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Cloud at Customer Academy 3.0

Exadata Cloud Features - EHCC, Smart Scan, In-Memory, Multitenant

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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.

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Exadata Academy 3.0 | Register Now

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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

Agenda

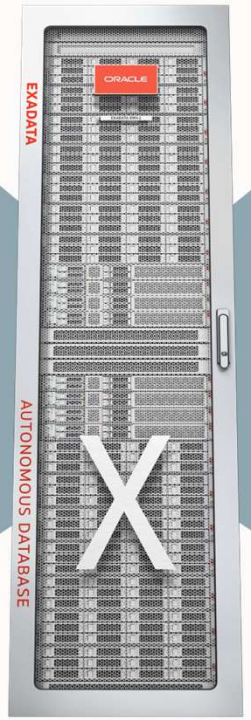
- Exadata Features
- Oracle Multitenant Database
- Exadata Smart Scan
- Exadata Hybrid Columnar Compression
- Oracle In-Memory Database
- Demo – Partitioning (DBMS_REDEFINITION)
- Demo – Exadata EHCC
- Demo – In-Memory
- Demo – Creating a PDB using *dbaascli*

Exadata Features

Oracle Exadata Database and 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 Innovations

- Offload SQL to Storage
- RoCE Fabric — 100 GB
- PMEM Commit and Data Accelerators
- Smart Flash Cache — PCI Flash
- Storage Indexes
- Columnar Flash Cache
- Hybrid Columnar Compression — 10:1
- I/O Resource Management — I/O I/O I/O
- Network Resource Management — PRIORITY LANE
- In-Memory Fault Tolerance
- Exafusion Direct-to-Wire Protocol

Oracle Multitenant Database

Oracle 19C Multitenant Administrators Guide

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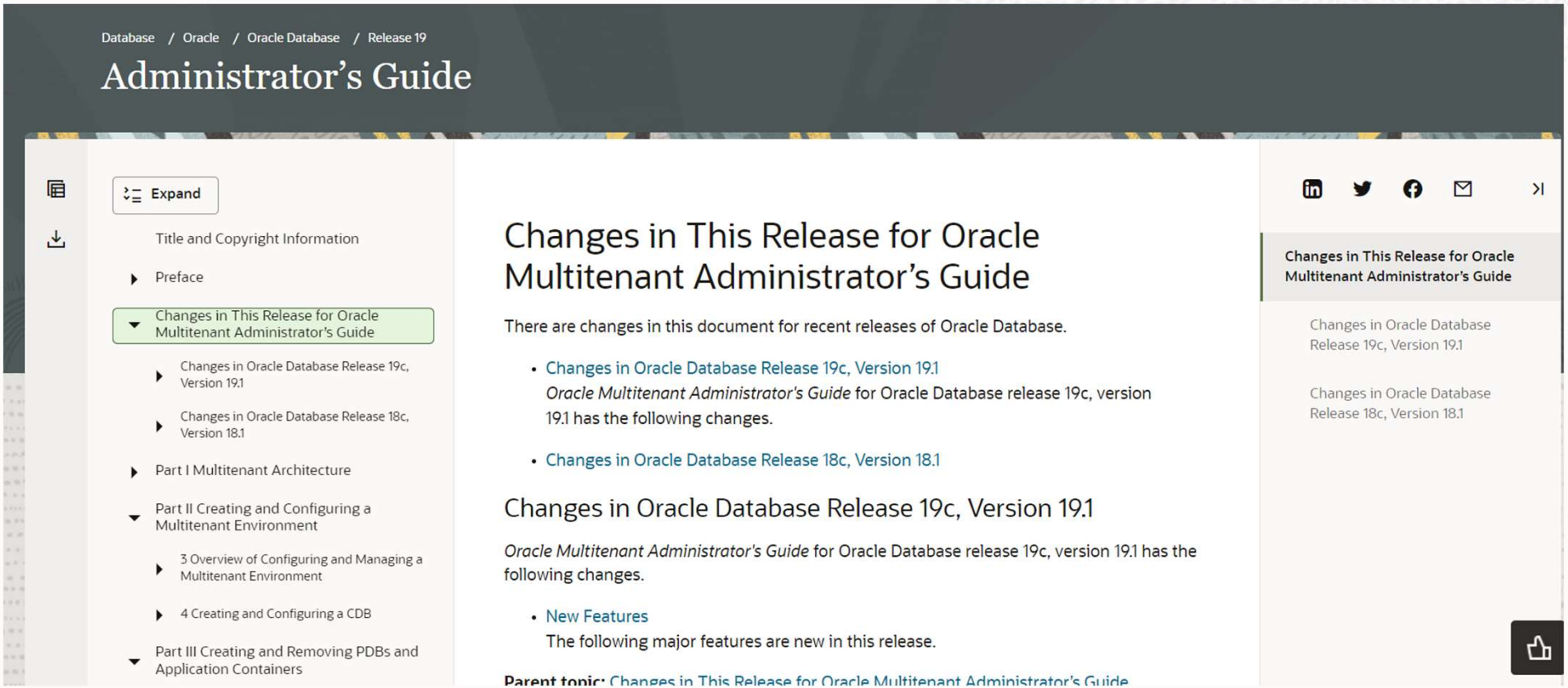

Dbaascli create PDB options


```
# dbaascli pdb create --pdbName <value> --dbName <value>
                                                    [--maxCPU <value>]
                                                    [--maxSize <value>]
                                                    [--pdbAdminUserName <value>]
                                                    [--lockPDBAdminAccount <value>]
                                                    [--resume [--sessionID <value>]]
                                                    [--executePrereqs <value>]
                                                    [--waitForCompletion <value>]
```


Dbaascli PDB delete options


```
# dbaascli pdb delete --dbName value
                    { --pdbName value | --pdbUID value }
                    [--executePrereqs value]
                    [--waitForCompletion value]
                    [--resume [--sessionID value]]
                    [--allStandbyPrepared]
                    [--cleanupRelocatedPDB]
```


Dbaascli PDB commands used on Demo

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```
# dbaascli admin showLatestStackVersion

# dbaascli database getDetails --dbname dbpetro

# dbaascli pdb create --dbName dbpetro --pdbName PDB1 --maxsize 5G --maxcpu 2 --executePrereqs

# dbaascli pdb getDetails --dbname dbpetro --pdbName PDB1

# dbaascli pdb delete --dbName dbpetro --pdbName PDB1 --executePrereqs

# dbaascli pdb delete --dbName dbpetro --pdbName PDB1
```


Oracle In-Memory Database

Oracle Database In-memory Implementation Guide

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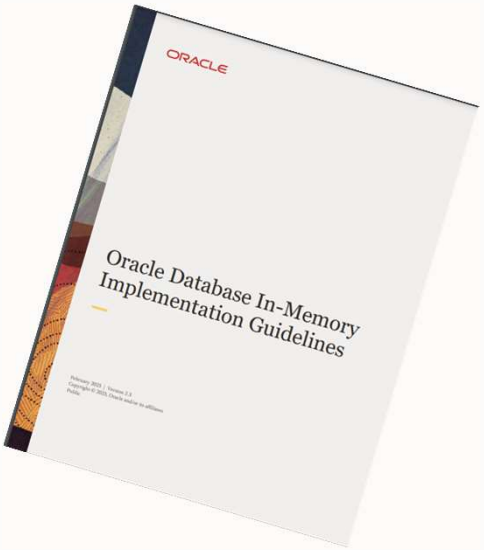
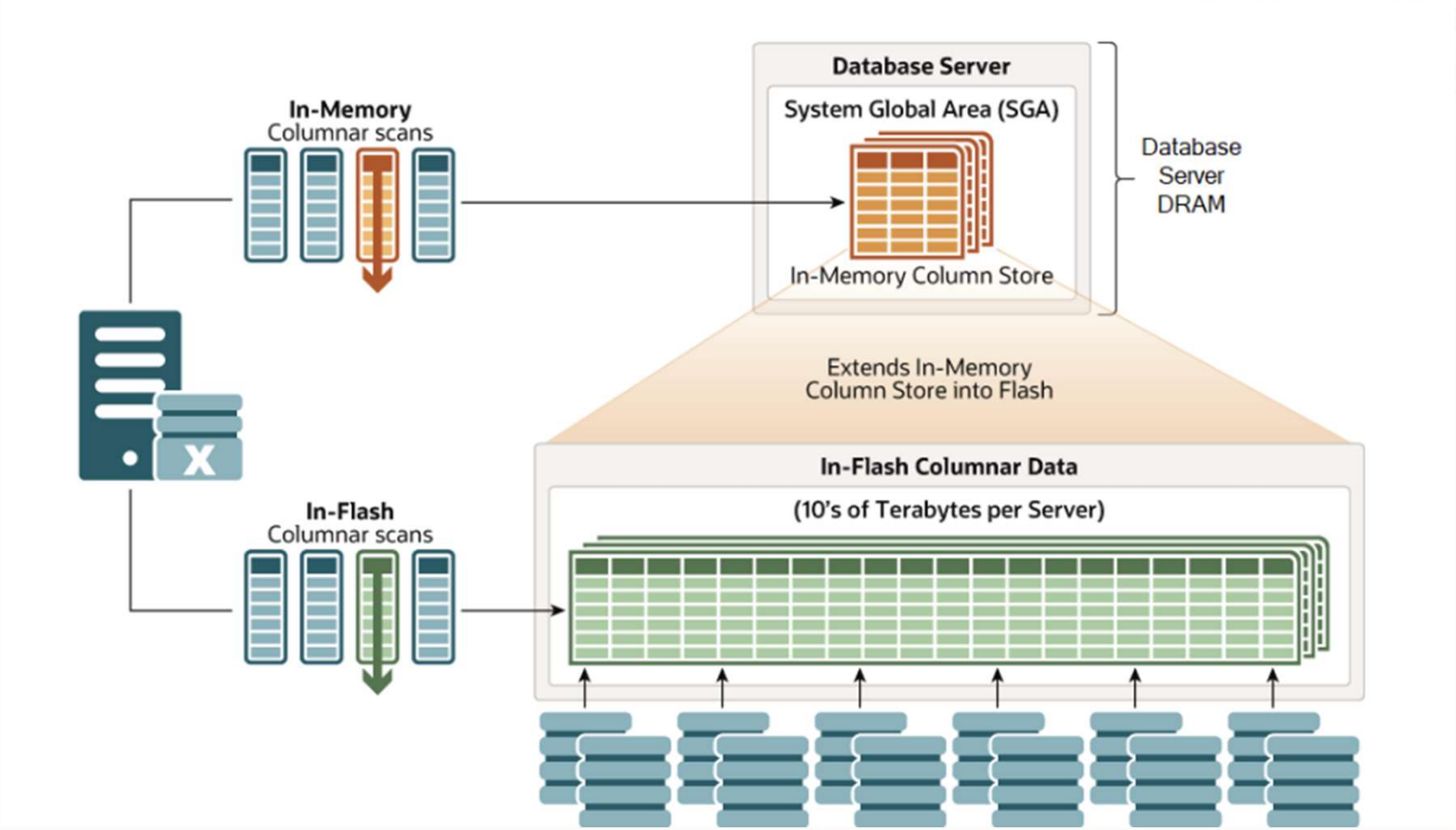
- Is specifically targeted at analytical workloads, which is why the IM column store is populated in a columnar format.



- Can even be enabled for whole database
- Can even be enabled at table level
- Total memory area controlled by inmemory_size parameter
- INMEMORY_FORCE - this parameter can be used to enable the Base Level feature or enable only Cell Memory and not allocate the IM column store (this is for Exadata only).

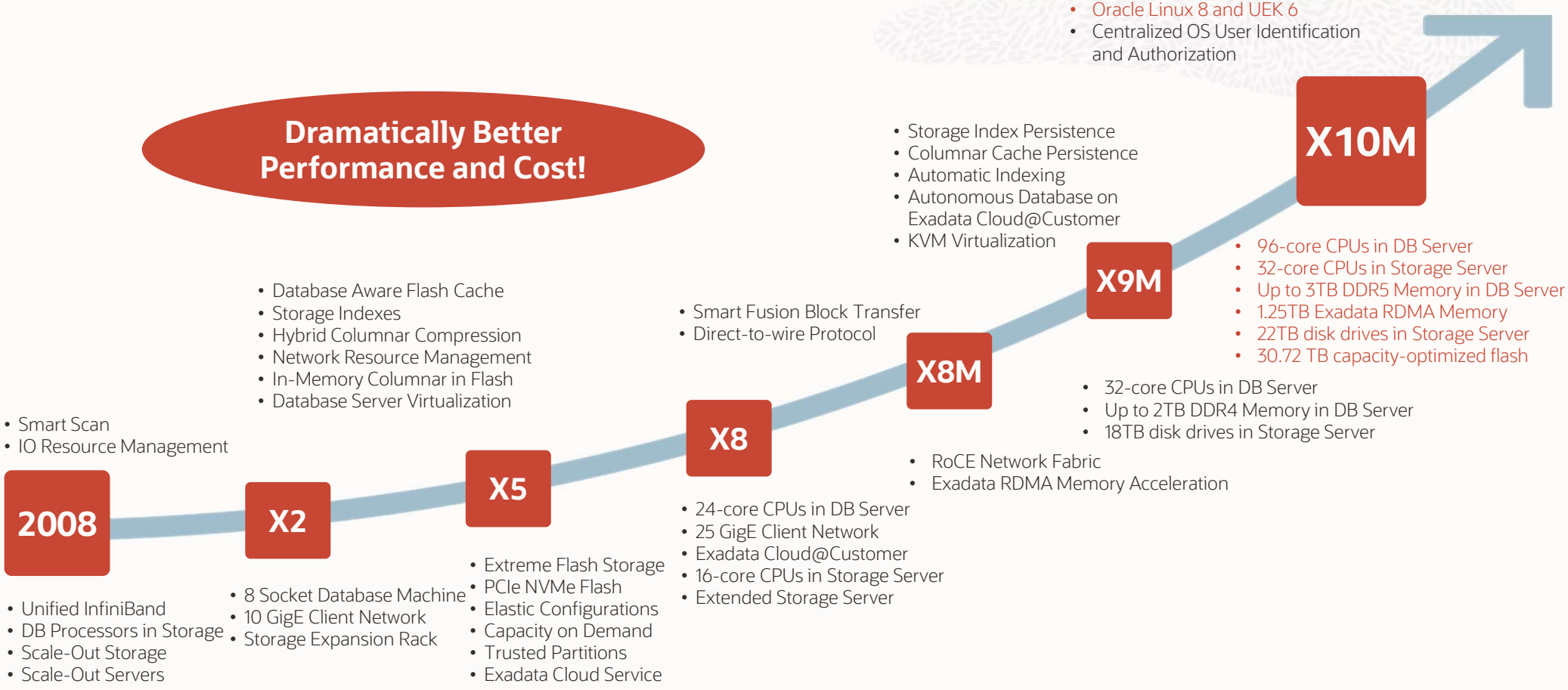
Oracle Database In-memory Diagram



Exadata Smart Scan

Exadata Advantages Increase Every Year

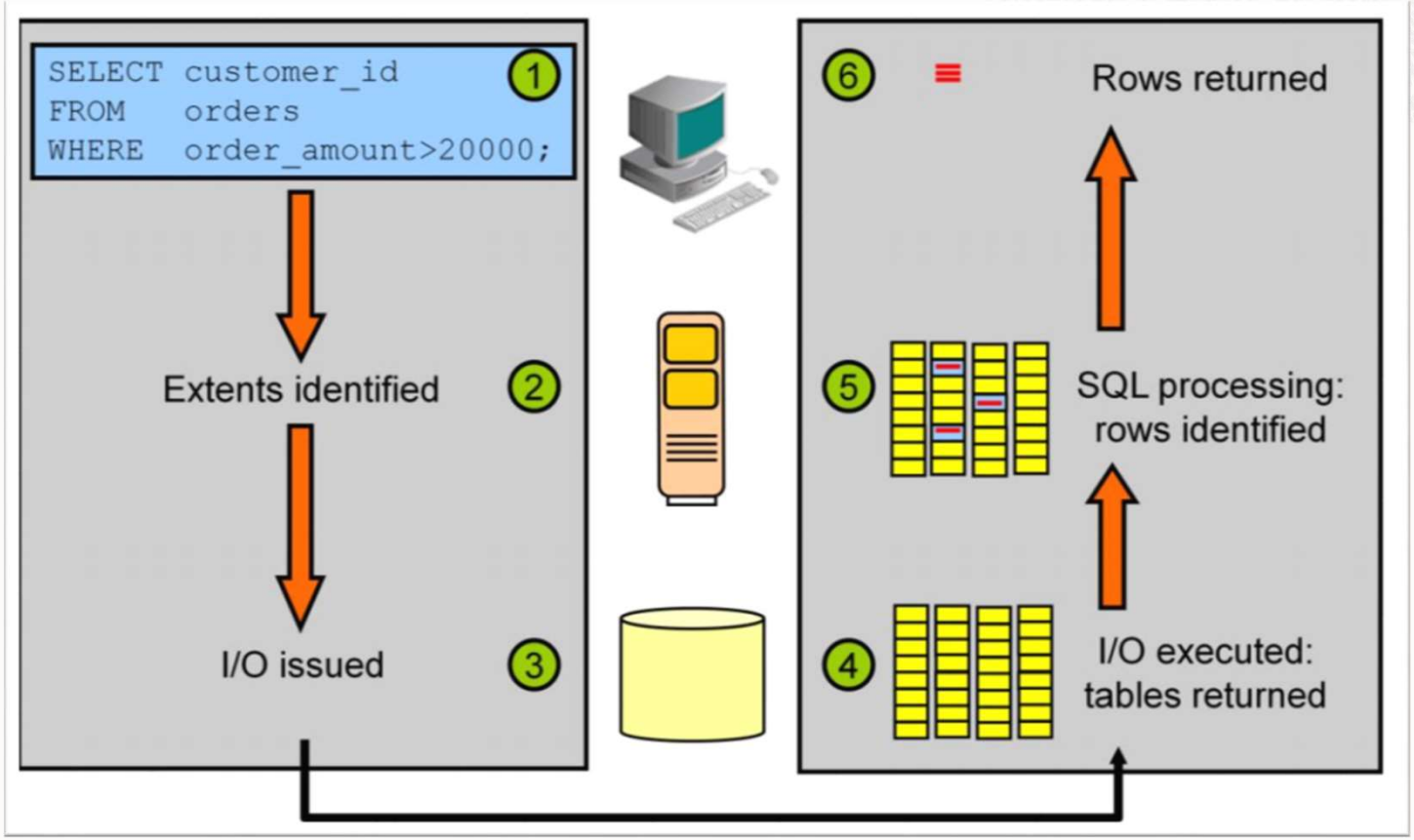
Dramatically Better Performance and Cost!



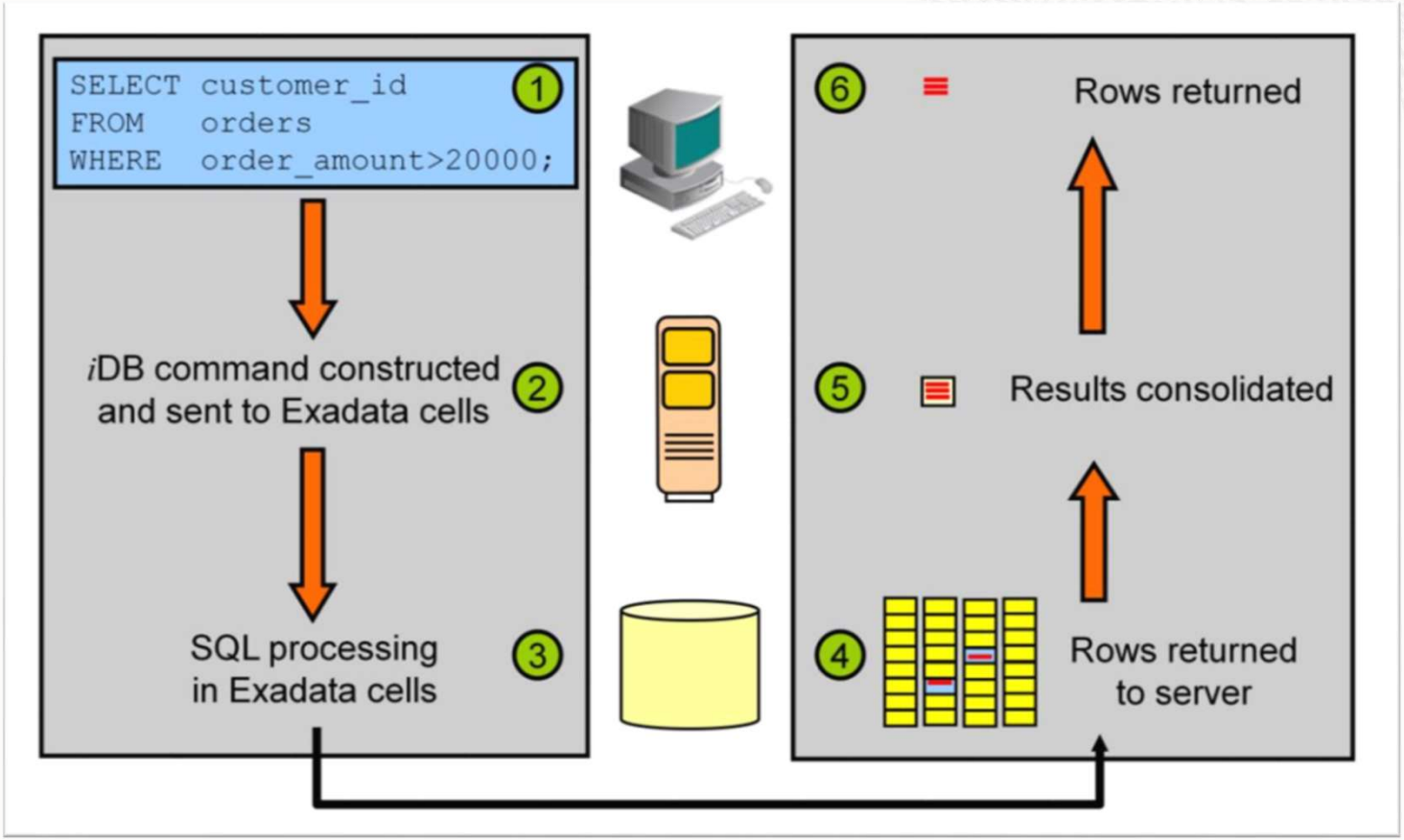
What Exadata Smart Scan Is?

"Smart Scan is one of the great feature in Oracle Exadata. With this technology storage send only required rows to database node from storage instead of entire Oracle Block. Multiple rows are stored in one Oracle Block but non-exadata system return entire block even only one rows is required. On the other hand, Exadata Storage returns only interested rows but not entire block. "

Oracle Database | No Exadata System



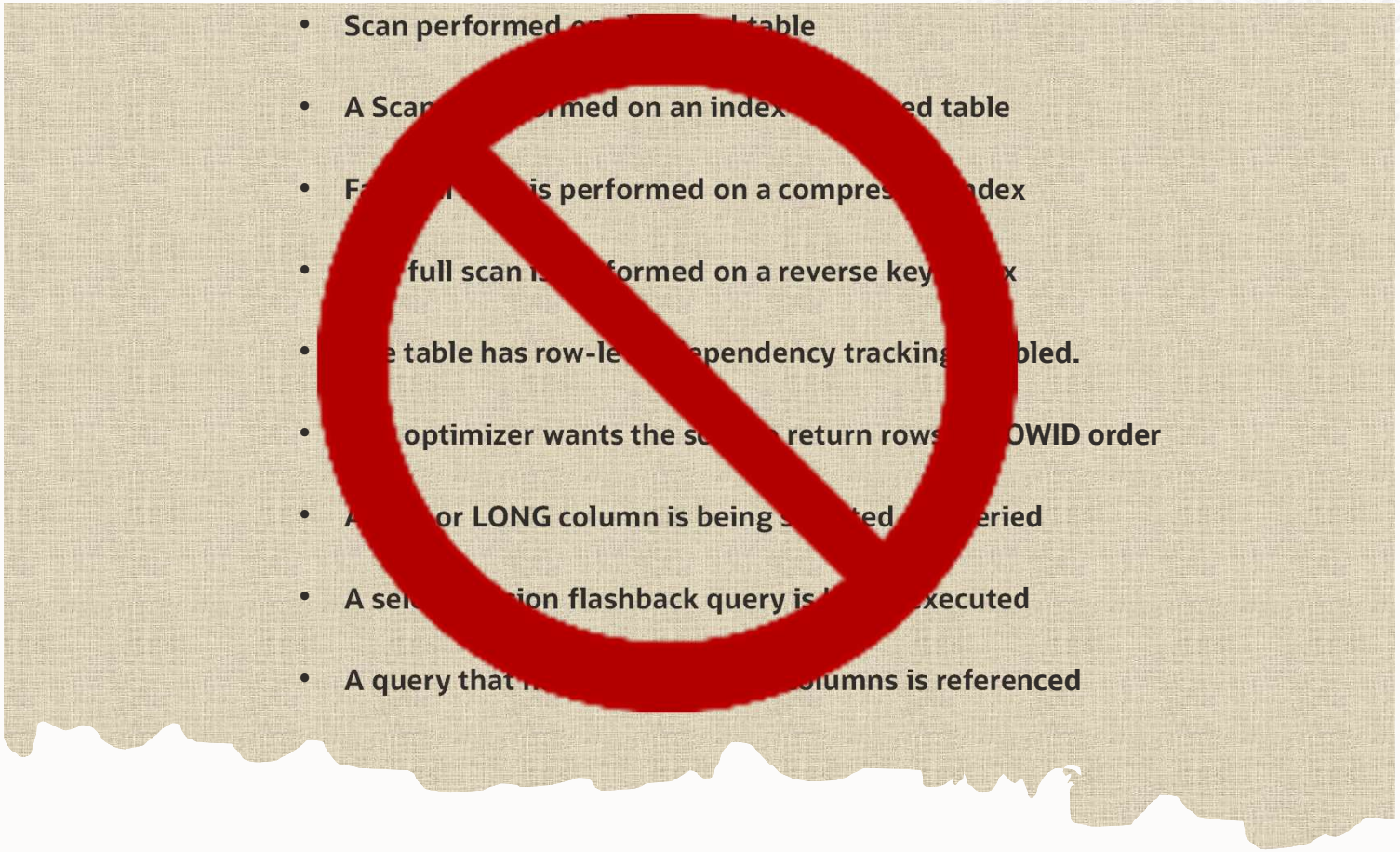
Exadata Cloud a Smart Scan | Off Load Querying



When Exadata Smart Scan Happens

- Full Table Scans
- Direct-path reads
- Not used by default for serial scans of small tables Can be forced via _serial_direct_read=TRUE at either session or system level
- Full Index Scans
- Direct-path reads are automatically used for parallel queries

Exadata Smart Scan Why it's not working?



Query Execution plan | Traditional Database Vs Exadata System

```
SQL> select * from table(dbms_xplan.display);

PLAN_TABLE_OUTPUT
--------------------------------------------------------------------------------------------------------
--------------------------------------------------------------------------------------------------------
Plan hash value: 970577077

-----------------------------------------------------------------------------------------------
| Id  | Operation                           | Name            | Rows  | Bytes | Cost (%CPU)| Time     |
-----------------------------------------------------------------------------------------------
|   0 | SELECT STATEMENT                    |                 |   902 | 23452 |    10   (0)| 00:00:01 |
|   1 |  TABLE ACCESS BY INDEX ROWID BATCHED| CUSTOMERS       |   902 | 23452 |    10   (0)| 00:00:01 |
|*  2 |   INDEX RANGE SCAN                  | CUSTOMERS_ID_PK |   902 |       |     6   (0)| 00:00:01 |
-----------------------------------------------------------------------------------------------

Predicate Information (identified by operation id):
---------------------------------------------------
```


```
PLAN_TABLE_OUTPUT
--------------------------------------------------------------------------------------------------------
--------------------------------------------------------------------------------------------------------
Plan hash value: 2008213504

-----------------------------------------------------------------------------------------------
| Id  | Operation                 | Name      | Rows  | Bytes | Cost (%CPU)| Time     |
-----------------------------------------------------------------------------------------------
|   0 | SELECT STATEMENT          |           |   902 | 23452 |   306K  (1)| 00:00:12 |
|*  1 |  TABLE ACCESS STORAGE FULL| CUSTOMERS |   902 | 23452 |   306K  (1)| 00:00:12 |
-----------------------------------------------------------------------------------------------

Predicate Information (identified by operation id):
---------------------------------------------------

   1 - storage("ID"<=1000 AND "ID">=100)
       filter("ID"<=1000 AND "ID">=100)
```

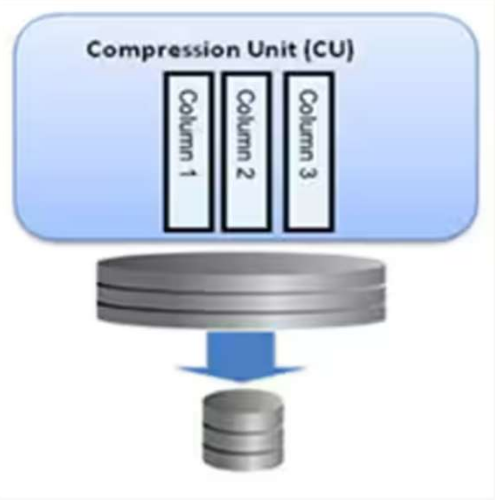
Exadata Hybrid Columnar Compression (EHCC)

Exadata Hybrid Columnar Compression is?

"Exadata Hybrid Columnar Compression is a feature included in Exadata Storage Server. This feature provides a high level of data compression about objects in an Oracle database and offers the ability to customize the compression level, depending on whether the environment is an OLTP environment (frequent reads and writes on non-sequential data) or an OLTP environment. Data warehousing (frequent queries for large amounts of data)."

Exadata Hybrid Columnar Compression

Exadata Hybrid Columnar Compression can be used at different levels:



- Partition Level
- Table Level
- Tablespace Level

There are two types of Exadata Hybrid Columnar Compression:

Warehouse Compression

- Query High
- Query Low

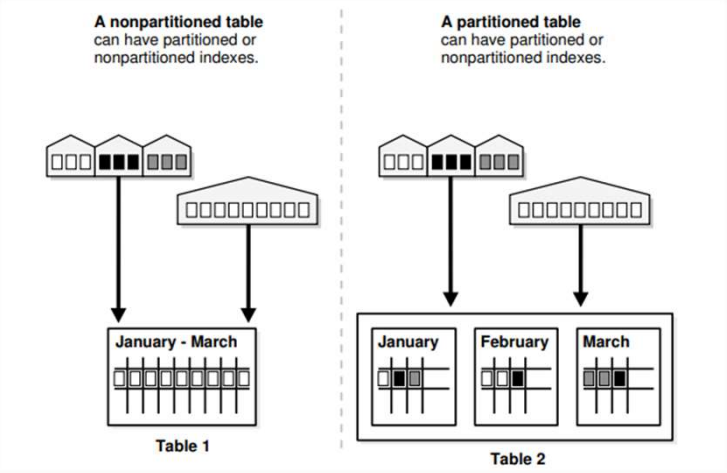
Online archival compression

- Archive High
- Archive Low

Oracle Database Partitioning

Oracle Database Partitioning concepts

- A partitioned object has multiple pieces that can be managed either collectively or individually.



- This gives an administrator considerable flexibility in managing partitioned objects.
- From the perspective of the application, a partitioned table is identical to a no partitioned table
- No modifications are necessary when accessing a partitioned table using SQL queries and DML statements

- Partitionning feature allows you to partition tables and indexes

Oracle 19c Partitioning Guide

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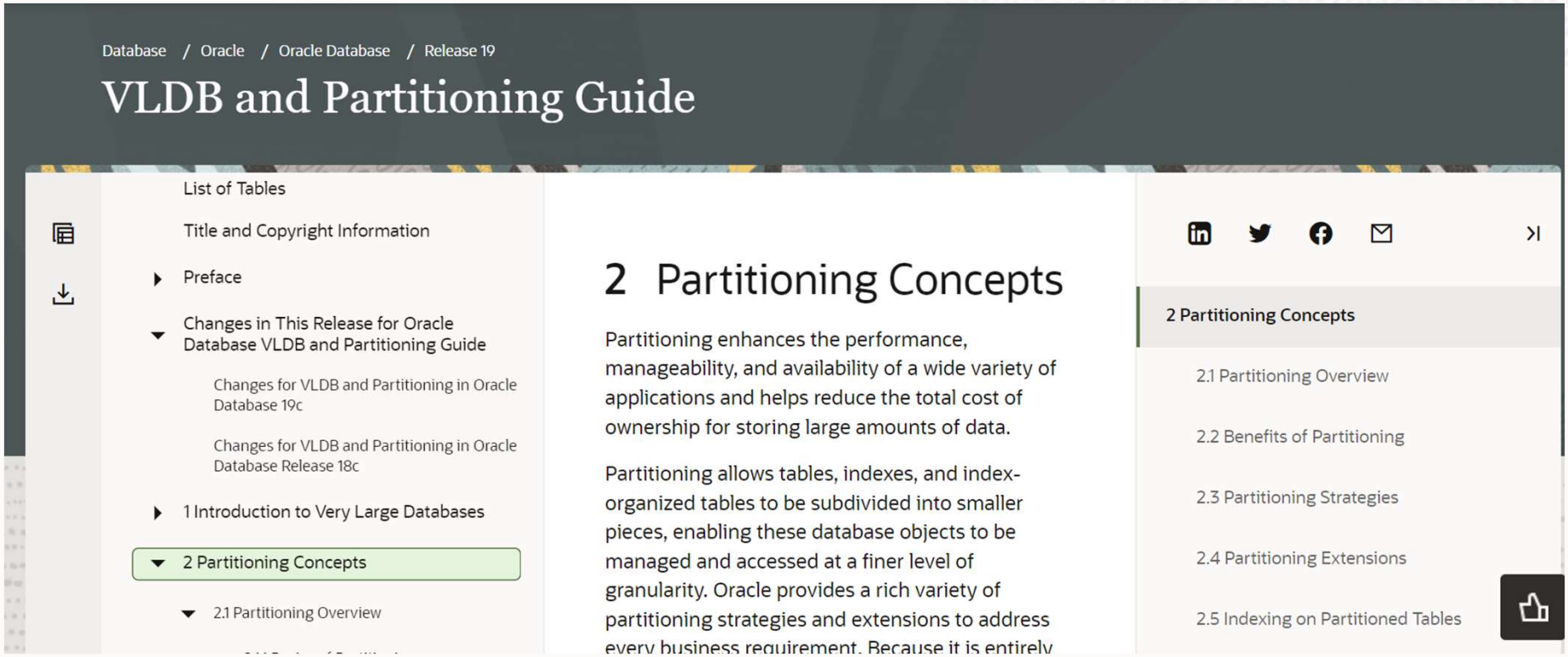
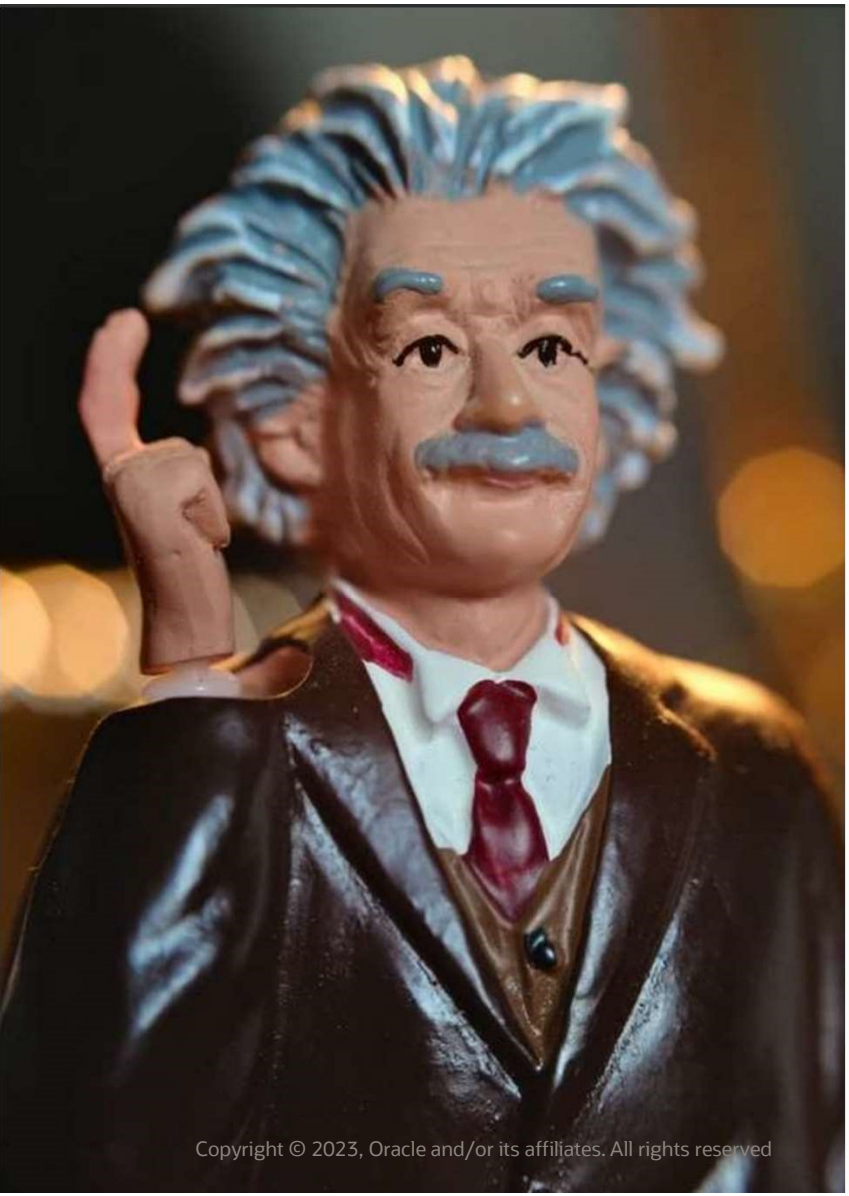


Oracle Database DBMS_REDEFINITION

```
Connected to:
Oracle Database 19c EE High Perf Release 19.0.0.0.0 - Production
Version 19.16.0.0.0

SQL>  EXEC DBMS_REDEFINITION.CAN_REDEF_TABLE (UNAME=>'ERP',TNAME=>'ORDERS');


SQL> BEGIN
DBMS_REDEFINITION.START_REDEF_TABLE(uname => 'ERP',ORIG_TABLE =>'ORDERS',INT_TABLE => 'ORDERS_PART');
END;
/

SQL> BEGIN
DBMS_REDEFINITION.SYNC_INTERIM_TABLE(uname => 'ERP',ORIG_TABLE => 'ORDERS',INT_TABLE => 'ORDERS_PART');
END;
/

 BEGIN
 DBMS_REDEFINITION.FINISH_REDEF_TABLE(uname => 'ERP', ORIG_TABLE =>'ORDERS', INT_TABLE => 'ORDERS_PART');
 END;
 /
```


Demo



Demo 1 – Oracle Database Partitioning

- Creating a partitioned table
- Move no partitioned table to partitioned
- Using by DBMS_REDEFINITIONS (Procedure

Demo 2 – Oracle Database In-Memory

- Configuring Oracle Database (***In-Memory***)
- Configuring Table using In-Memory
- Rolling back ***In-memory*** Configuration

Demo 3 – Exadata Hybrid Table Compression

- EHCC compression Ratio check
- Compress a no partitioned table
- Compress a table partition

Demo 4 – Oracle Database Multitenant

- Creating a PDB using ***dbaascli***
- Checking a PDB using ***dbaascli***
- Deleting a PDB using ***dbaascli***

Thank You ☺

Questions / Feedback / Training Suggestions

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Ask for help ☺


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