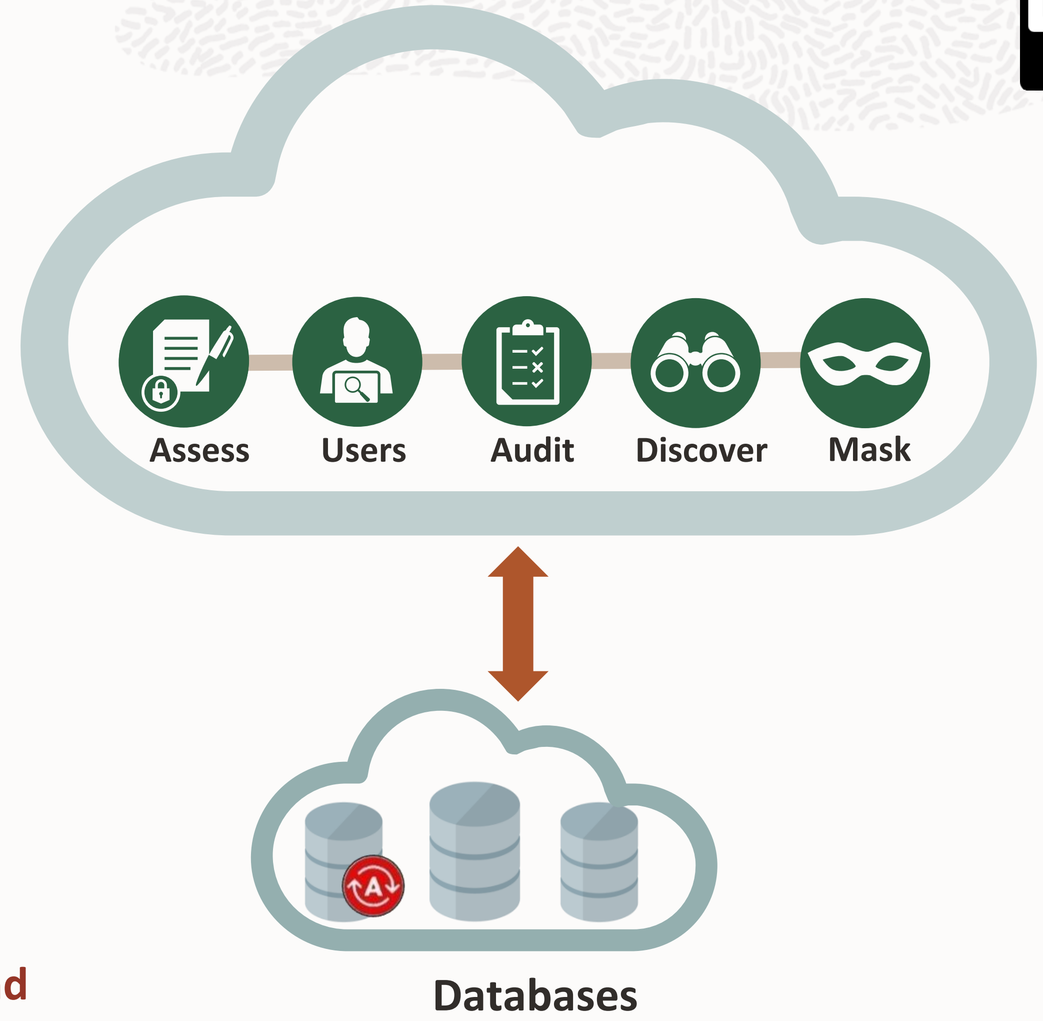
Unified database security control center

- Risk dashboard: configuration, data, users
- Monitor user activity
- Mask data for test
- Extensible - more features to come…

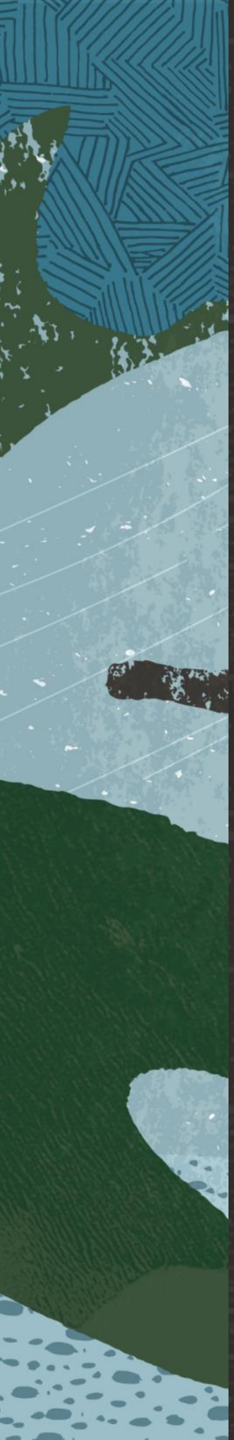
Benefits

- No special expertise needed: click-and-secure
- Saves time and mitigates security risks
- Defense-in-depth security for all customers

Available for securing ALL Oracle Databases, on-premises and in the cloud



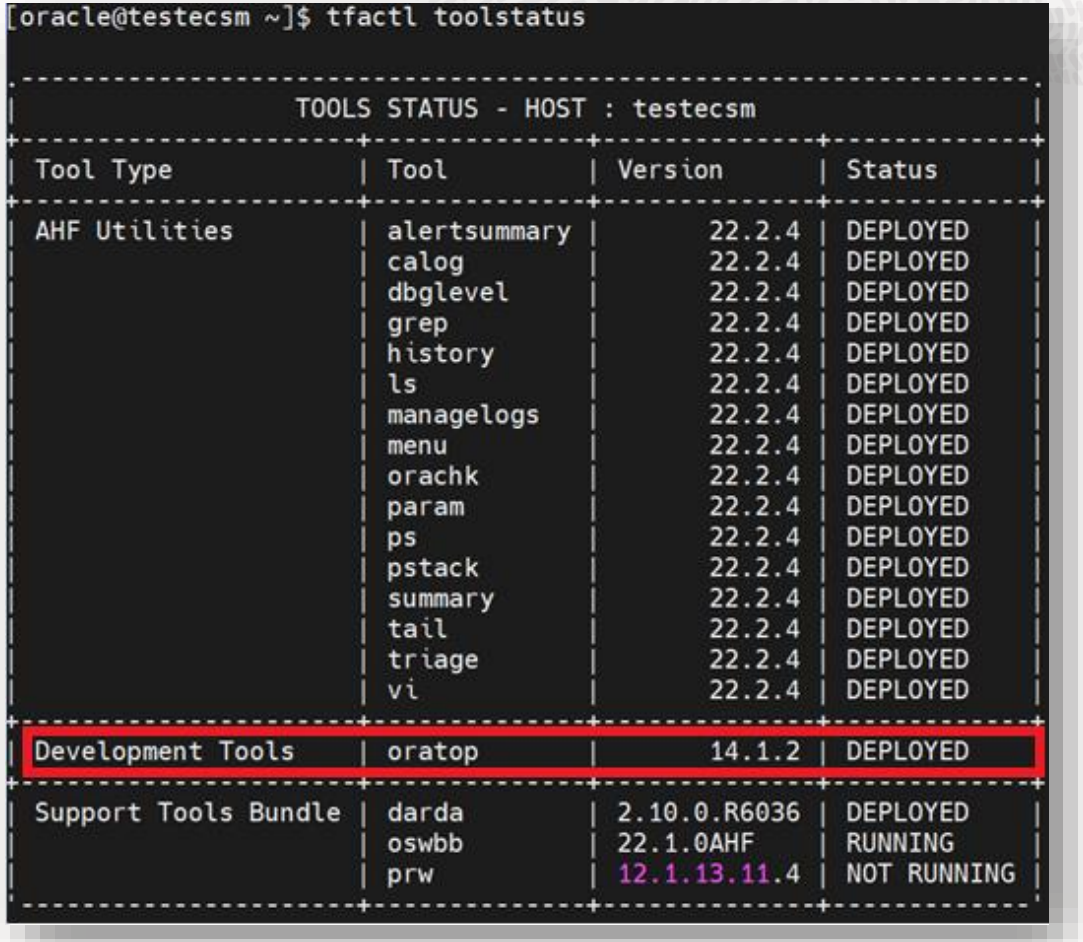
SCAN ME



Using TFA *Oratop*

Exadata Cloud at Customer - Oratop onTFA

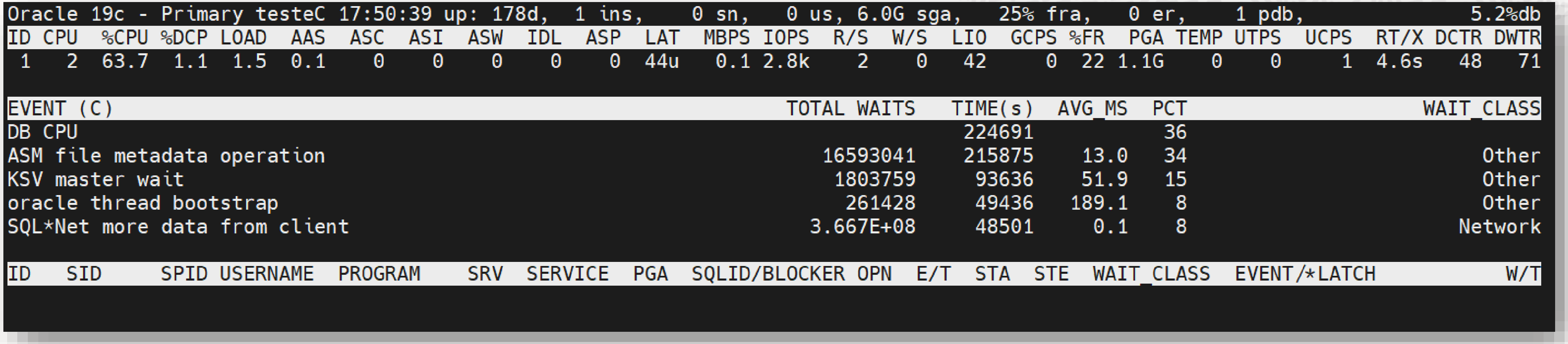
$ tfactl toolstatus



```
[oracle@testecsm ~]$ tfactl toolstatus

.------------------------------------------------------------------.
|                  TOOLS STATUS - HOST : testecsm                  |
+----------------------+--------------+--------------+-------------+
| Tool Type            | Tool         | Version      | Status      |
+----------------------+--------------+--------------+-------------+
| AHF Utilities        | alertsummary |       22.2.4 | DEPLOYED    |
|                      | calog        |       22.2.4 | DEPLOYED    |
|                      | dbglevel     |       22.2.4 | DEPLOYED    |
|                      | grep         |       22.2.4 | DEPLOYED    |
|                      | history      |       22.2.4 | DEPLOYED    |
|                      | ls           |       22.2.4 | DEPLOYED    |
|                      | managelogs   |       22.2.4 | DEPLOYED    |
|                      | menu         |       22.2.4 | DEPLOYED    |
|                      | orachk       |       22.2.4 | DEPLOYED    |
|                      | param        |       22.2.4 | DEPLOYED    |
|                      | ps           |       22.2.4 | DEPLOYED    |
|                      | pstack       |       22.2.4 | DEPLOYED    |
|                      | summary      |       22.2.4 | DEPLOYED    |
|                      | tail         |       22.2.4 | DEPLOYED    |
|                      | triage       |       22.2.4 | DEPLOYED    |
|                      | vi           |       22.2.4 | DEPLOYED    |
+----------------------+--------------+--------------+-------------+
| Development Tools    | oratop       |       14.1.2 | DEPLOYED    |
+----------------------+--------------+--------------+-------------+
| Support Tools Bundle | darda        | 2.10.0.R6036 | DEPLOYED    |
|                      | oswbb        | 22.1.0AHF    | RUNNING     |
|                      | prw          | 12.1.13.11.4 | NOT RUNNING |
'----------------------+--------------+--------------+-------------'
```

$ tfactl oratop -database *database_name*



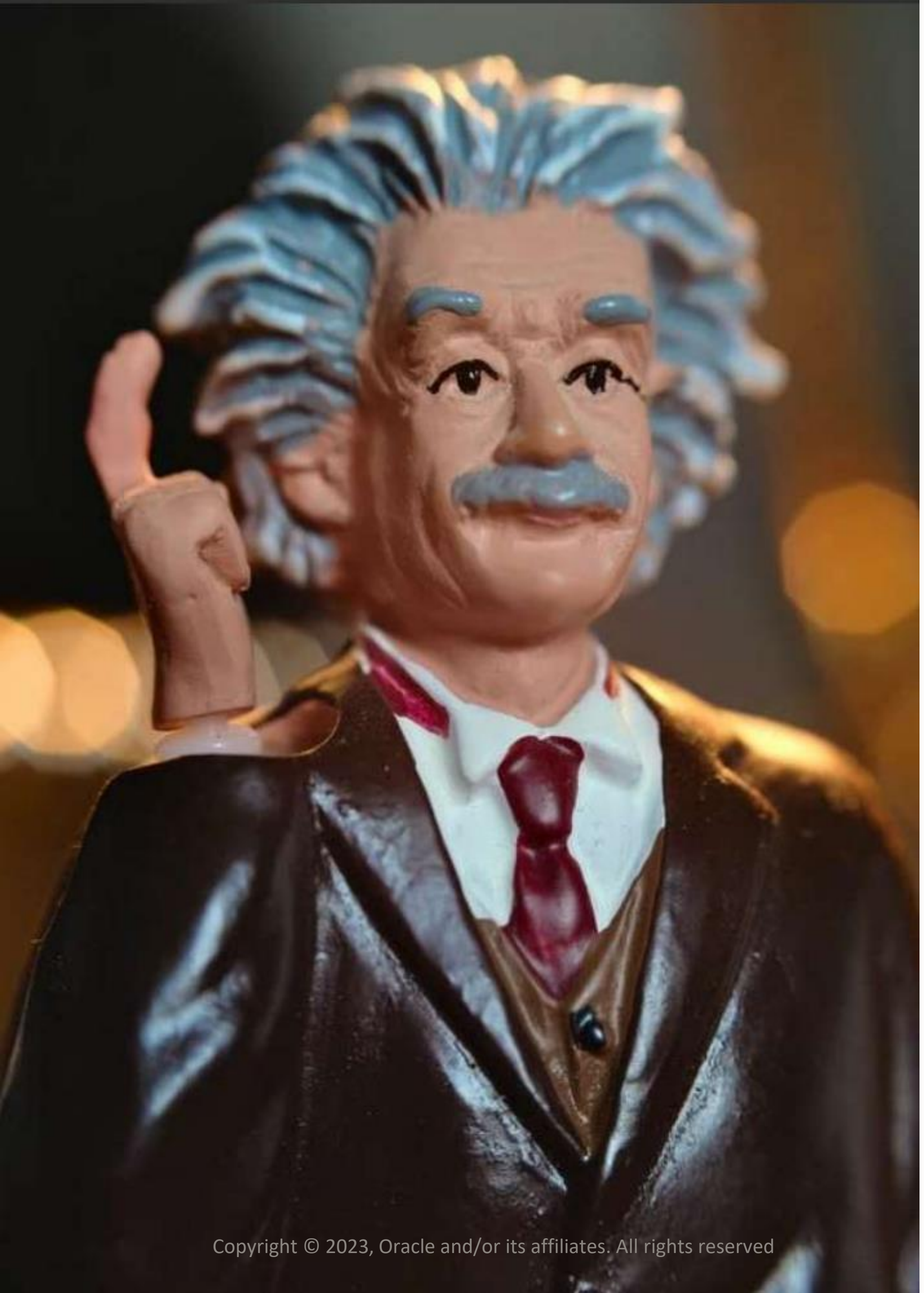
```
Oracle 19c - Primary testeC 17:50:39 up: 178d,   1 ins,    0 sn,    0 us, 6.0G sga,   25% fra,    0 er,     1 pdb,            5.2%db
ID CPU  %CPU %DCP LOAD  AAS  ASC  ASI  ASW  IDL  ASP  LAT  MBPS IOPS  R/S  W/S  LIO  GCPS %FR  PGA TEMP UTPS  UCPS  RT/X DCTR DWTR
 1   2  63.7  1.1  1.5  0.1    0    0    0    0    0  44u   0.1 2.8k    2    0   42     0  22 1.1G    0    0     1  4.6s   48   71

EVENT (C)                                                      TOTAL WAITS   TIME(s)  AVG_MS  PCT                    WAIT_CLASS
DB CPU                                                                        224691            36
ASM file metadata operation                                       16593041    215875    13.0  34                          Other
KSV master wait                                                    1803759     93636    51.9  15                          Other
oracle thread bootstrap                                             261428     49436   189.1   8                          Other
SQL*Net more data from client                                    3.667E+08     48501     0.1   8                        Network

ID   SID     SPID USERNAME  PROGRAM    SRV  SERVICE  PGA  SQLID/BLOCKER OPN  E/T  STA  STE  WAIT_CLASS  EVENT/*LATCH            W/T
```

-d Real-time (RT) wait events (section 3. Default is Cumulative..
-k FILE#:BLOCK#, section 4 It is (EVENT/LATCH).
-m Specify MODULE/ACTION (section 4). Default is SERNAME/PROGRAM.
-s Specify the SQL mode (section 4). Default is process mode.
-c Specify the Oracle Database service mode. Default is connect string.

-f Specify the detailed format (132 columns). Default is standard (80 columns).
-b Specify the batch mode. Default is text-based user interface.
-n Specify the maximum number of iterations.n
-i Specify the interval delay in seconds. Default is 5 seconds



Demo 1 – Data Safe Tour

Data Safe
in
OCI

- Registering Data Safe on ADB
- Configuring Report
- Generating Report for Test

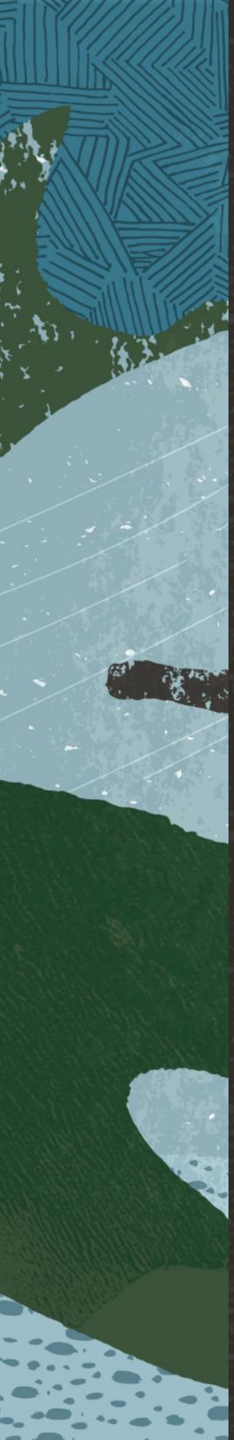
Demo 2 – Exadata Configuring OAC

ORACLE
Database
Cloud Service
Virtual
Machines

- Configuring OAC using OCI Console

Demo 3 – Oratop Tour

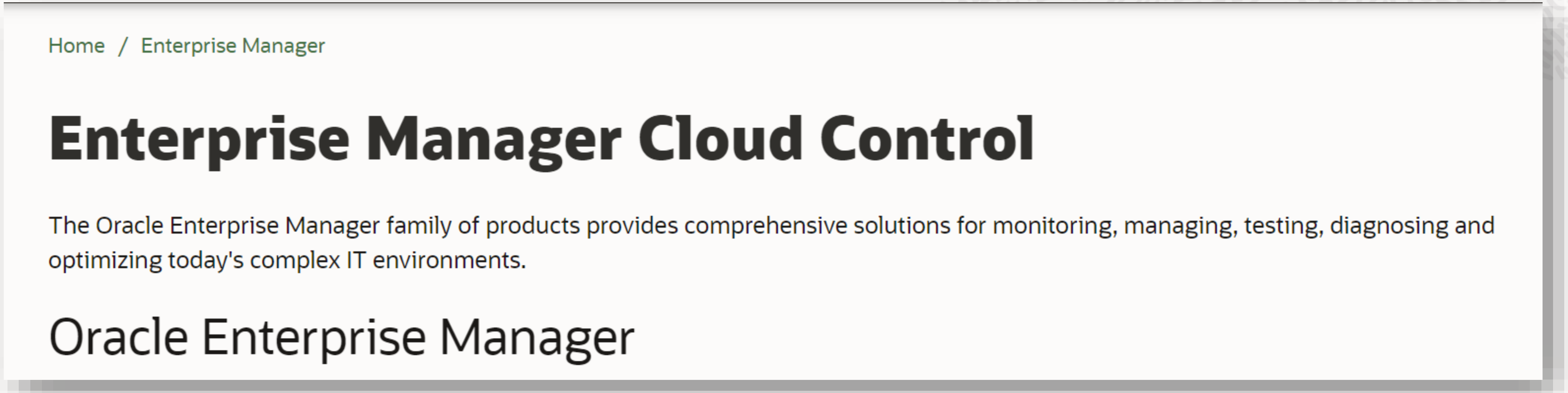
- Checking Oratop Version
- Monitoring Database queries



Resources

Oracle Enterprise Manager For Exadata Cloud

SCAN ME



Home / Enterprise Manager

Enterprise Manager Cloud Control

The Oracle Enterprise Manager family of products provides comprehensive solutions for monitoring, managing, testing, diagnosing and optimizing today's complex IT environments.

Oracle Enterprise Manager

Get Started

- Understand Enterprise Manager concepts
- Enterprise Manager Monitoring
- See the complete suite of management solutions
- Explore Enterprise Manager on Cloud Marketplace
  Related Blog
- Enterprise Manager Training and Certification

Release-specific Technical Information

- *Latest* **Enterprise Manager Cloud Control 13.5** Documentation Set and Other Resources
- Enterprise Manager Cloud Control 13.4 Documentation Set and Other Resources
- Enterprise Manager Cloud Control Documentation Set 13.3
- Enterprise Manager Cloud Control Documentation Set 13.2
- Earlier Versions of Enterprise Manager Documentation

Manage the Oracle Database

- Blog: Introducing Oracle Enterprise Manager 13c Release 5
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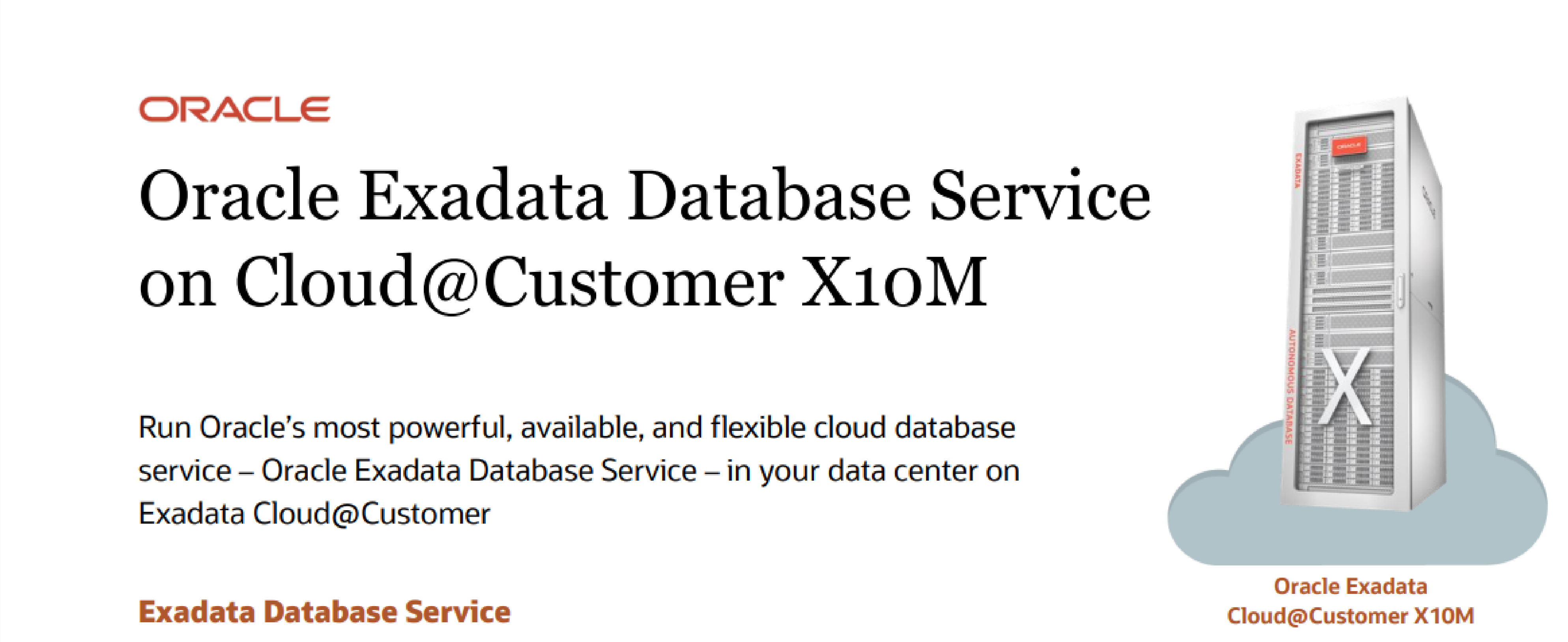

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Exadata Database Service

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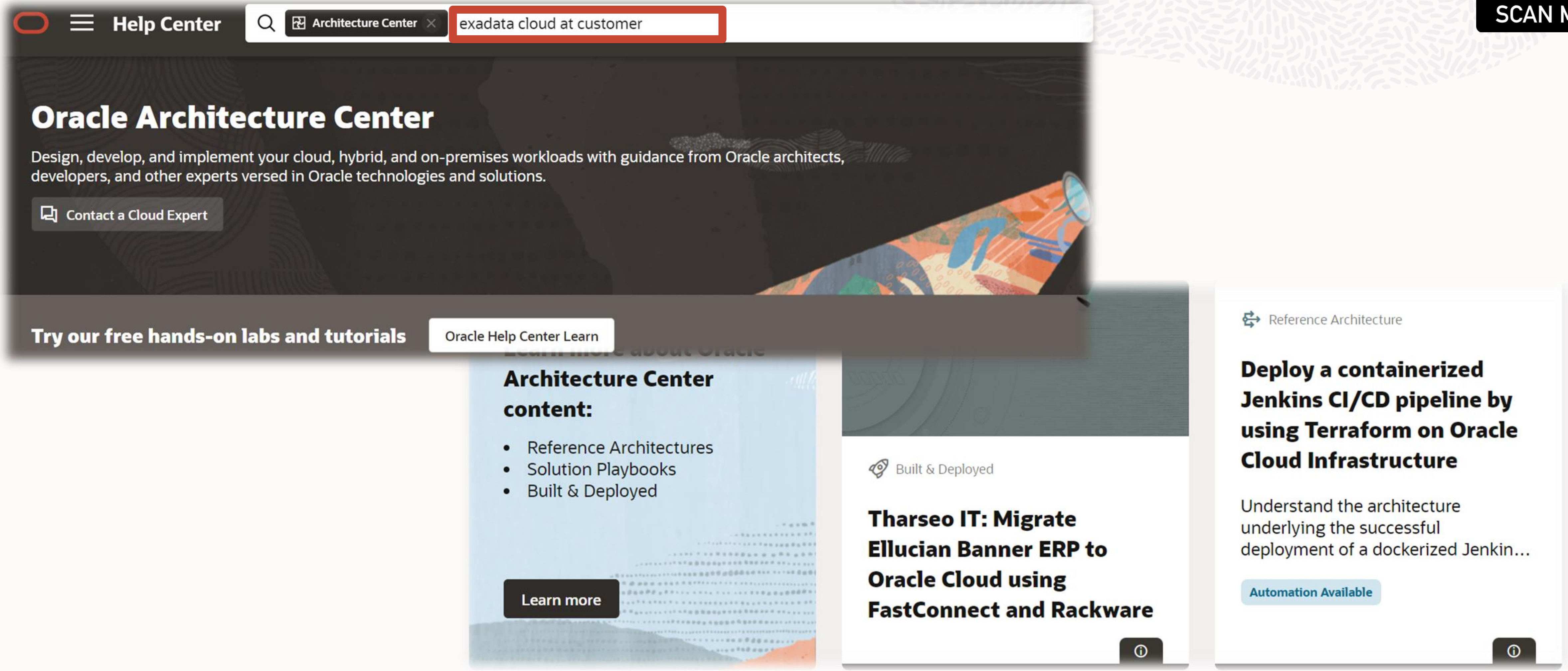
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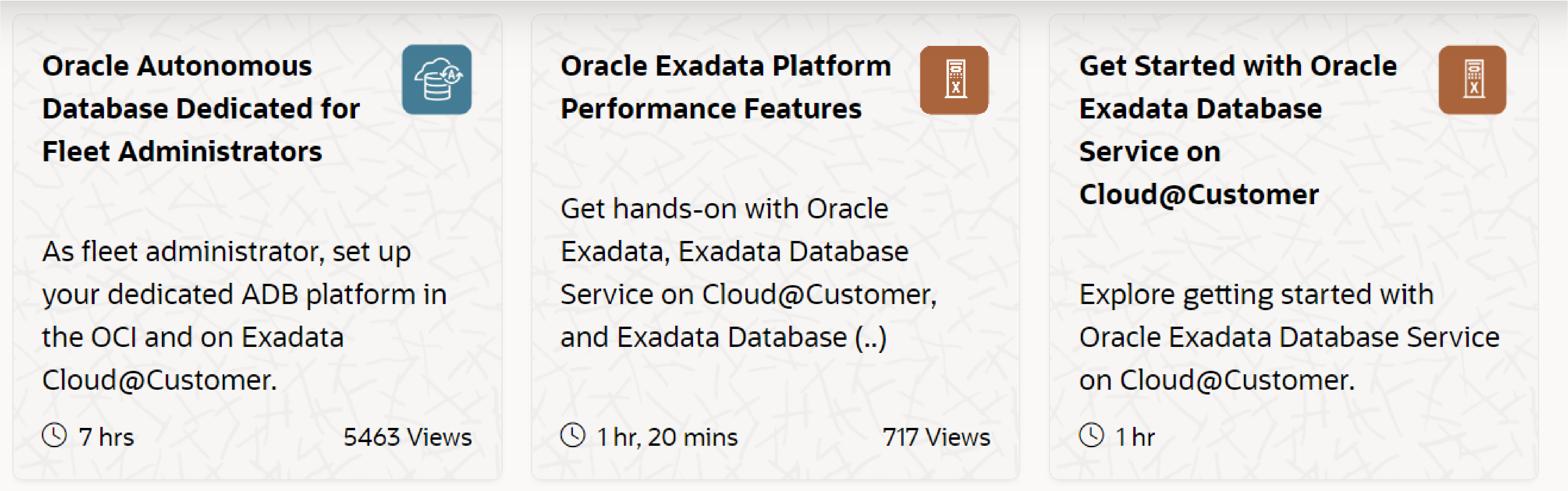

Oracle Autonomous Database Dedicated for Fleet Administrators

As fleet administrator, set up your dedicated ADB platform in the OCI and on Exadata Cloud@Customer.

🕓 7 hrs 5463 Views

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Thank You ☺

Questions / Feedback / Training Suggestions

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