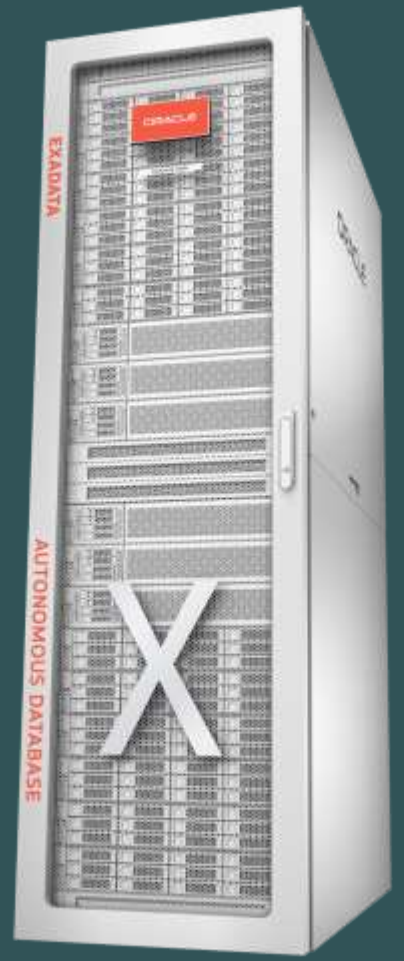
ORACLE

Exadata Database Machine X10M

Understanding Product concepts, Price List, Support and Features



Marcel Lamarca
Exadata Cloud Specialist
Oracle, Alliances and Channels LAD
February, 2024

SQL> select * from person where name = 'Marcel Lamarca'

SCAN ME

MARCEL LAMARCA

Exadata Cloud Specialist

Upgrade, Utilities, Patching, Performance & Migrations

marcel-lamarca

marcel.lamarca@oracle.com

About My Career

- 22 Years dedicated to study and support Oracle Databases.
- 12 Years working with Exadata (On-prem, C@C and Cloud Services) .
- 5 Year working for Oracle do Brasil
- 2 Year on Alliances LAD knowledge Team

Certifications

Oracle Cloud Specialist (OCS)

- Exadata Database Machine X9M Certified Specialist
- OCI Foundation 2020 / 2023
- Oracle Autonomous Database Administrator 2019
- Oracle Cloud Database Migration and Integration 2021
- OCI Cloud Certified Architect Associate 2022
- OCI Cloud Certified Architect Professional 2022
- OCI Multi-Cloud Architect Professional 2023
- Oracle Database Services Certified Professional 2023

Oracle Certified Professional (OCP)

- Oracle Database certified professional 10g, 11g, 12c and 19c.
- Mysql 8.0 Database Administrator Certified Professional

Oracle Certified Specialist (OCE)

- Grid/RAC Database Administrator 11g
- Oracle Golden Gate 12c Certified Implementation Specialist

Agenda

1. Exadata Database Machine X10M Basic concepts
2. Exadata Capacity on-demand and Trusted Partition
3. Oracle Database Machine Price List, Support and Features
4. Resources

Exadata runs everywhere

Identicality across deployments improves IT agility and reduces costs

On-premises	Public Cloud	Hybrid Cloud	Multicloud
			
Exadata Database Machine	Exadata in Oracle Cloud Infrastructure (OCI)	Exadata Cloud@Customer	Exadata through Oracle Database Service for Azure

Exadata Database Machine Concepts

Exadata Unique Cloud-Scale Database-Optimized Architecture

Unique Next Generation RAC Scale-Out for Any Workload

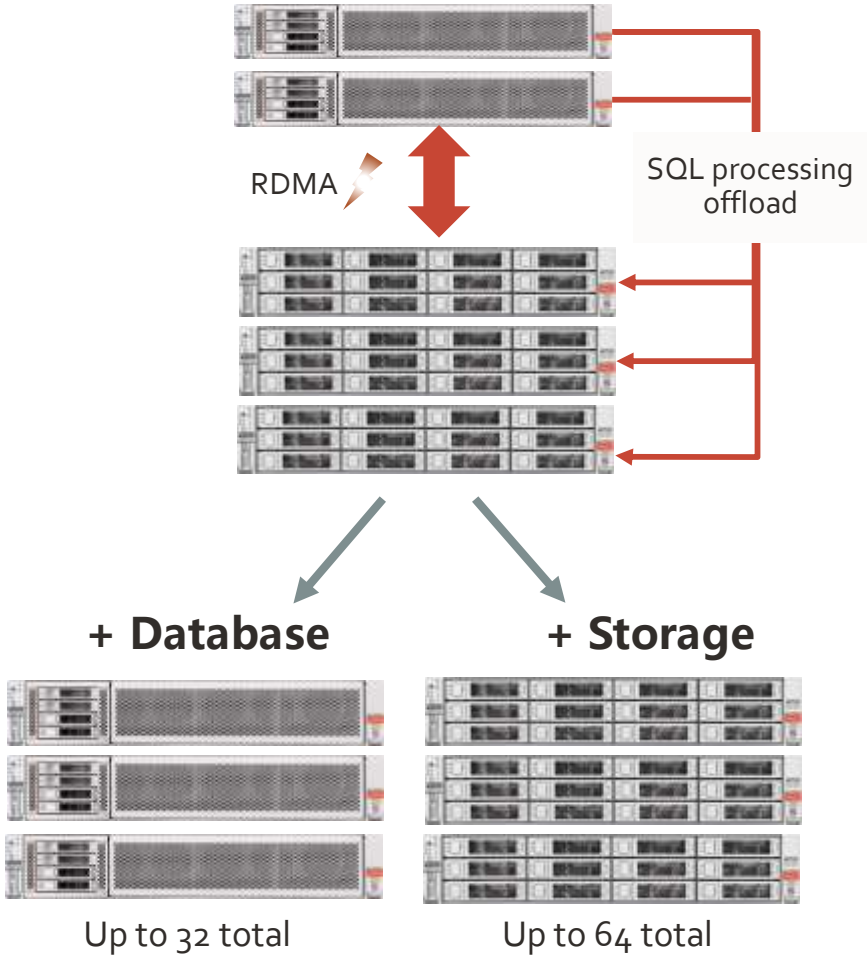
- Application-transparent database scalability & availability

Start small with minimum size High Availability configuration

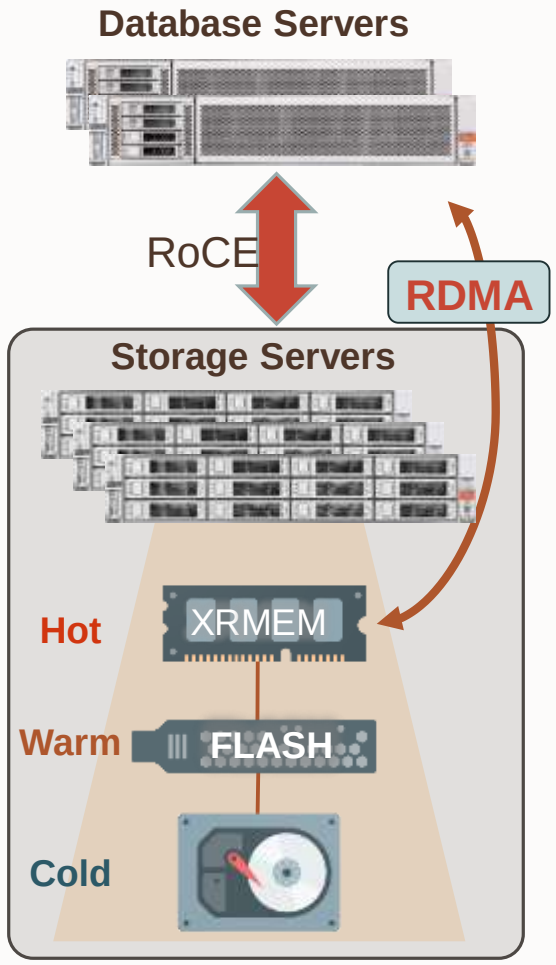
- 2 Compute Servers, 3 Storage Servers
- Dedicated to you – no noisy or malicious neighbors

Add individual Database or Storage servers as needed

Expansion happens **fully online**



Exadata architecture – scale out with intelligent storage



Scale-out system architecture and software

- Independent, online scaling of database and storage servers
- Scales from 2 to 210 Exadata X10M database servers
- Scales from 3 to 264 Exadata X10M storage servers
- Redundancy with fast failover provides high availability

Database uses RDMA instead of I/O to read XRMEM in Smart Storage

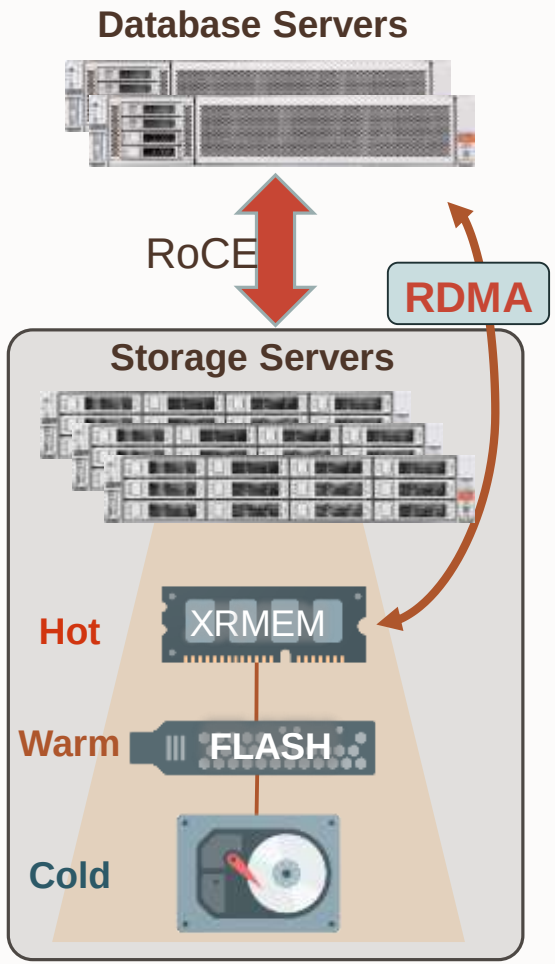
- Bypasses network and I/O software, interrupts, context switches
- Data is transparently managed in multiple storage tiers to minimize latency
- High-performance active-active 100 Gbit/s internal network maximize throughput
- Speeds up both database reads and commits

Database cluster virtualization

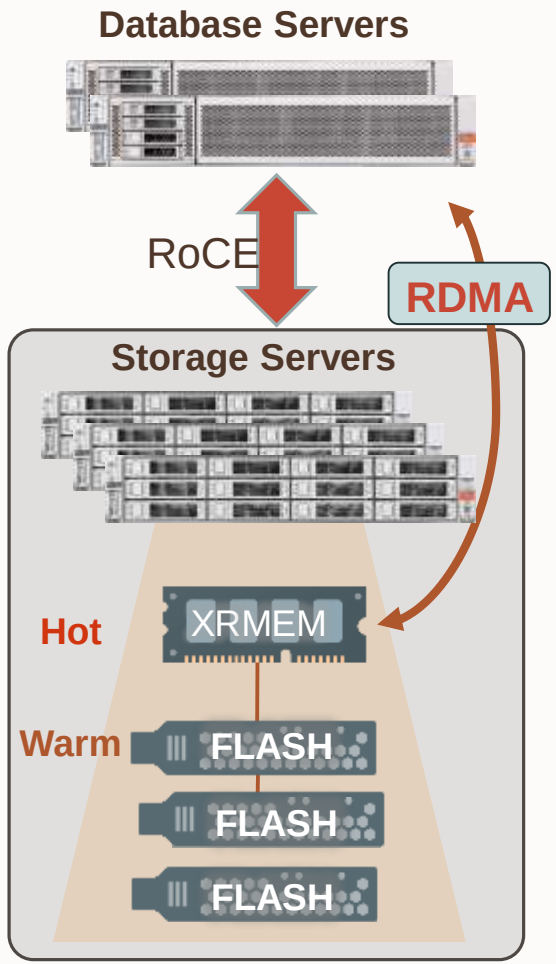
- Deploy environments with different needs on the same system
  - Dev-Test, Staging Production, DR
  - OLTP, Analytics, Mixed Workloads
- Share and manage pools of resources to increase efficiency and lower costs
- Isolate resources to meet differing security and predictability requirements

Exadata architecture and Storage options

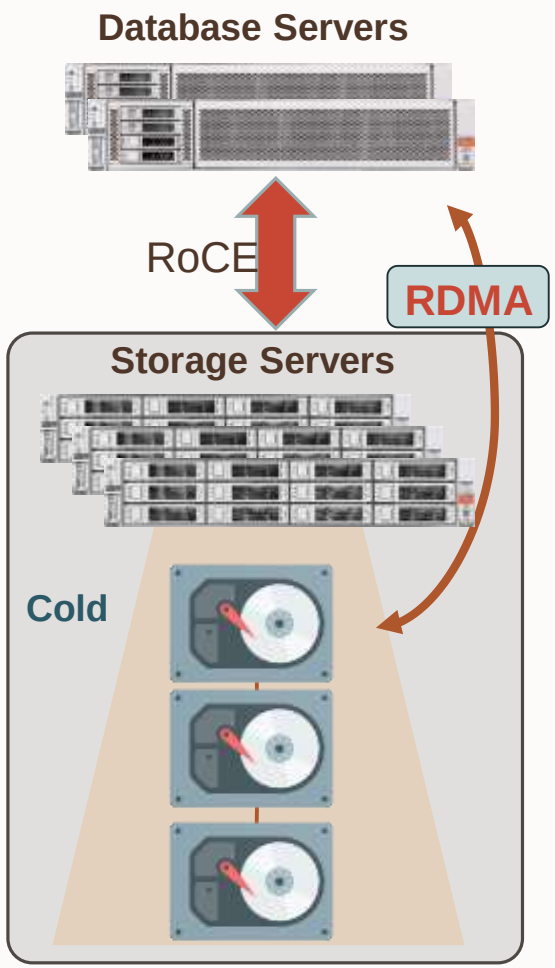
High-Capacvity (HC) Storage



Extreme Flash (EF) Storage



Extended (XT) Storage



Exadata X10M Storage Types HC, EF and XT

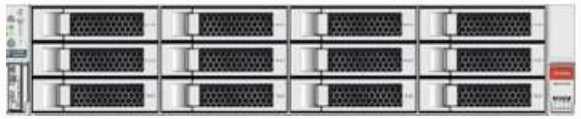
High-Capacvity (HC) Storage

CPU
- 2 x 32-core AMD EPYC™ 9334 processors 2.7 GHz (up to 3.9 GHz)

Disk
- 12 x 22 TB 7,200 RPM disks

Memory
- 256 GB
- 1.25 TB **XRMEM (PMEM)**
- 4 x 6.8 TB NVMe PCIe4.0 **(FLASH)**

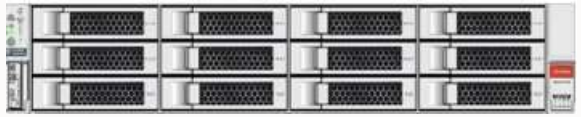
Extreme Flash (EF) Storage



CPU
- 2 x 32-core AMD EPYC™ 9334 processors 2.7 GHz (up to 3.9 GHz)

Memory
- 256 GB
- 1.25 TB XRMEM **(PMEM)**
- 4 x 6.8 TB NVMe PCIe4.0 **(FLASH)**
- 4 x 30.72 TB NVMe PCIe4.0 **(FLASH)**

Extended (XT) Storage



CPU
- 1 x 32-core AMD EPYC™ 9334 processors 2.7 GHz (up to 3.9 GHz)

Memory
- 128 GB

Disk
- 12 x 22 TB 7,200 RPM disks

Exadata Database Machine X10M Shapes

Quarter Rack – X10M

Total Capacity

DB Servers — 380 Cores – 1,024 GB Memory
Storage Servers — 192 TB Usable DB Storage

NEW SHAPE

Quarter Rack – X10M - L

380 Cores – **4,180 GB Memory**
192 TB Usable DB Storage

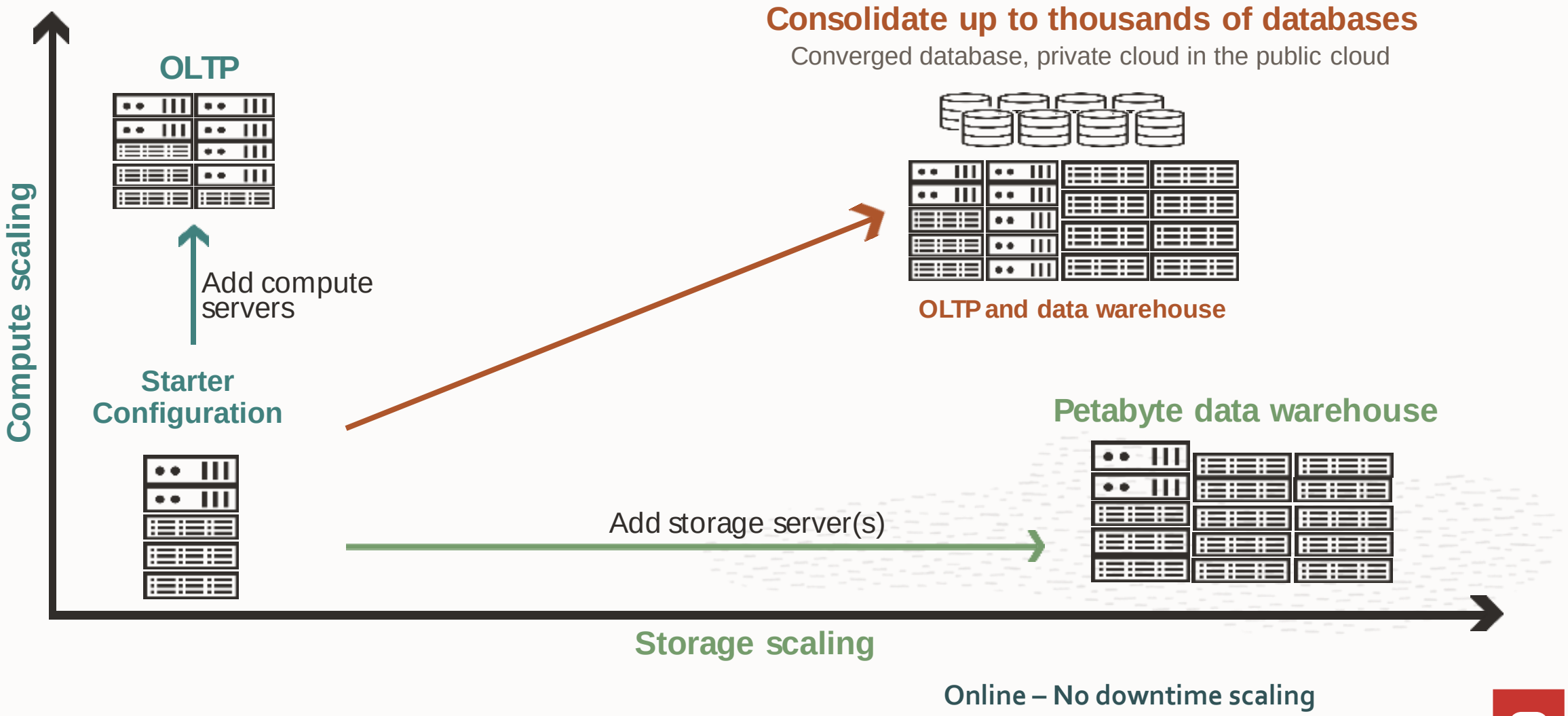
NEW SHAPE

Quarter Rack X10M-XL

380 Cores – **5,600 GB Memory**
192 TB Usable DB Storage

There are no Half and Full rack shapes.
Expand Quarter Racks using Expansion Servers.

Easily right-size your service by adding compute and storage as needed



What is a Exadata Storage Server Software?

SCAN ME

Oracle Exadata Storage Server is a highly optimized storage server that runs Oracle Exadata System Software to store and access Oracle Database data.

Oracle Exadata System Software provides database-aware storage services, such as the ability to offload SQL and other database processing from the database server, while remaining transparent to the SQL processing and database applications. Oracle Exadata Storage Servers process data at the storage level, and pass only what is needed to the database server.

Do not confuse Exadata S[illegible] Software…

With O[illegible]cle Databa[illegible] Software……

They are not the [illegible]g!

Exadata Database Machine User Guide

Exadata Database Machine Licensing User Guide

SCAN ME

- **Capacity-on-demand (CoD)** refers to an Exadata database server that is installed with a subset of its cores turned off so that the database software license cost can be reduced.

- **Oracle Trusted Partitions for Oracle Exadata** . That means any Oracle software running in a VM only needs to be licensed for the number of cores assigned to that VM, subject to a minimum core requirement equal to Capacity on Demand.

- **Third-Party Product Licenses**

Exadata Capacity On-Demand

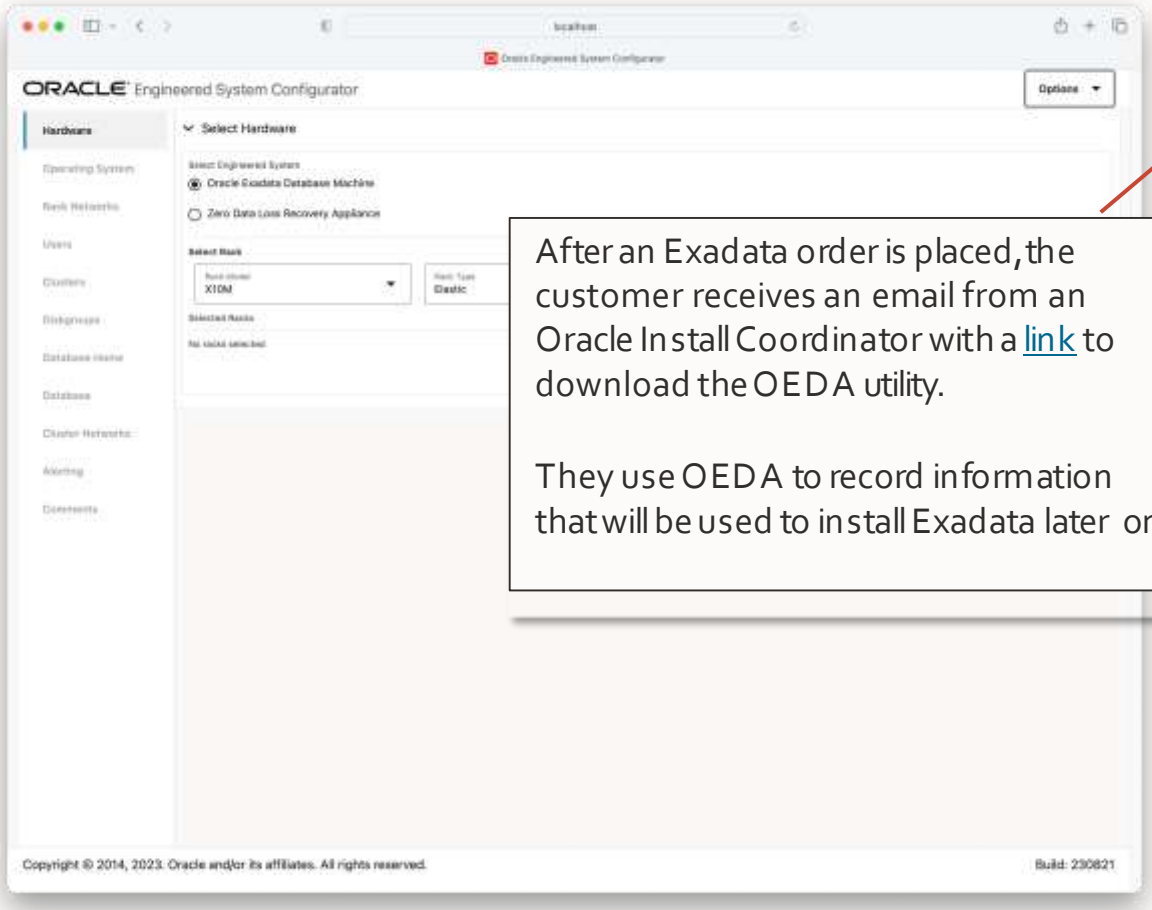
Exadata Capacity on Demand Definition (CoD)

SCAN ME

"Capacity-on-Demand (CoD) refers to an Exadata database server that is installed with a subset of its cores turned off so that the database software license cost can be reduced.

Additional cores are subsequently enabled and licensed as needed. Once turned on a core may **not be turned off.**"

Oracle Database Deployment Assistant (OEDA)



After an Exadata order is placed, the customer receives an email from an Oracle Install Coordinator with a link to download the OEDA utility.

They use OEDA to record information that will be used to install Exadata later on.

Hello <customer name>,

Thank you for your recent Exadata Database Machine order. You are listed as the contact for coordinating the delivery and installation of the machine. I am the Install Coordinator and will be working with you over the next few weeks on the delivery and deployment of your machine.

I would like to schedule a call with you to review the next steps. Please let me know your availability. If you are not the correct contact, please let me know who would be the right person with whom I should work.

In preparation for our meeting, please download

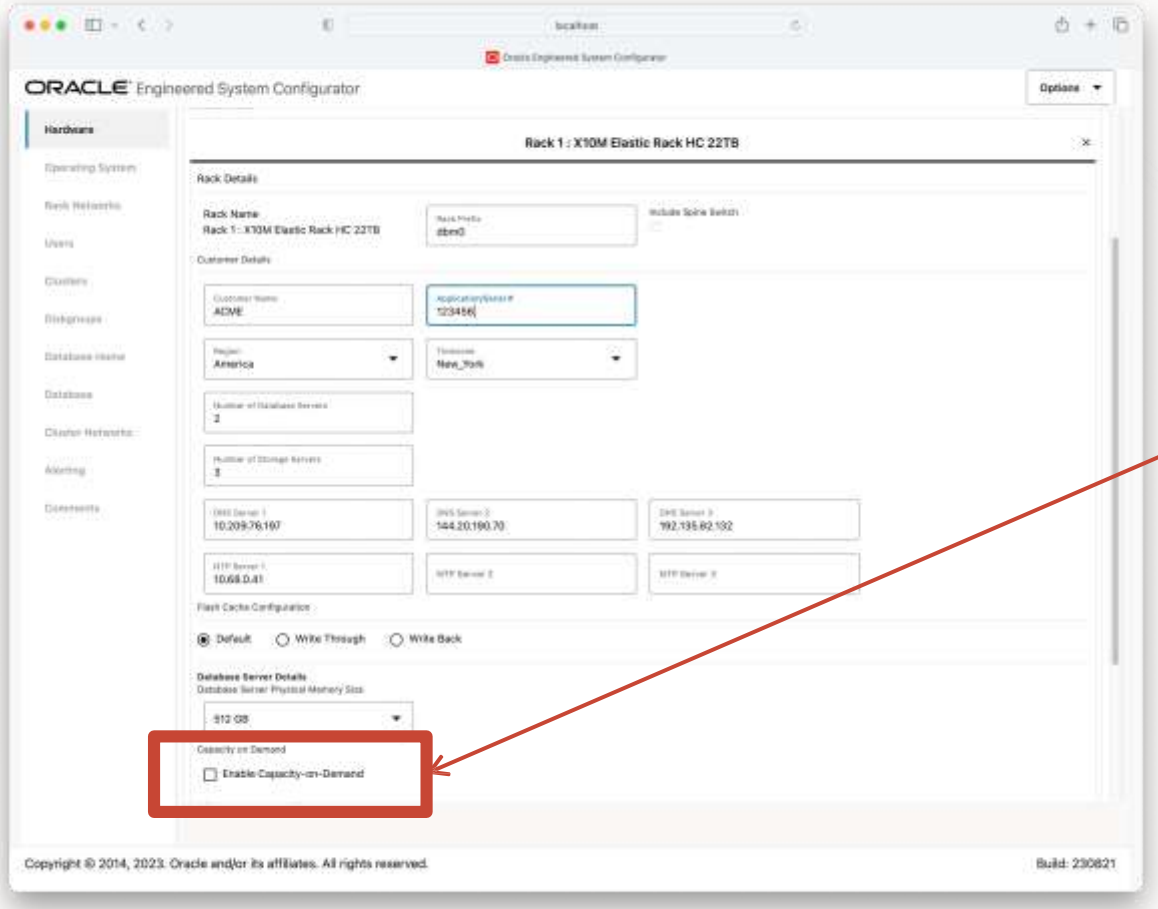
1. Oracle Exadata Deployment Assistant (OEDA) from OTN - This is a Java tool used to gather the information needed to deploy the Exadata Database Machine.
2. Exadata documentation from My Oracle Support - Patch 10386736.

I've attached a document that briefly describes how to use the OEDA tool. Also attached is a logistics template which captures logistics information for your site. Please fill it out and return it back to me.

Thanks and best regards,

<IC email signature>

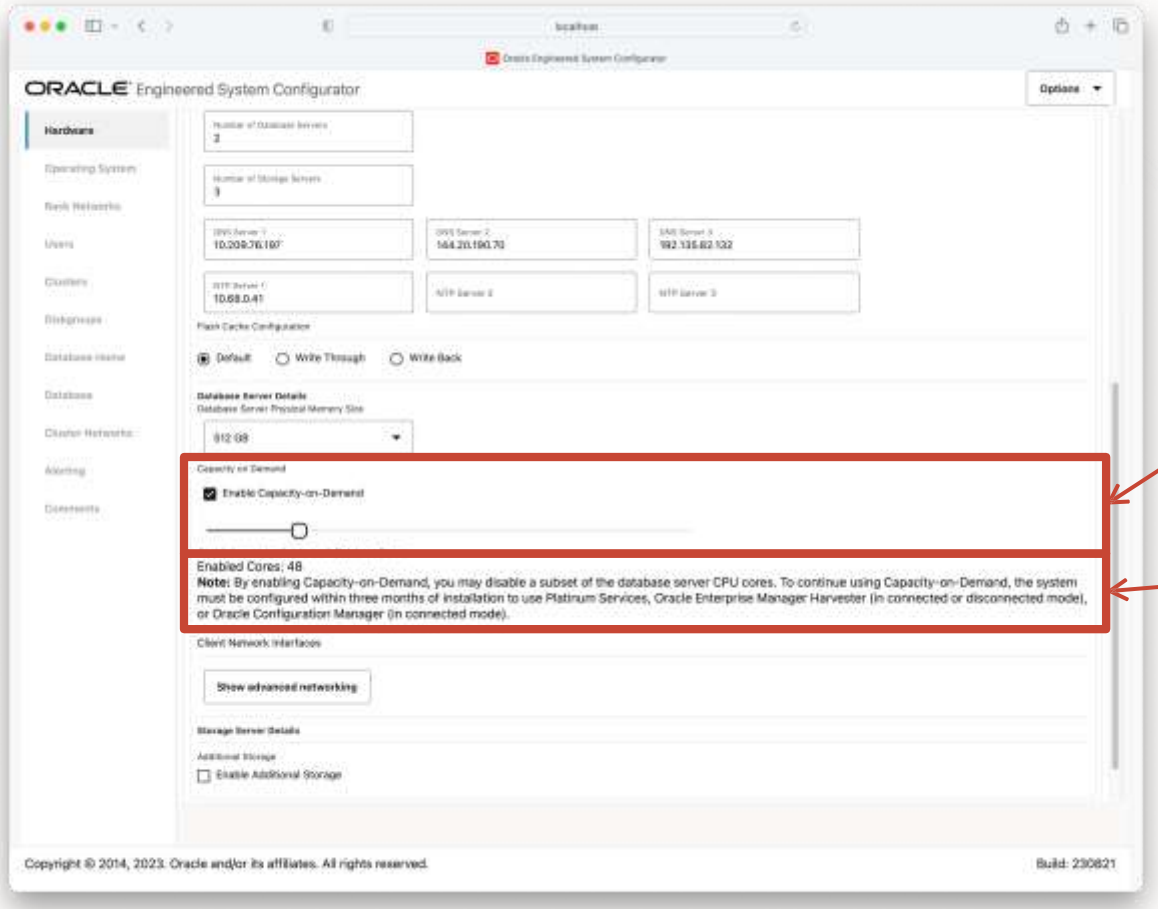
Oracle Database Deployment Assistant (OEDA)



After entering rack details, OEDA asks for information related to the compute nodes (db servers). This is where Cores are disabled for Capacity-On-Demand.

Customer checks this box to enable CoD.

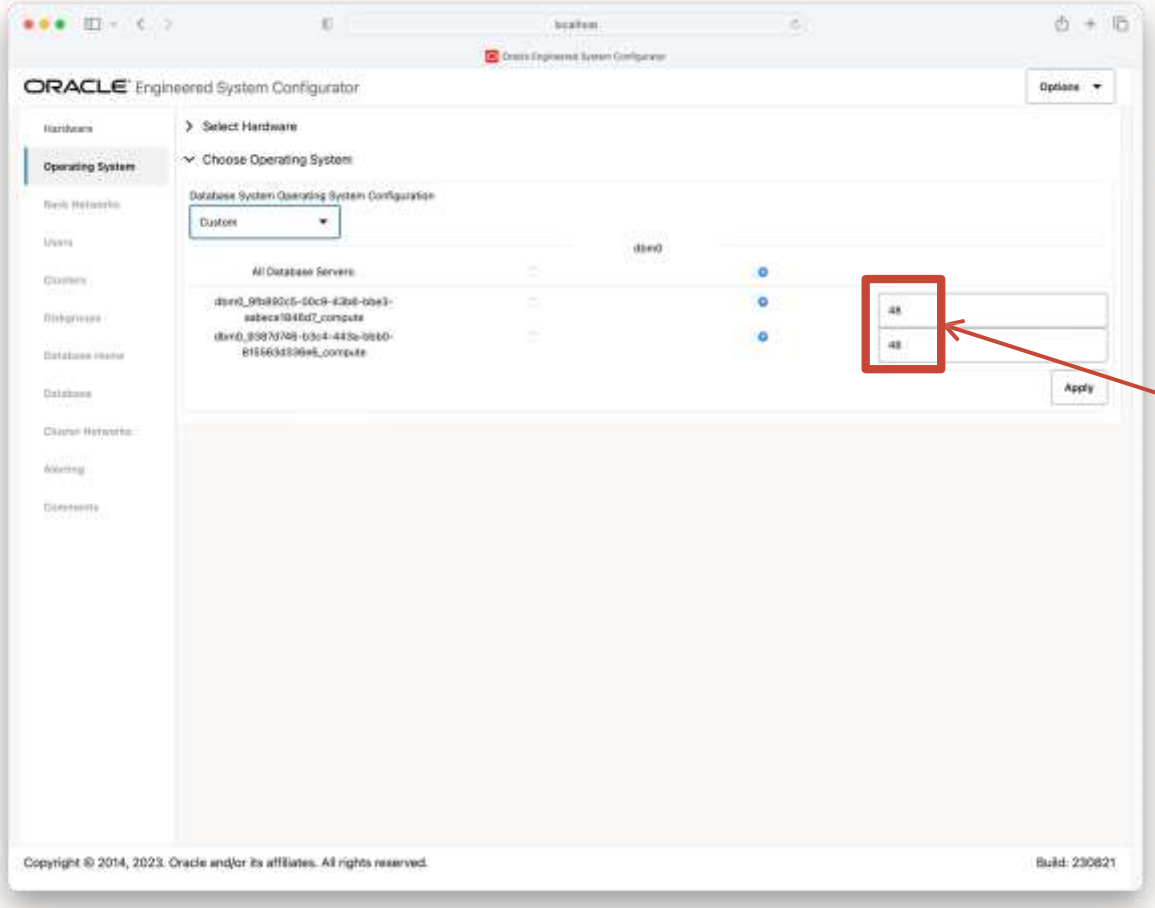
Oracle Database Deployment Assistant (OEDA)



If Capacity-on-Demand is chosen, the customer uses this slider to pick number of active cores per DB server. By default, all DB servers will get this number.

This message is displayed to remind customers they need to be connected to support to use Capacity-on- Demand.

Oracle Database Deployment Assistant (OEDA)



Customers can modify the core count for each node if desired. Oracle recommends that all compute nodes within the same cluster have the same number of active cores

Exadata Capacity Monitoring Tool

OEM 12c,13c Monitoring Exadata Capacity-On-Demand Licensing (Doc ID 2008418.1)

APPLIES TO:

Enterprise Manager for Exadata - Version 12.1.0.6.0 to 13.3.1.0.0 [Release 12.1 to 13c]
Enterprise Manager Base Platform - Version 12.1.0.4.0 to 13.3.0.0.0 [Release 12.1 to 13c]
Information in this document applies to any platform.
Oracle Exadata Database Machine Capacity-On-Demand Licensing (CoD)
Oracle Management Service 12c Release 4 (12.1.0.4.0) to 13.3.1.0.0(13c)
Oracle Management Agent 12c Release 4 (12.1.0.4.0) to 13.3.1.0.0(13c)

DETAILS

Capacity-on-demand (CoD) refers to an Exadata database server that is installed with a subset of its compute cores turned off so that the software license cost can be reduced. Additional cores are subsequently enabled and licensed as needed. CoD does NOT apply to Exadata Storage Server cores, nor does it reduce the Exadata hardware cost.

In order to qualify for CoD, the Exadata system must be using an approved monitoring tool so the number of active cores can be validated. The three methods allowed are (1) OCM (Oracle Configuration Manager) in connected mode, (2) Enterprise Manager, which can be used in disconnected mode, or (3) Platinum Services. We allow up to 90 days between Exadata installation and installation of one of these three methods.

This note describes the steps that needs to be taken in Enterprise Manager in disconnected mode to monitor the number of active cores.

Configure OEM Trusted Partitioning for PCA and Exadata (Doc ID 2814712.1)

SOLUTION

For approved Oracle Engineered Systems, Oracle permits the use of Oracle VM Server (OVM) or Oracle Linux KVM as a means to limit the number of Oracle Processor licenses required.
Oracle's Trusted Partitions policy requires use of Oracle Enterprise Manager as described below – if both of these conditions are met, the partition is deemed a 'Trusted Partition'.
For virtual machines to participate under Oracle Trusted Partition based licensing, they need to be monitored by Oracle Enterprise Manager.
This means that the Oracle Enterprise Manager agent should be deployed on the guest operating system running on those VMs.

Configuration for the Oracle Private Cloud Appliance:
For the Oracle Private Cloud Appliance, Oracle Enterprise Manager should discover the Oracle Private Cloud Appliance Rack target and register the Oracle Private Cloud Appliance Oracle VM Manager target to enable the report.

The following details the steps to generate the report.

1. From the Oracle Private Cloud Appliance target page menu select 'Resource Utilization' then 'Consumption Tracking'.
2. Change the Time Period to Custom...
3. Change Start Date and End Date to the required range.
4. Click Export button.
5. Click Save to save the spreadsheet to your local storage.
6. Be sure to place the saved report in a safe and secure location.

Understanding Exadata Price List

SCAN ME

Exadata Database Machine High Capacity (HC) Price

	Database Machine Price	Oracle Premier Support for Systems (Annual)	Oracle Premier Support for Operating Systems (Annual)	Oracle Customer Data and Device Retention (Annual)	Notes
Database Machine Base Configurations					
Exadata Database Machine X10M Extreme Flash (EF) Quarter Rack (512 GB per Database Server)	465,774	55,893	37,262	13,973	1, 2, 14, 29
Exadata Database Machine X10M High Capacity (HC) Quarter Rack (512 GB per Database Server)	423,403	50,808	33,872	12,702	1, 2, 14, 29
Exadata Database Machine X10M Extreme Flash (EF) Quarter Rack (1.5 TB per Database Server)	505,032	60,604	40,403	15,151	1, 2, 14, 29
Exadata Database Machine X10M High Capacity (HC) Quarter Rack (1.5 TB per Database Server)	462,691	55,523	37,015	13,881	1, 2, 14, 29
Exadata Database Machine X10M Extreme Flash (EF) Quarter Rack (2.25 TB per Database Server)	553,032	66,364	44,243	16,591	1, 2, 14, 29
Exadata Database Machine X10M High Capacity (HC) Quarter Rack (2.25 TB per Database Server)	510,691	61,283	40,855	15,321	1, 2, 14, 29
Exadata Database Machine X10M Extreme Flash (EF) Quarter Rack (3 TB per Database Server)	746,722	89,607	59,738	22,402	1, 2, 14, 29
Exadata Database Machine X10M High Capacity (HC) Quarter Rack (3 TB per Database Server)	704,381	84,526	56,350	21,131	1, 2, 14, 29
Exadata Database Machine X9M-2 Extreme Flash (EF) Quarter Rack (512 GB per Database Server)	423,403	50,808	33,872	12,702	1, 2, 14, 29
Exadata Database Machine X9M-2 High Capacity (HC) Quarter Rack (512 GB per Database Server)	423,403	50,808	33,872	12,702	1, 2, 14, 29
Exadata Database Machine X9M-2 Extreme Flash (EF) Quarter Rack (1 TB per Database Server)	451,397	54,168	36,112	13,542	1, 2, 14, 29
Exadata Database Machine X9M-2 High Capacity (HC) Quarter Rack (1 TB per Database Server)	451,397	54,168	36,112	13,542	1, 2, 14, 29
Exadata Database Machine X9M-2 Extreme Flash (EF) Quarter Rack (2 TB per Database Server)	481,724	57,807	38,538	14,452	1, 2, 14, 29
Exadata Database Machine X9M-2 High Capacity (HC) Quarter Rack (2 TB per Database Server)	481,724	57,807	38,538	14,452	1, 2, 14, 29
Exadata Database Machine X9M-8 Extreme Flash (EF) Half Rack	1,090,584	130,870	87,247	32,718	1, 2, 14
Exadata Database Machine X9M-8 High Capacity (HC) Half Rack	1,090,584	130,870	87,247	32,718	1, 2, 14

Exadata Database Machine Extreme Flash (EF) Price

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Exadata Database Machine X9M-8 High Capacity (HC) Half Rack	1,090,584	130,870	87,247	32,718	1, 2, 14

Storage server and Database Server cost per Unit

Exadata

Prices in USA (Dollar)

	Storage Server Price	Oracle Premier Support for Systems (Annual)	Oracle Premier Support for Operating Systems (Annual)	Oracle Customer Data and Device Retention (Annual)	Notes
Exadata Storage Server plus Network Fabric					
Exadata Storage Server X10M Extreme Flash (EF) plus Network Fabric	75,933	9,112	6,075	2,278	1, 29, 30
Exadata Storage Server X10M High Capacity (HC) plus Network Fabric	61,820	7,418	4,946	1,855	1, 29
Exadata Storage Server X10M Extended (XT) plus Network Fabric	19,246	2,310	1,540	577	1, 27, 29
Exadata Storage Server X9M-2 Extreme Flash (EF) plus Network Fabric	61,820	7,418	4,946	1,855	1, 29
Exadata Storage Server X9M-2 High Capacity (HC) plus Network Fabric	61,820	7,418	4,946	1,855	1, 29
Exadata Storage Server X9M-2 Extended (XT) plus Network Fabric	19,246	2,310	1,540	577	1, 27, 29
Exadata Eighth Rack Storage Server X9M-2 High Capacity (HC) plus Network Fabric	43,157	5,179	3,453	1,295	1, 29

Exadata **Storage** Server

Exadata **Database** Server

	Database Server Price	Oracle Premier Support for Systems (Annual)	Oracle Premier Support for Operating Systems (Annual)	Oracle Customer Data and Device Retention (Annual)	Notes
Exadata Database Server plus Network Fabric					
Exadata Database Server X10M (512 GB per Database Server) plus Network Fabric	52,488	6,299	4,199	1,575	1, 29
Exadata Database Server X10M (1.5 TB per Database Server) plus Network Fabric	72,132	8,656	5,771	2,164	1, 29
Exadata Database Server X10M (2.25 TB per Database Server) plus Network Fabric	96,132	11,536	7,691	2,884	1, 29
Exadata Database Server X10M (3 TB per Database Server) plus Network Fabric	192,977	23,157	15,438	5,789	1, 29
Exadata Database Server X9M-2 (512 GB per Database Server) plus Network Fabric	52,488	6,299	4,199	1,575	1, 29
Exadata Database Server X9M-2 (1 TB per Database Server) plus Network Fabric	66,485	7,978	5,319	1,995	1, 29
Exadata Database Server X9M-2 (2 TB per Database Server) plus Network Fabric	81,648	9,798	6,532	2,449	1, 29
Exadata Database Server X9M-8 plus Network Fabric	386,079	46,329	30,886	11,582	1

Exadata Storage Server Software on Price List

	License Price	Software Update License & Support	Licensing Metric	Notes
Exadata Storage Server Software				
Exadata Storage Server Software	10,000	2,200	Disk Drive	
	20,000	4,400	Flash Drive	

Understanding Support Price List

Oracle Premier Support for Systems

Database Machine Base Configurations	Database Machine Price	Oracle Premier Support for Systems (Annual)	Oracle Premier Support for Operating Systems (Annual)	Oracle Customer Data and Device Retention (Annual)	Notes
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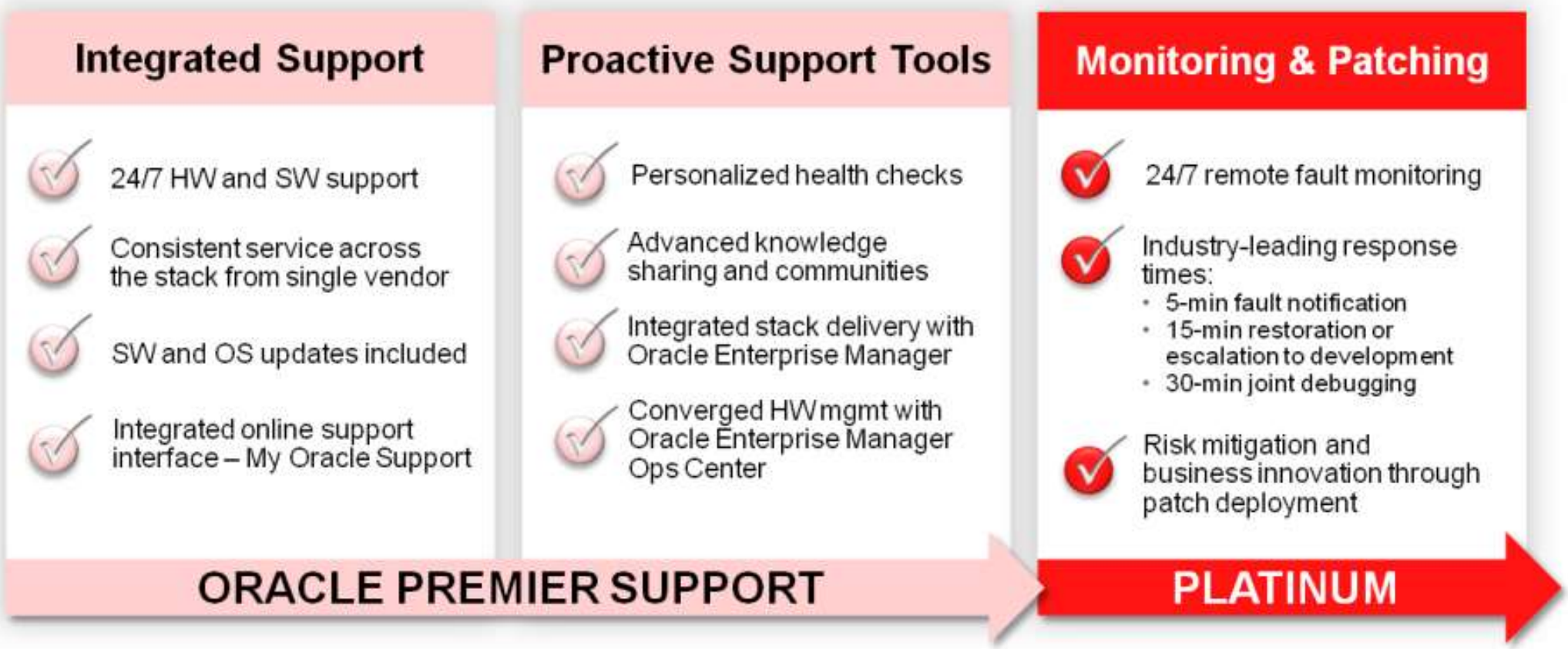
Rapid-response hardware service : Our highly trained technicians leverage their experience, Oracle diagnostic tools, and parts to quickly troubleshoot and resolve system issues.

Essential product updates : includes updates for integrated software (such as firmware) and covered software. That means access to critical security patches, bug fixes, feature enhancements, and any new releases that become available while you maintain active support coverage

Unlimited, 24/7 access to Oracle system specialists : Provides fast answers and proven solutions based on our experience in supporting more than a million systems across a variety of industries and countless application environments.

Oracle Premier Support vs Platinum Support

SCAN ME



Oracle Premier support for Operating systems

SCAN ME

	Database Machine Price	Oracle Premier Support for Systems (Annual)	Oracle Premier Support for Operating Systems (Annual)	Oracle Customer Data and Device Retention (Annual)	Notes
Database Machine Base Configurations					
Exadata Database Machine X10M Extreme Flash (EF) Quarter Rack (512 GB per Database Server)	465,774	55,893	37,262	13,973	1, 2, 14, 29
Exadata Database Machine X10M High Capacity (HC) Quarter Rack (512 GB per Database Server)	423,403	50,808	33,872	12,702	1, 2, 14, 29
Exadata Database Machine X10M Extreme Flash (EF) Quarter Rack (1.5 TB per Database Server)	505,032	60,604	40,403	15,151	1, 2, 14, 29
Exadata Database Machine X10M High Capacity (HC) Quarter Rack (1.5 TB per Database Server)	462,691	55,523	37,015	13,881	1, 2, 14, 29
Exadata Database Machine X10M Extreme Flash (EF) Quarter Rack (2.25 TB per Database Server)	553,032	66,364	44,243	16,591	1, 2, 14, 29
Exadata Database Machine X10M High Capacity (HC) Quarter Rack (2.25 TB per Database Server)	510,691	61,283	40,855	15,321	1, 2, 14, 29
Exadata Database Machine X10M Extreme Flash (EF) Quarter Rack (3 TB per Database Server)	746,722	89,607	59,738	22,402	1, 2, 14, 29
Exadata Database Machine X10M High Capacity (HC) Quarter Rack (3 TB per Database Server)	704,381	84,526	56,350	21,131	1, 2, 14, 29
Exadata Database Machine X9M-2 Extreme Flash (EF) Quarter Rack (512 GB per Database Server)	423,403	50,808	33,872	12,702	1, 2, 14, 29

Unlimited, 24/7 access to Oracle product specialists : We provide fast answers and proven solutions based on our experience in supporting more than a million Oracle Solaris and Linux-based systems across industries and countless application environments.

Oracle Customer Data and Device Retention

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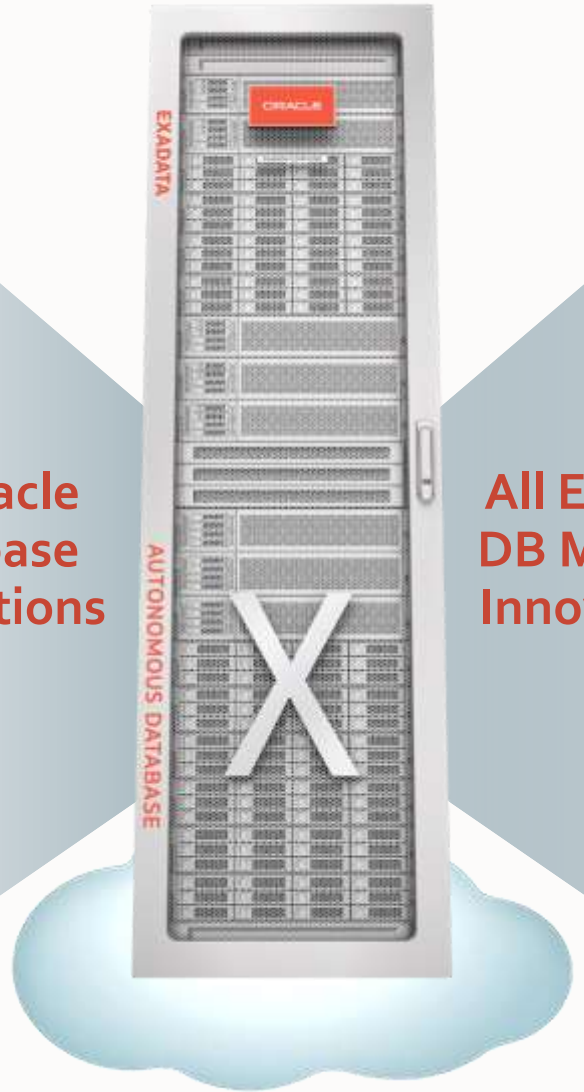
Keep in compliance and rest easy, Based on unique customer needs, Oracle offers support for retaining nonfunctioning disk drives and persistent memory components.
Additionally, because Oracle Customer Data and Device Retention is a service, you can plan and budget for it instead of needing to purchase new components to replace failed ones on an ad hoc basis.

Exadata And Database Features

Oracle Database and Exadata Platform Innovations

- Multitenant
- In-Memory DB
- Real Application Clusters
- Active Data Guard
- Partitioning
- Advanced Compression
- Advanced Security, Label Security, DB Vault
- Real Application Testing
- Advanced Analytics, Spatial and Graph
- Management Packs for Oracle Database

All Oracle Database Innovations



All Exadata DB Machine Innovations

- Offload SQL to Storage
- RoCE Fabric — 100 Gbps
- XRMEM Data Accelerator
- Smart Flash Cache — PCI Flash
- Storage Indexes
- Columnar Flash Cache
- Hybrid Columnar Compression — HCC 10:1
- I/O Resource Management — I/O I/O I/O
- Network Resource Management
- In-Memory Fault Tolerance
- Exafusion Direct-to-Wire Protocol

Oracle Core Factor Table

Oracle Core Factor table

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- **Core factor** gives you the delta to calculate Database Enterprise licenses number by processor

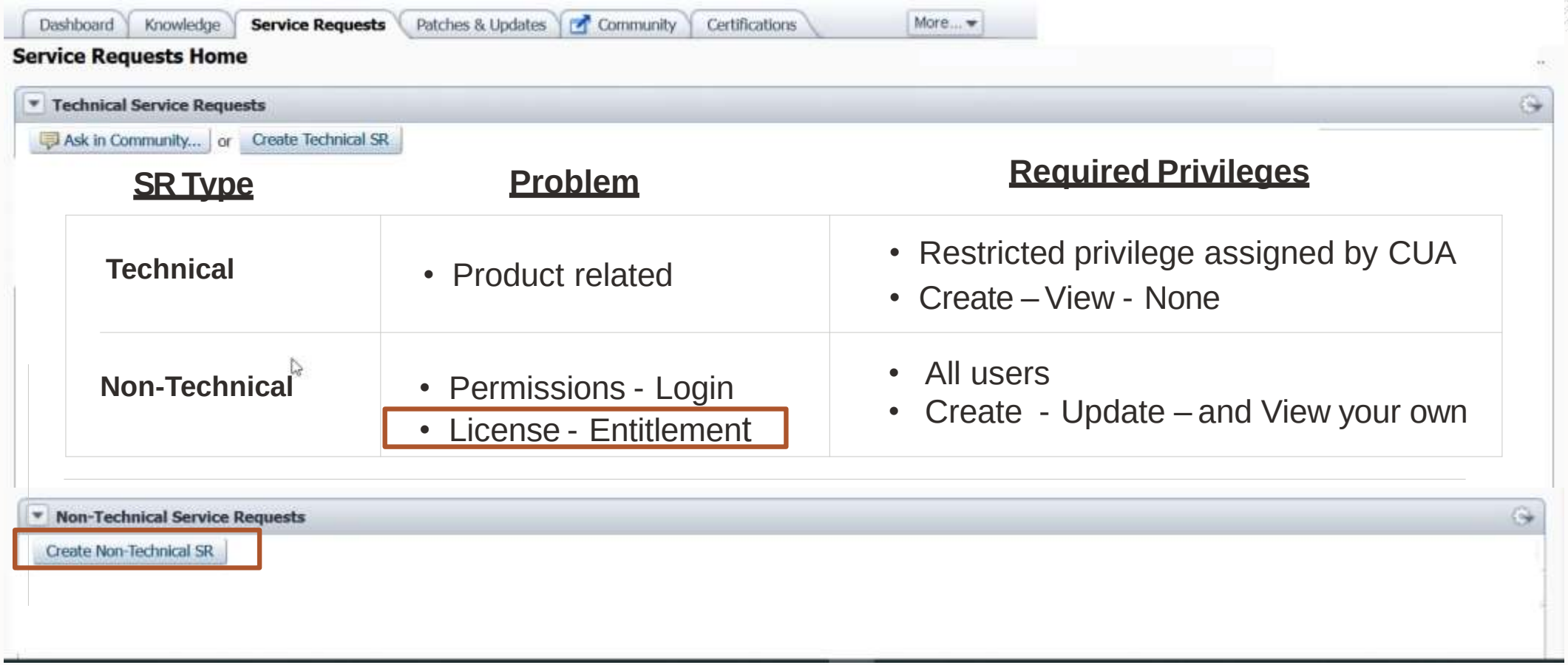
- Oracle strongly recomends check on-line documentation to be aware of all recent changes

- Core factor is used to calculate Database Enterprise Features too

- Core Factor For Exadata Database Machine is **0.5**

Resources

Service Request Types: Technical vs Non-Technical



SR Type	Problem	Required Privileges
Technical	• Product related	• Restricted privilege assigned by CUA • Create – View - None
Non-Technical	• Permissions - Login • License - Entitlement	• All users • Create - Update – and View your own

Oracle Software Investiment Advisor

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Licensing Solutions

Can you help us understand the licensing implications of future technology decisions?"

Cloud Sizing

"What do we need to consider when moving parts of our existing environment to the cloud?"

Investment Economics

"How is our Oracle investment supporting the long-term goals of the business?"

Deployment Optimization

"How do I find out if my Oracle TCO is optimized across both on-premise and the cloud?"

License Knowledge Transfer

"Can you help us better understand our license and subscription terms and conditions?"

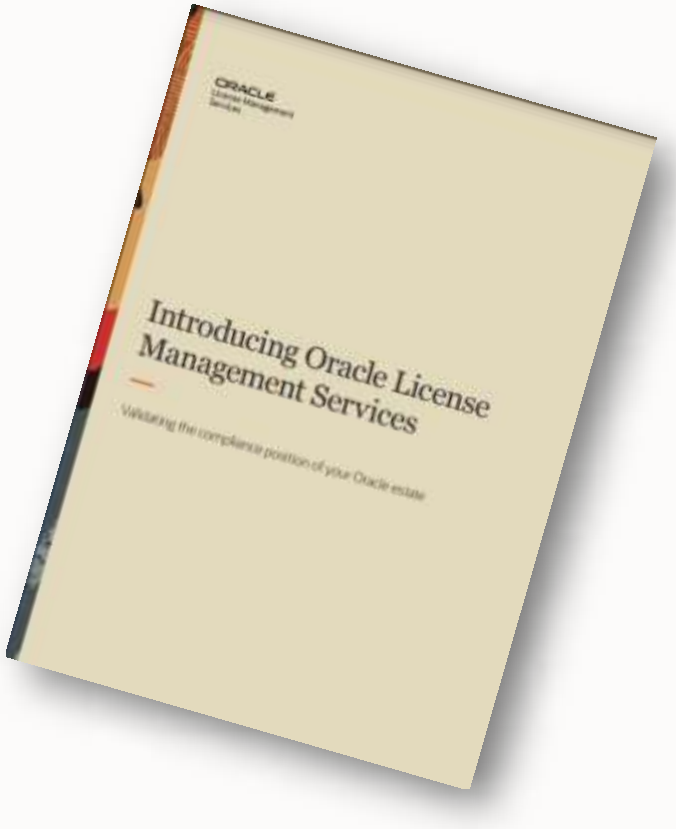
Entitlement Intelligence

"How do I find out the current state of our contractual agreements with Oracle?"

For more informatio contact sia-global_ww@oracle.com or visit www.oracle.com/goto/sia

Why Engage with Oracle License Management Service?

SCAN ME



- **Ensure** cost-effective deployment of your Oracle assets
- **Validate** and authenticate your Oracle compliance position
- **Enhance** your ability to effectively manage Oracle software licenses

Resources

- **Exadata Database Machine Licensing User guide**

https://docs.oracle.com/en/engineered-systems/exadata-database-machine/dbmli/licensing-information-users-guide-exadata-database-machine-dbmli.pdf

- **Oracle License Management Services**

https://www.oracle.com/corporate/license-management-services/

- **Oracle Engineerred Systems Price List**

https://www.oracle.com/a/ocom/docs/corporate/pricing/exadata-pricelist-070598.pdf

- **OCI Cost Estimator**

https://www.oracle.com/cloud/costestimator.html

- **Oracle Premier Support For Systems**

https://www.oracle.com/a/ocom/docs/corporate/oracle-premier-support-for-systems.pdf

- **Oracle Database Licensing Information User Manual**

https://docs.oracle.com/en/database/oracle/oracle-database/19/dblic/database-licensing-information-user-manual.pdf

- **Oracle Premier Support for Operating Systems**

https://www.oracle.com/a/ocom/docs/oracle-premier-support-for-operating-systems-061678.pdf

- **Oracle Customer Data and Device Retention**

https://www.oracle.com/assets/data-retention-ds-405152.pdf

- **Oracle Partner Network**

https://www.oracle.com/partnernetwork/program

- **Introducing Exadata X10M**

https://learn.oracle.com/ols/learning-path/oracle-compute-cloudcustomer-2024-sales-specialist/89350/128629

- **Exadata Cloud at Customer**

https://docs.oracle.com/en/engineered-systems/exadata-cloud-at-customer/

- **Oracle Platinum Services Frequently Asked Questions**

http://www.audentia-gestion.fr/oracle/platinum-services-faq-1653259.pdf

- **Using Oracle Exadata Deployment Assistant**

https://docs.oracle.com/en/engineered-systems/exadata-database-machine/dbmin/exadata-deployment-assistant.html#GUID-E19556E8-47A9-4505-8893-EF0C43AE2E03

Thank you

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