

ORACLE

Oracle Machine Learning using ADB

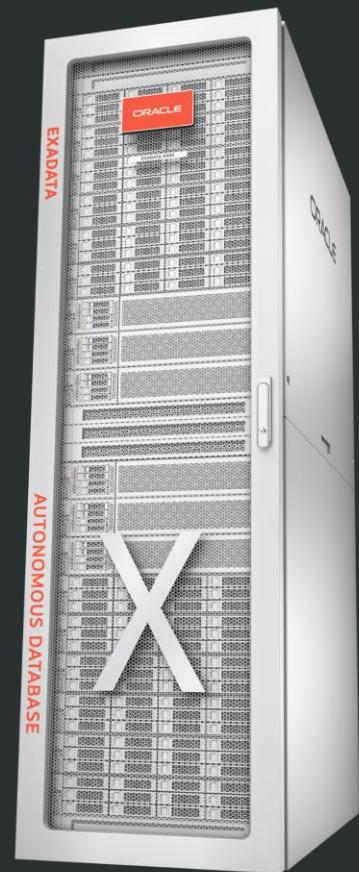
Use natural language to query your data using Select AI and Gen AI

Marcel Lamarca

Exadata Cloud Specialist

Oracle, Alliances & Channels LAD

February, 2024



O



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



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



Why Oracle Autonomous Database ?



Autonomous Database concepts



Autonomous Billing and Features



ADB with Oracle Machine Learning



Resources

Why Oracle Autonomous Database ?

Your data can drive innovation, but...

95%

requires extensive
manual involvement

60%

complained about overall
management complexity

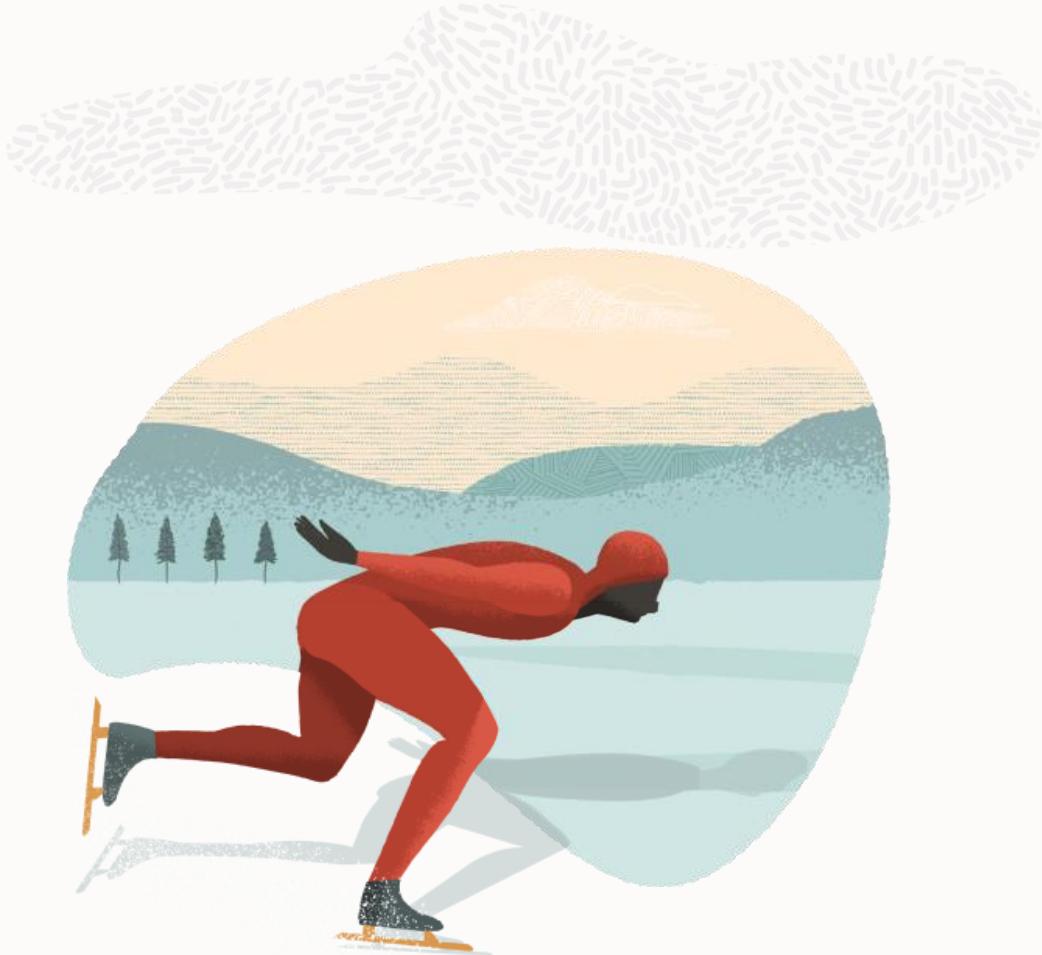
38%

too costly to acquire
and maintain

33%

too slow to deploy

**Data systems and tools need to be modernized to
deliver more and faster**

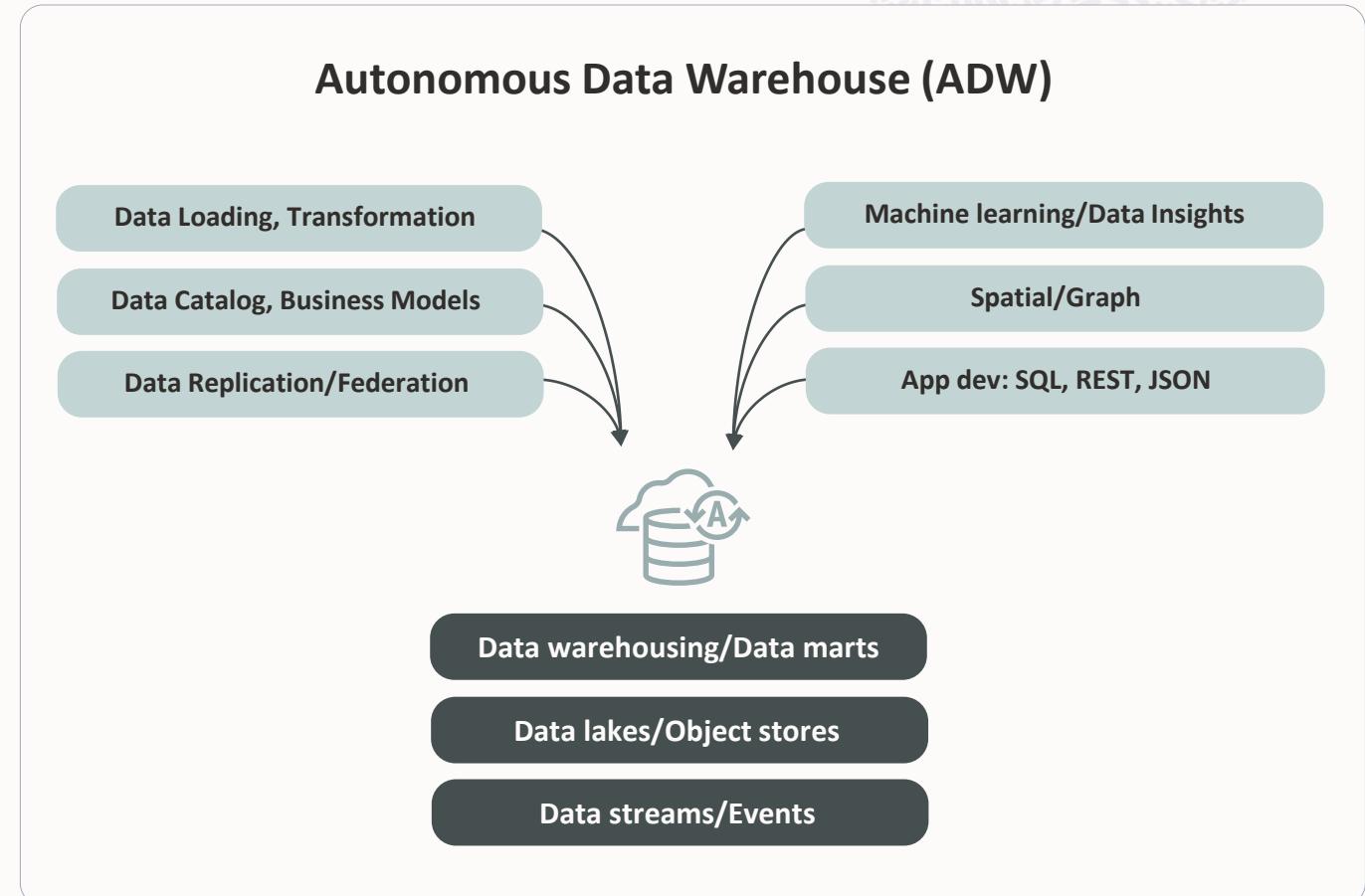


Automation eliminates traditional data warehouse complexity

A secure, scalable, and self-service solution

- **Automated data warehouse management**—with no manual administration
- **A complete solution** with built-in data tools and processing—but also support for 3rd party integration analytic tools
- **Fast response**—regardless of size of data, type of analysis or number of concurrent users
- **Comprehensive data and privacy protection**—no security gaps or need for additional services
- **Choice to provision** in public cloud or at your location

62% lower Total cost of operations

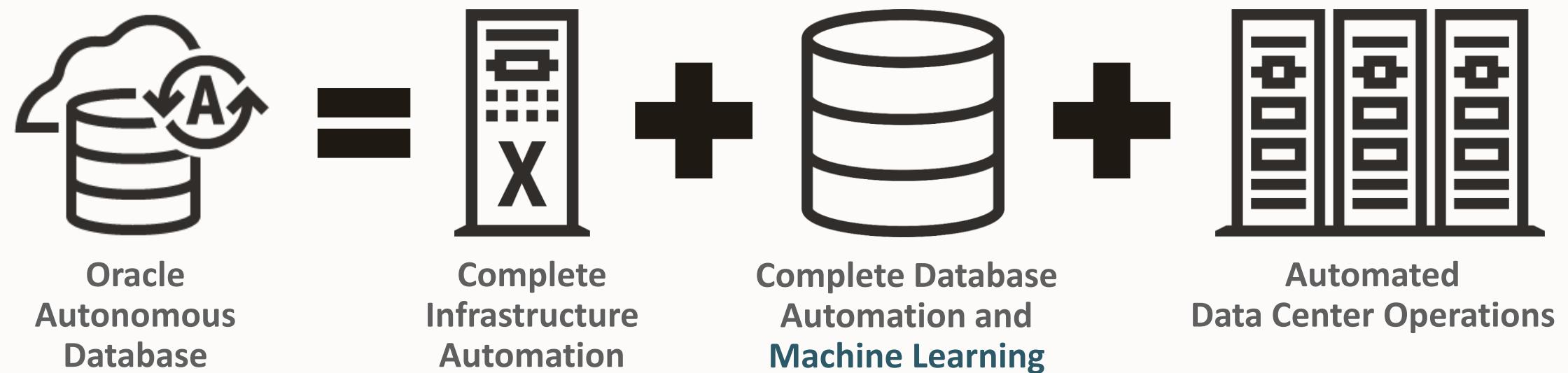


Oracle Autonomous Database Concepts



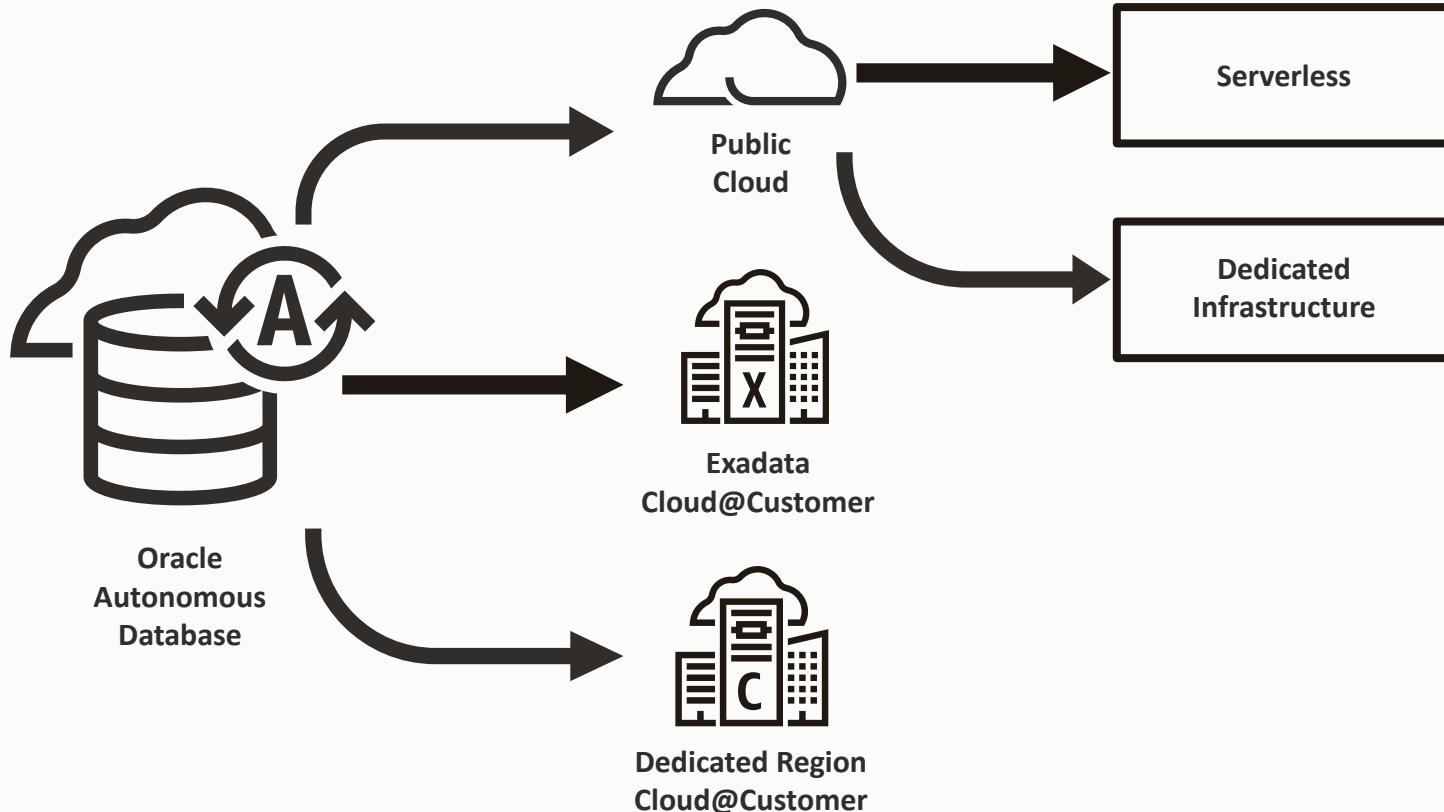
What is Oracle Autonomous Database?

Using the cloud to eliminate all the complexity of mission critical databases



Multiple deployment choices

The most complete support for hybrid cloud strategies



Oracle Public Regions

Hyperscale cloud regions in more than 40 worldwide locations



Dedicated Regions

All OCI services, running in customer data centers



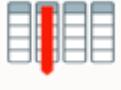
Exadata Cloud@Customer

Cloud Autonomous Databases, running in your data center

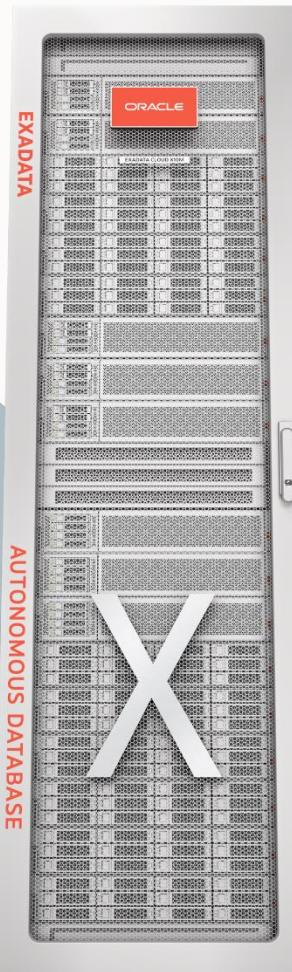


Worldwide or exactly where you need it, with scale and control

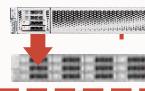
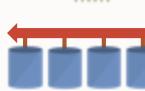
Oracle Database and Exadata Platform Innovations

-  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

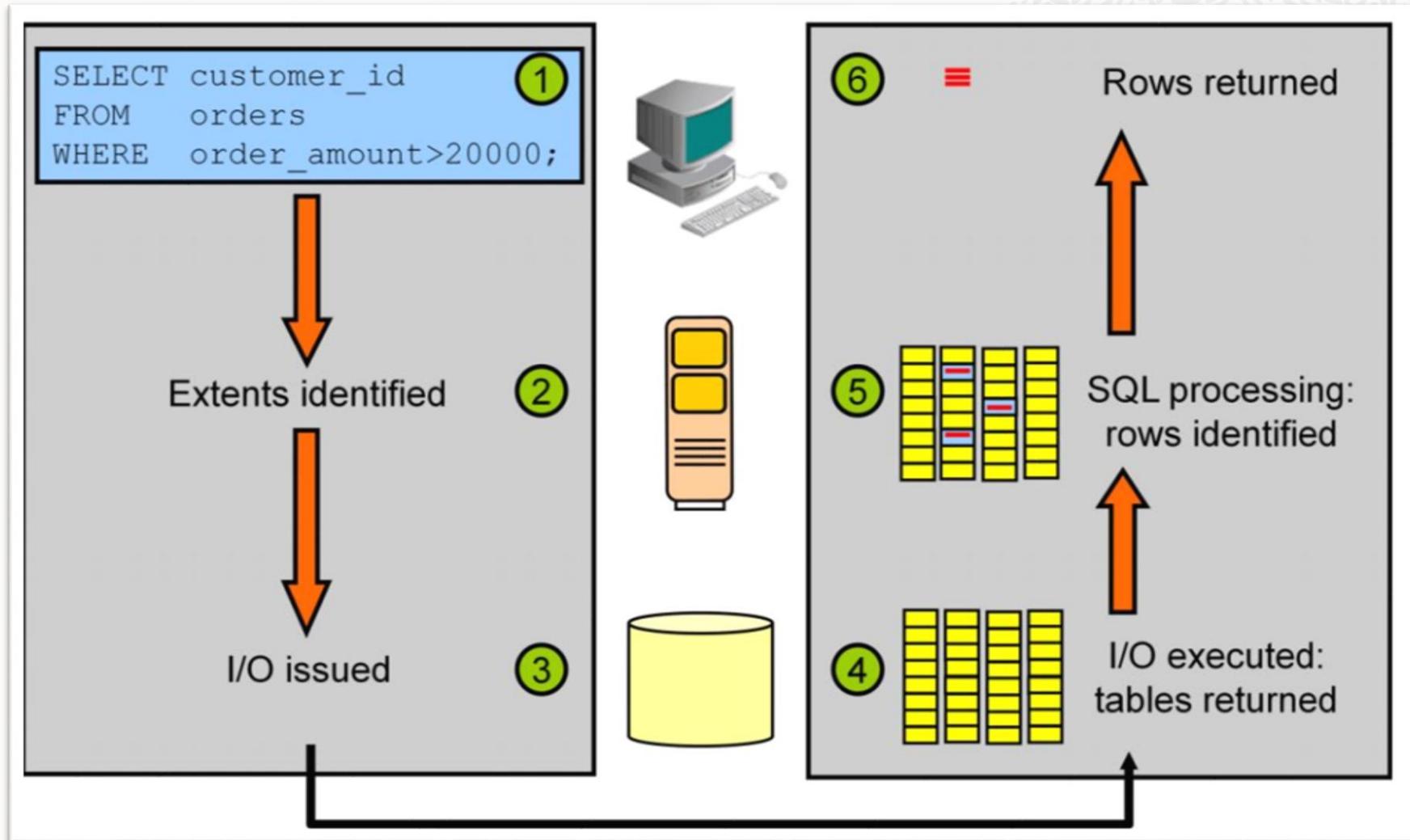
All Oracle Database Innovations



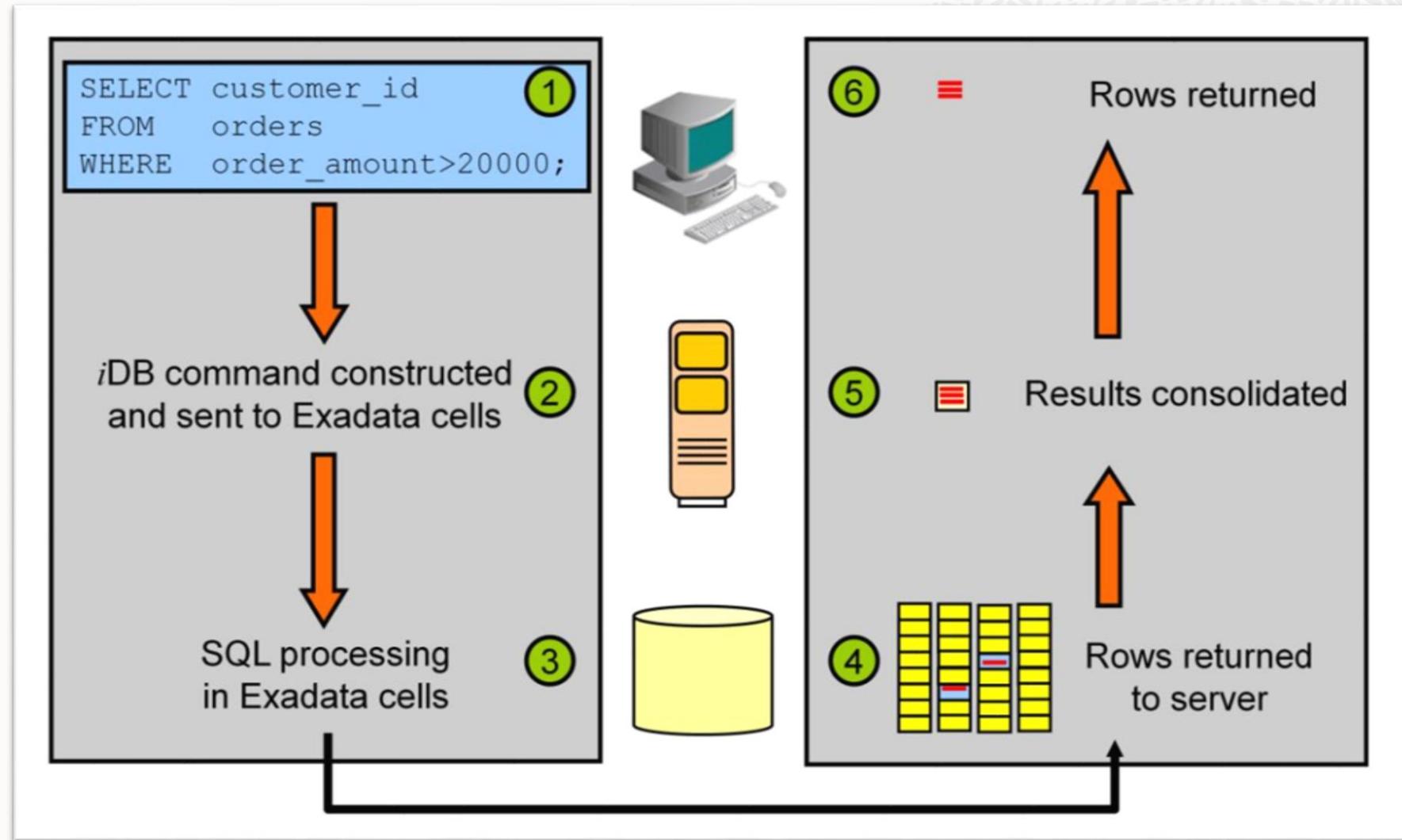
All Exadata DB Machine Innovations

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

Oracle Database | No Exadata System



Exadata Cloud a Smart Scan | Off Load Querying



**Autonomous
operations**

**Simplified application
development**

**Complete data protection and
security**

**High performance and
availability above 99.95%**

Features



Automatic provisioning



Automatic configuration



Automatic encryption



Automatic online patching and updating



Automatic elastic scaling



Automatic tuning

The screenshot displays two Oracle Cloud interface windows. The top window is titled 'Create Autonomous Database' and shows the configuration of a new database instance. It includes fields for 'Compartments' (selected: 'appdevCompartment'), 'High Availability Container Database' (selected: 'Container Database (pdp-US-ASHBURN-AQ-3)'), 'OCPU count' (set to 1), 'Storage (TB)' (set to 1), and 'Auto scaling' (checkbox checked). The bottom window is titled 'ATPDemoDB' and shows the details of an existing Autonomous Database. It lists 'General Information' (Database Name: ATPDemoDB, Workload Type: Transaction Processing, Compartment: appdevCompartment), 'Infrastructure' (Dedicated Infrastructure: Yes, Autonomous Container Database: Container Database), 'Backup' (Last Automatic Backup: Fri, Jun 5, 2020, 05:53:53 UTC), 'Data Safe' (Status: Not registered), and 'Metrics' (CPU Utilization and Storage Utilization charts).

Autonomous operations

Simplified application development

Complete data protection and security

High performance and availability above 99.95%



No-code/Low-code development

Eliminate 98% of hand coding with built-in low-code application development platform, APEX.



In-database machine learning (ML) algorithms

Easily build ML models and analytical dashboards without moving data out of the database.



Self-service data tools

Quickly load any data, run queries, build sophisticated analytical models, visualize information.



Native relational and nonrelational data models

Simpler application development using multiple data types including document, graph, spatial, JSON, XML, and more.



REST API support

Enable all your data for simpler and faster access.

The screenshot shows the Oracle Cloud Autonomous Database interface. At the top, there's a navigation bar with 'ORACLE Cloud' and a search bar. Below it, a banner says 'Autonomous Database + Autonomous Database Details'. A large green button labeled 'ATP' with 'AVAILABLE' underneath is prominently displayed. To the right, there are sections for 'Autonomous Database Information' (Tools, Tags), 'Database administration and developer tools for Autonomous Database' (SQL Developer Web, Oracle Application Express), and 'SODA Drivers' (Simple Oracle Document Access). At the bottom, there are tabs for 'Metrics' (selected), 'Backups (8)', and 'Work Requests (0)'. The 'Metrics' section shows CPU Utilization and Storage Utilization over a one-hour interval.

Autonomous operations

Simplified application development

Complete data protection and security

High performance and availability above 99.95%



Always-on encryption

This ensures the data is always secure at rest and in motion.



Auto-patching

Applications continue to run as patching occurs.



Data privacy

Enables database administrators to perform all administrative tasks without ever seeing customer data.



Security for sensitive data

Oracle Data Safe, makes it easy to discover sensitive data, evaluate security risks, mask sensitive data, and implement and monitor security controls.



Advanced auditing

You can log & monitor all events with minimal impact on performance - analysis, forensics, and compliance.



Autonomous operations

Simplified application development

Complete data protection and security

High performance and availability above 99.95%



High performance

Delivers 80% lower latency and more than 5X throughput than other cloud providers by utilizing database-optimized hardware, automated tuning, and indexing.



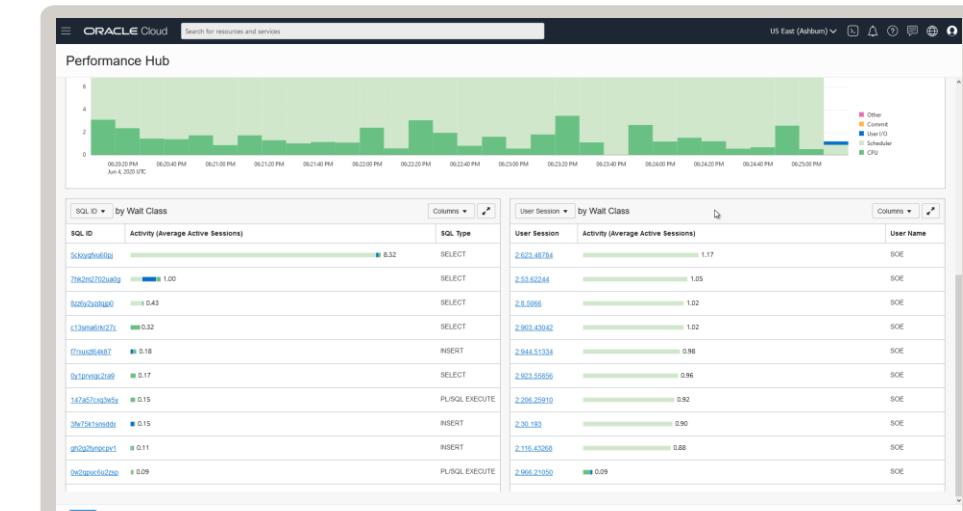
Always online

Provides more than 99.95% availability using a combination of Oracle's Gen 2 Cloud Infrastructure, Oracle RAC, Autonomous Data Guard, and daily automatic backups.



Protection from human error

Oracle Flashback, provided with Autonomous Transaction Processing, instantly rewinds accidental changes to application schemas, protecting users from human errors. It supports recovery at all levels including row, transaction, and table—and across the entire database.



Autonomous Database Billing OCPU

Consistent high performance and scaling

Unmatched elasticity for lower costs in the cloud

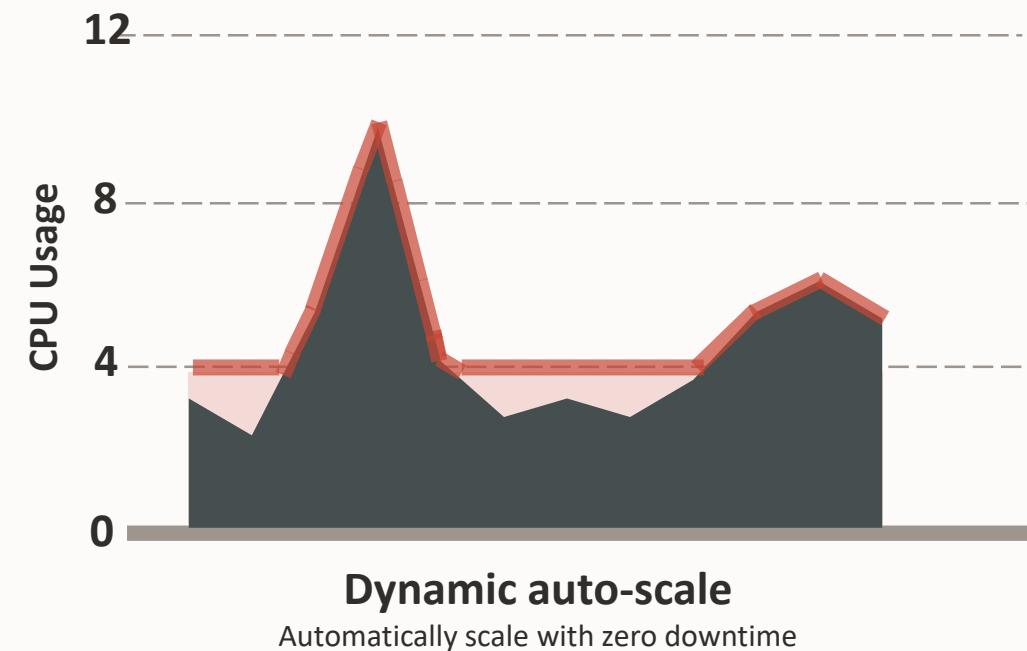


Size to number of OCPUs and TBs required

- Not constrained by fixed shape ‘t-shirt’ sizes
- Simple incremental growth
- Lower operating costs

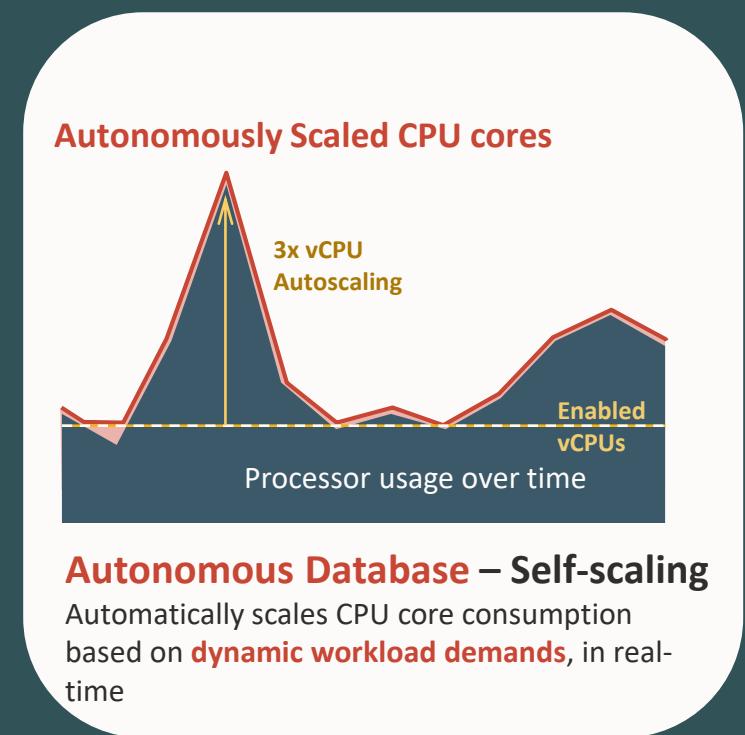
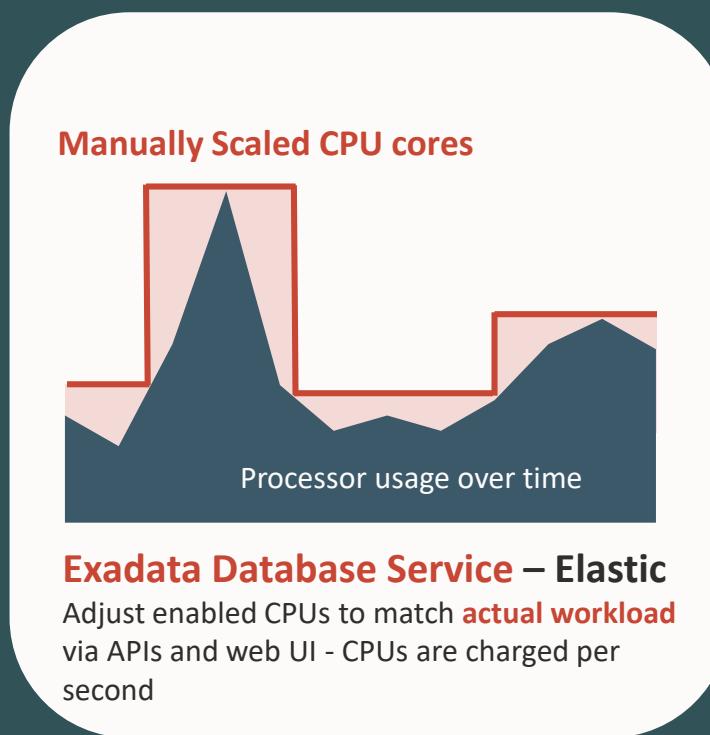
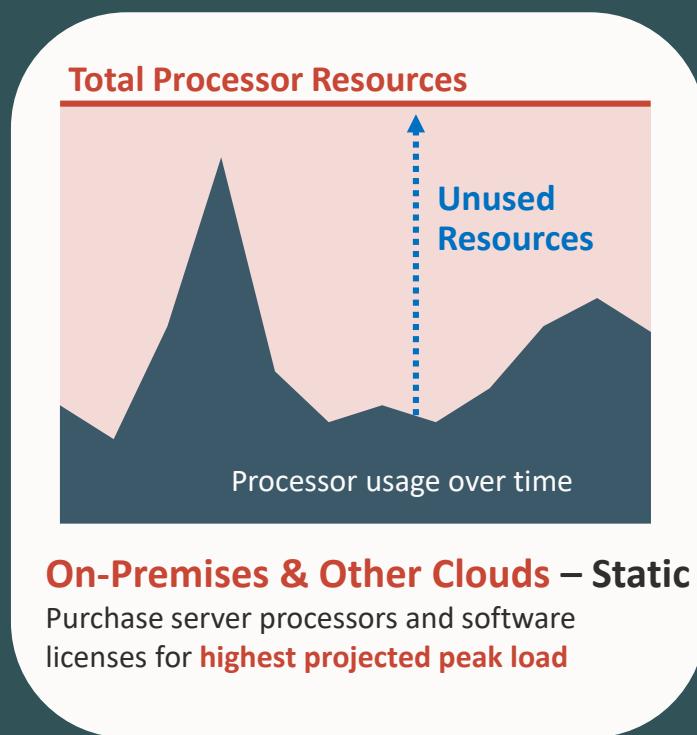
Auto-scaling for changing workloads

- Dynamically adjusts CPU and IO resources based on workload requirements
- Zero delay while scaling up or down
- No ‘cache warm-up’ after scaling



Online, Elastic Scaling with Exadata and Autonomous Database Services

Pay only for what you use, in OCI or your data center



Automated data warehouse management

Run a high-performance, highly available, and secure data warehouse while reducing cost

Auto-provisioning

Deploys mission-critical databases (RAC on Exadata infrastructure) which are fault-tolerant and highly available.

Auto-configuration

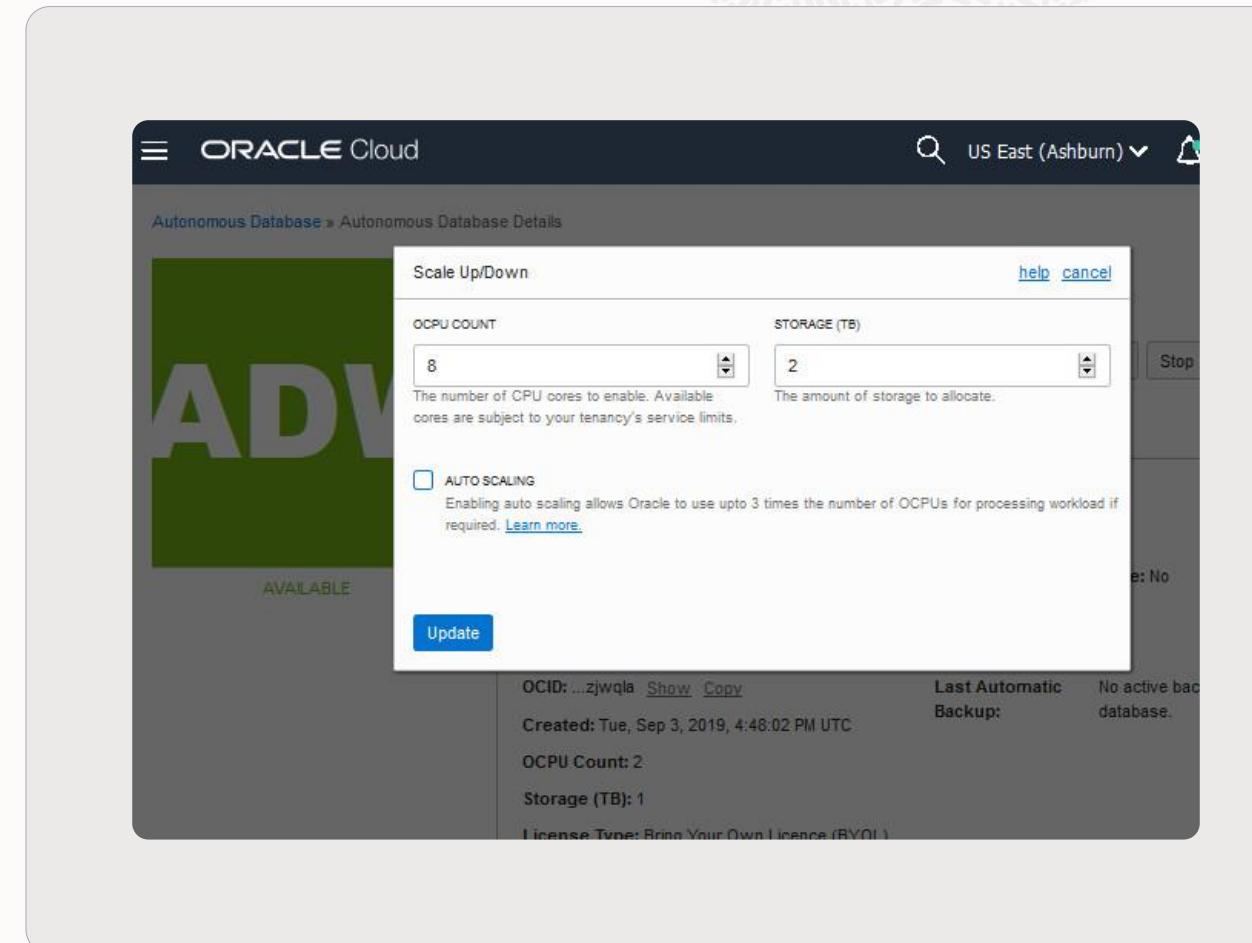
Automatically configures the database to optimize for data warehouse workloads.

Auto-scaling

Automatically scales compute resources when needed. Precision scaling occurs while applications are running—without downtime. Enables true pay per use.

Automated security

Automatic encryption for the entire database, backups and all network connections.



Retirement Of The OCPU Billing Metric In Autonomous Database Serverless (Doc ID 2998742.1)

ACTIONS

What action do I need to take now?

We encourage customers to provision all new Autonomous Data Warehouse and Autonomous Transaction Processing databases or clones with the ECPU billing metric. We also encourage customers to update all existing databases to the ECPU billing metric, which is a simple and seamless button click or API call, as described in the documentation here. While you may choose not to update your existing databases' billing metric at this time, Oracle may convert your databases from the OCPU billing metric to the ECPU billing metric in the future.

Note: Autonomous Data Warehouse databases provisioned as part of Oracle Data Intelligence Platform (formerly Fusion Analytics Warehouse) service instance will be updated to the ECPU billing metric by Oracle. No user action is required on those databases.

How will updating my databases to the ECPU billing metric affect my service?

Updating your Autonomous Database Serverless to the ECPU billing metric will have **no impact to your service** and incur **no downtime**.

Which SKUs are affected by this retirement notice?

Oracle Autonomous Database will be retiring the OCPU-based SKUs and replacing them with the ECPU-based SKUs listed below:

Retired OCPU Billing Metric - SKU Name	Part Number	Metric
Oracle Autonomous Data Warehouse	B89040	OCPU Per Hour
Oracle Autonomous Data Warehouse - BYOL	B89039	OCPU Per Hour



Retirement Of The OCPU Billing Metric In Autonomous Database On Dedicated Infra (Doc ID 2998755.1)

ACTIONS

What action do I need to take now?

We encourage users to provision new Autonomous VM Clusters (AVM) with the ECPU billing metric. Oracle will offer an online conversion capability to update existing OCPU AVMs and their respective Autonomous Container Databases and Autonomous Databases to the ECPU billing metric via the OCI console and API in Q3 CY2024. In the meantime, users can also use database cloning to migrate existing OCPU ADs to ECPU if they have AVMs configured with the ECPU billing metric. While you may choose not to update your existing databases' billing metric at this time, Oracle may convert your databases from the OCPU billing metric to the ECPU billing metric in the future.

Which SKUs are affected by this retirement notice?

Oracle Autonomous Database on Dedicated Infrastructure will be retiring the OCPU-based SKUs and replacing them with the ECPU-based SKUs listed below:

Retired OCPU Billing Metric - SKU Name	Part Number	Metric
Oracle Autonomous Data Warehouse - Dedicated	B92182	OCPU Per Hour
Oracle Autonomous Data Warehouse – Dedicated - BYOL	B92184	OCPU Per Hour
Oracle Autonomous Transaction Processing - Dedicated	B92181	OCPU Per Hour
Oracle Autonomous Transaction Processing – Dedicated - BYOL	B92183	OCPU Per Hour





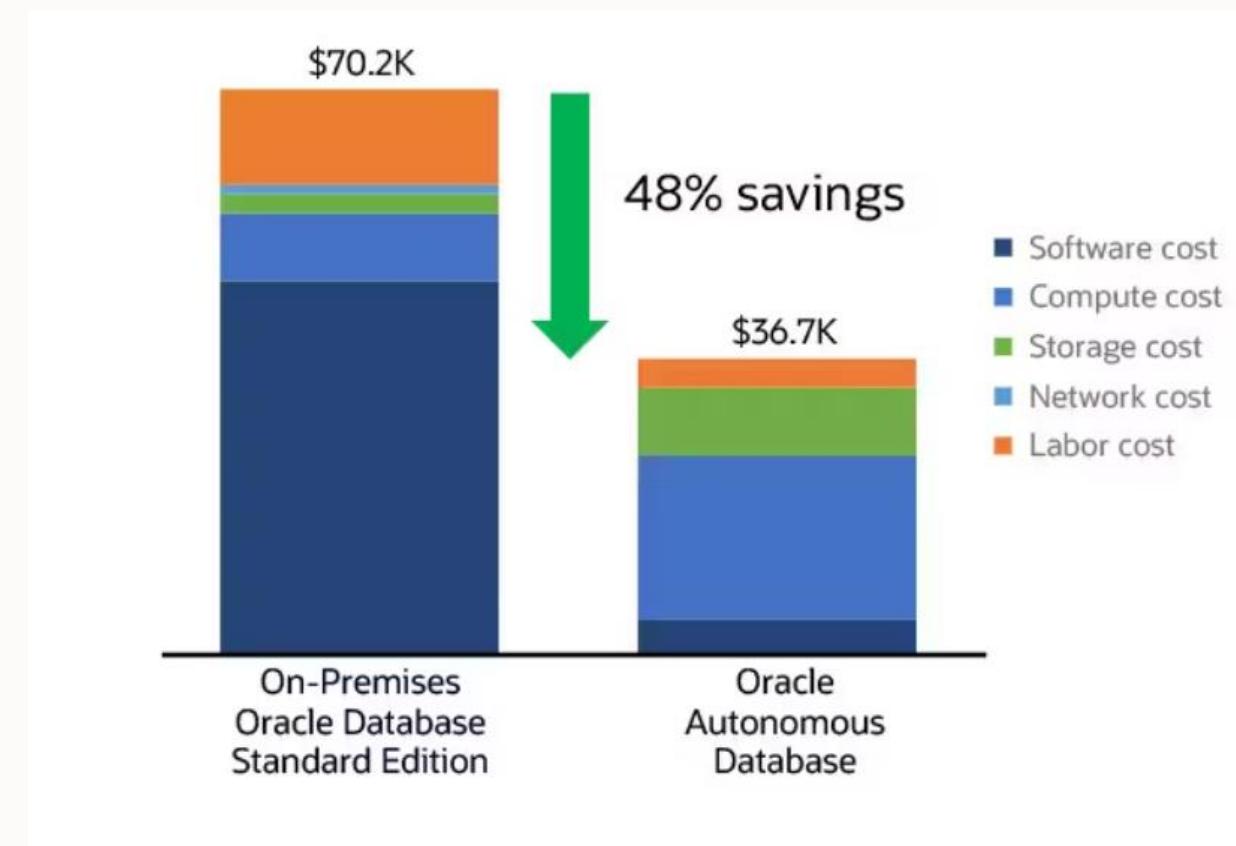
Reduce TCO moving to Autonomous ADB Standard Edition

Software cost totals

Oracle Autonomous Database	On-premises Oracle Database Standard Edition
\$ 46,398	\$ 4,350

Labor cost totals

Oracle Autonomous Database	On-premises Oracle Database Standard Edition
\$ 3,552	\$ 11,853



Significant benefits: Five-year ROI of 417%

The real-world business value of Oracle Autonomous Data Warehouse



Business value highlights

- **417%** five-year ROI
- **63%** reduced total cost of operations
- **Five months** to payback
- **68%** more efficient database administrators
- **84%** more efficient IT infrastructure management
- **45%** reduction in IT infrastructure costs
- **94%** reduction in unplanned downtime
- **27%** more productive



TABLE 8
Five-Year ROI Analysis

	Per Organization	Per Database
Benefit (discounted)	\$7.42M	\$536.9K
Investment (discounted)	\$1.44M	\$103.8K
Net Present Value	\$5.99M	\$433.9K
ROI (NPV/Investment)	417%	417%
Payback (Months)	5 months	5 months
Discount Factor	12%	12%

n = 7, Source: IDC In-depth Interviews, December 2020

Multi Application deploy options

NEW Self-Service Tools for Data Analysts

From data to insights with built-in self-service data tools

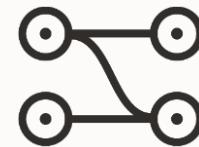


NEW Data Load



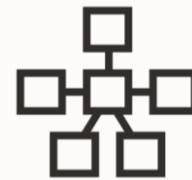
Simple drag & drop loading

NEW Transforms



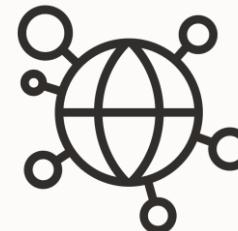
Declarative transformations and data cleansing

NEW Business Models



Automatically create powerful business models

NEW Select AI



Query data using natural language

NEW Insights



Guided discovery of hidden patterns and anomalies

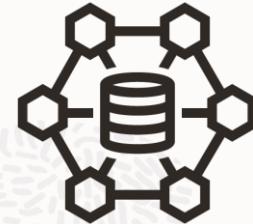
NEW Data Sharing



Enabling better collaboration

A complete solution with built-in self-service data integration and analytics

Empower innovators with self-service data management tools



Converged database

Multi-model, multi-workload and multi-tenant

Data tools

Self-service tools for data loading, transformation, insights and business models

Oracle machine learning

High-performance in-database algorithms

Graph database

Complete graph database and analytics with scalability

Spatial

Native spatial data storage and analysis

Data safe

Unmatched security in the cloud keeps your data safe

A screenshot of the Oracle Database Actions interface. The top navigation bar includes a logo, a search bar, and a dropdown menu. The main content area is divided into sections: 'Development' (SQL, DATA MODELER, REST, JSON), 'Data Tools' (DATA LOAD, CATALOG, DATA INSIGHTS, BUSINESS MODELS, DATA TRANSFORMS), and 'Getting Started' (RESTful Web Services, Load Data, JSON, Available On-Premises). A sidebar on the right provides links for Documentation, the SQL Developer Community Forum, and SQL Developer on Twitter. The bottom right corner features a red square with a white 'O' logo.

Comprehensive data and privacy protection

Reduce risk with autonomous security and data privacy



Secure database infrastructure

- Always encrypted, always audited, always patched

Understand your users and your data

- Risk assessment and analysis of user privileges
- Automatic discovery of sensitive data

The screenshot shows the Oracle Data Safe interface with several data visualization panels:

- Security Assessment:** A donut chart showing 97% Risk, 3% Low Risk.
- User Assessment:** A donut chart showing 446 users, with categories: Critical Risk (142), High Risk (224), Medium Risk (19), Low Risk (81).
- Data Discovery:** A pie chart showing 2108 columns across four categories: Address (42%), Public Identifier (31%), Employee Basic Details (14%), Compensation Details (13%).
- All Activity:** A line chart showing activity from July 2020 to August 2020, with values ranging from 30K to 120K.
- Admin Activity:** A line chart showing admin activity from July 2020 to August 2020, with values ranging from 200 to 1000.
- Open Alerts:** A line chart showing open alerts from July 2020 to August 2020, with values ranging from 200 to 800.
- Feature Usage:** A bar chart showing usage of Security Assessment, User Assessment, Data Discovery, Data Masking, and Active Auditing over the last week and month.
- Jobs Summary:** A bar chart showing the status of Security Assessment, User Assessment, Data Discovery, and Data Masking jobs.
- Audit Trails:** A bar chart showing audit trails for Failed, Pending, and Running states.

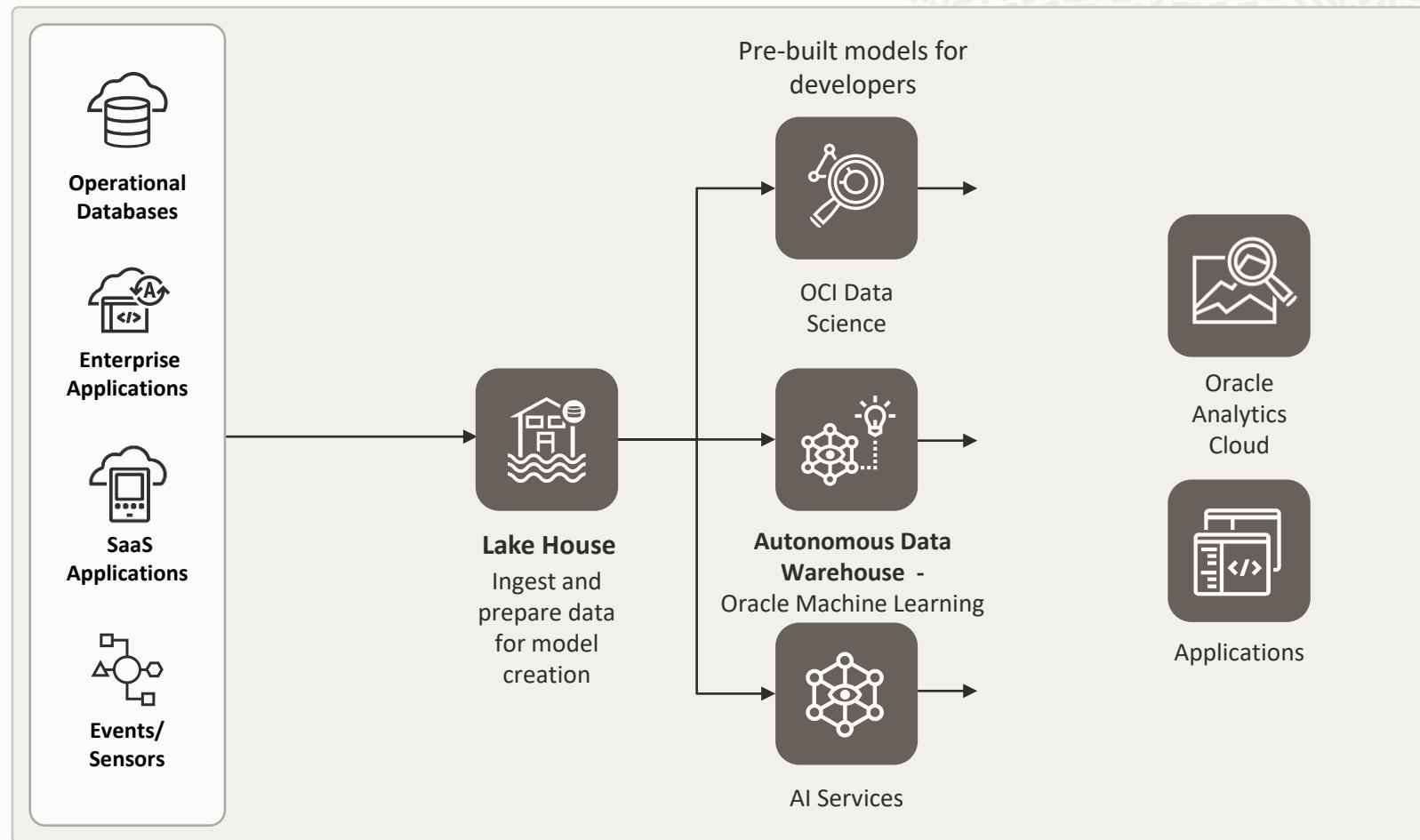
Identification	Biography	IT	Financial	Healthcare	Employment	Academic
SSN	Age	IP address	Credit card	Provider	Employee ID	College name
Name	Gender	User ID	CC Security PIN	Insurance	Job title	Grade
Email	Race	Password	Bank name	Height	Department	Student ID
Phone	Citizenship	Hostname	Bank account	Blood type	Hire date	Financial aid
Passport	Address	GPS location	IBAN	Disability	Salary	Admission date
DL	Family data	...	Swift code	Pregnancy	Stock	Graduation date
Tax ID	Date of birth	Test results	...	Attendance
...	Place of birth	ICD code





Augment decision making with machine learning

Data Lakehouse & Sandboxes





Autonomous Database speaks “human”

**Oracle can bring AI
to the enterprise
at **every layer**
of our stack**



SaaS Apps

AI Services

Data

Infrastructure

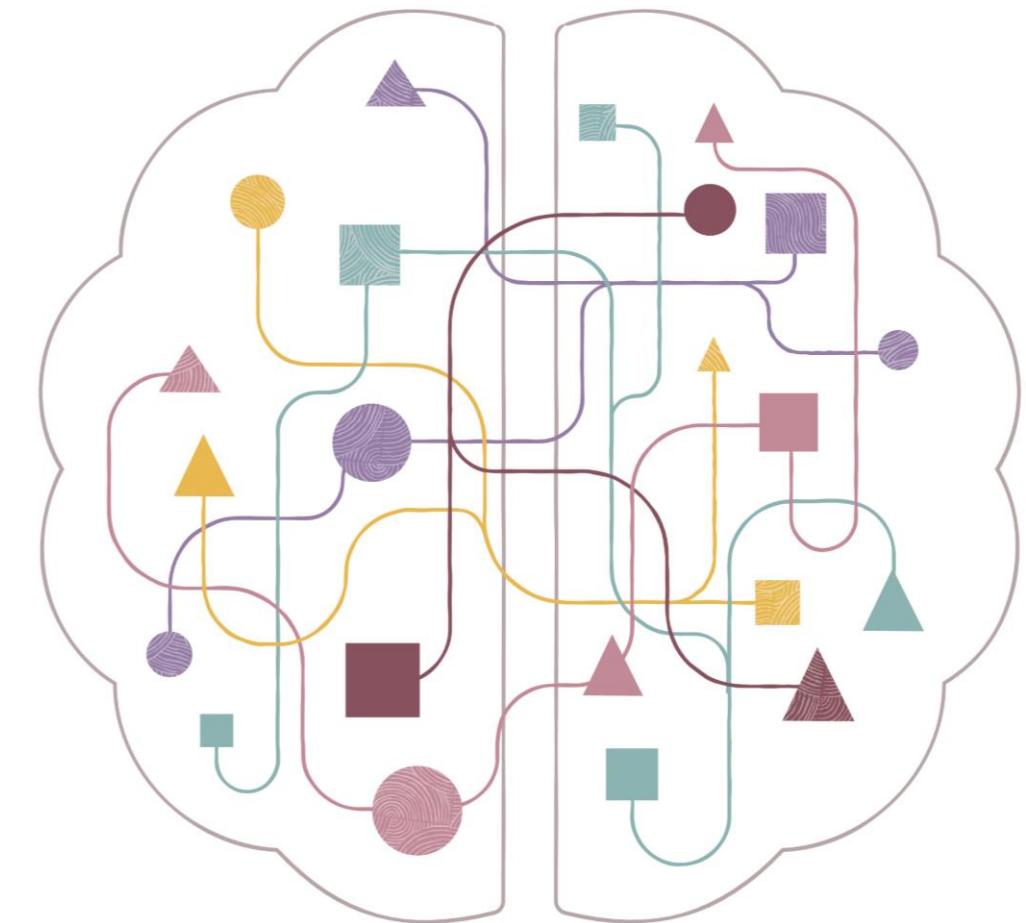
Partners

Autonomous Database Select AI

Simplest way to get answers about your business

Use **your language** to query data

No need to understand where and how
your data is stored to gain insights



Select AI - Simplest way to get answers about your business

Just ask a question

Autonomous Database
manages the entire query
process to produce your
answer

The screenshot shows the ChatDB interface. At the top, there's a navigation bar with 'New Conversation', 'Install App', and a user profile 'marty'. Below the navigation, a sidebar lists recent conversations: 'George Clooney: Known for ...', '"Albert Einstein: A Brief Intro...', and 'Exploring NYC: A One-Week ...'. The main area is a chat window with a message from the AI: 'what are our total streams for each tom hanks movie this month?'. Below the message is a table:

Movie Title	Total Streams
Forrest Gump	443.00
Saving Private Ryan	212.00
Who Killed the Electric Car?	6.00
Philadelphia	101.00
Big	116.00
Cast Away	222.00
The Great Buck Howard	3.00

Below the table, it says 'More rows available' with links 'Explore' and 'Explain'. At the bottom of the window, there's another input field with the same query 'what are our total streams for each tom hanks movie this month?' and a checkbox 'Ask Database'.



Historically, answering these types of questions has not been easy

We infer a lot from human language

what are our total streams for each tom hanks movie this month?

total number of
movie views

breakout views
by movie

tom hanks is
an actor

understanding
of time

Select AI translates your language into Oracle SQL language

Processes question using an AI large language model (LLM)

Question	Inference
what are our	
<u>total streams</u>	→ total number of movie views →
<u>for each</u>	→ breakout views by movie →
<u>tom hanks</u> movie	→ tom hanks is an actor →
<u>this month?</u>	→ Understanding of time →

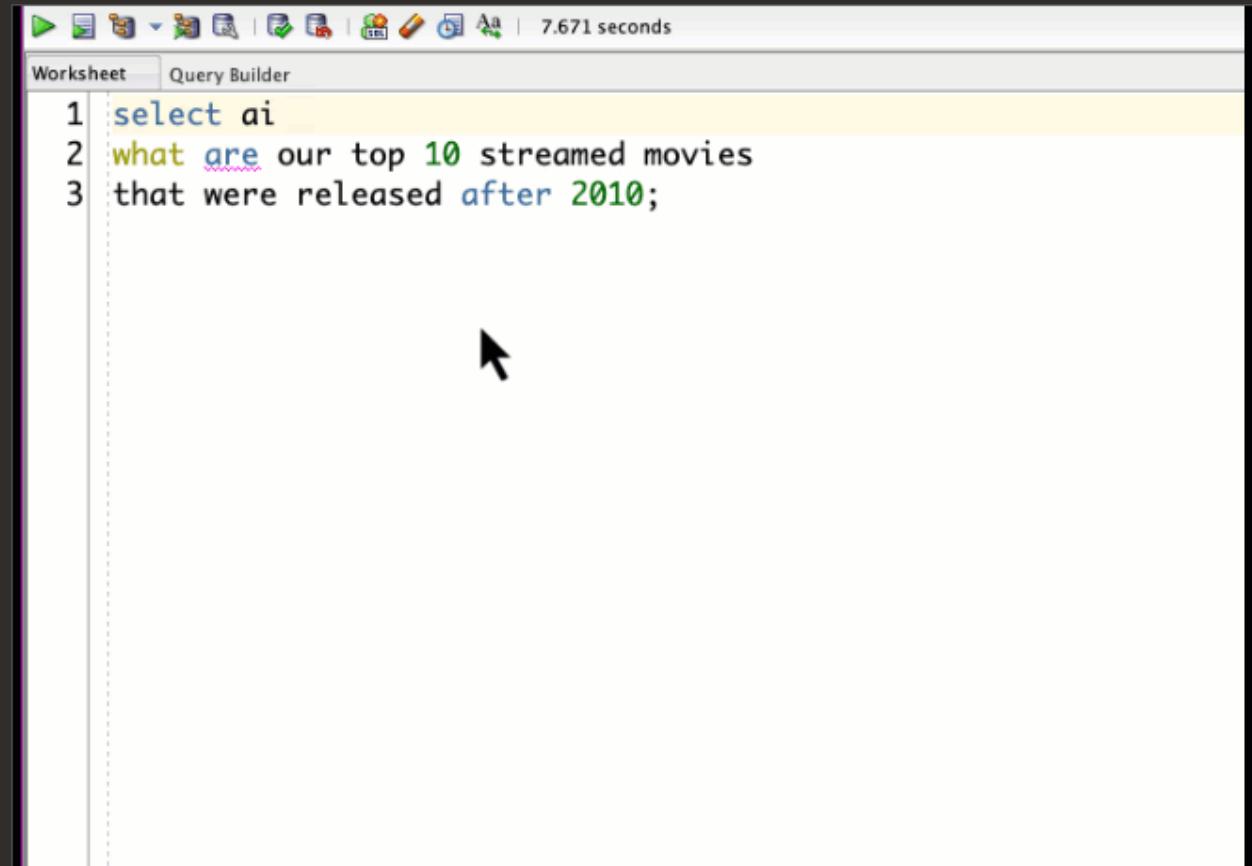
```
SELECT  
    m.title AS movie_title,  
    COUNT(s.views) AS total_streams  
FROM movie m  
JOIN activity s ON m.movie_id = s.movie_id  
JOIN actors a ON m.movie_id = a.movie_id  
WHERE a.actor = 'Tom Hanks'  
AND EXTRACT(MONTH FROM s.day_id) =  
    EXTRACT(MONTH FROM SYSDATE)  
GROUP BY m.title
```

LLMs are remarkable at inferring intent (and getting better)
They are not perfect! It is important to verify results

Easy to extend and build new natural language apps

Use a standard SELECT statement followed by AI and your question

Process the result as you would any other SQL result set



The screenshot shows a software interface titled "Worksheet" with a toolbar above it containing various icons. The main area is labeled "Query Builder". A cursor arrow is positioned over the text in the worksheet. The text in the worksheet is as follows:

```
1 select ai
2 what are our top 10 streamed movies
3 that were released after 2010;
```

Easy to configure your data for natural language queries

Use one or more Select AI Profiles that is best for your business

1

Choose an LLM to generate a database query from natural language

Available today

Cohere

OpenAI

Azure
OpenAI

Available soon!

OCI
Generative AI

2

Specify schemas, tables and/or views to participate in processing

Finance



ACTUALS

Streaming



CUSTOMERS



MOVIES



PLAN



VIEWS



SEGMENTS



Easy to configure your data for natural language queries

Use one or more AI profiles that is best for your business

1

Choose an LLM to generate a database query from natural language

2

Specify schemas, tables and/or views to participate in processing

Simple PLSQL API creates AI profile:

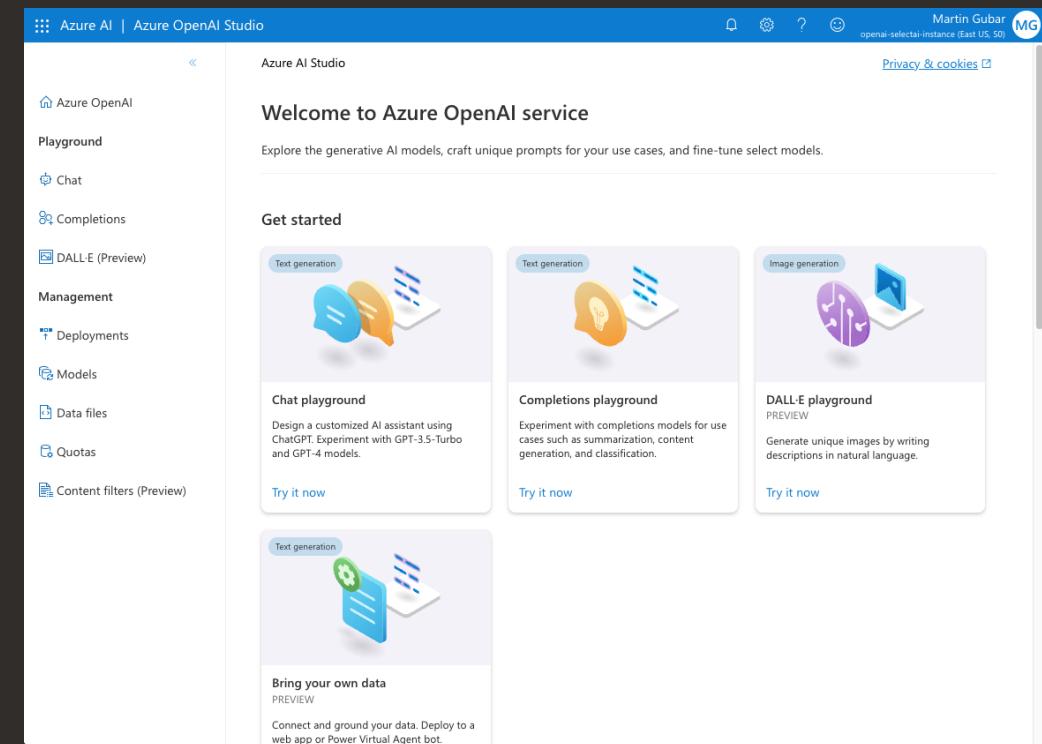
```
dbms_cloud_ai.create_profile(  
    profile_name => 'movie_nl_processing',  
    attributes =>  
        '{"provider": "openai",  
         "credential_name": "OPENAI_CRED",  
         "object_list": [{"owner": "myschema",  
                        "name": "movie"},  
                      {"owner": "myschema",  
                        "name": "sales_sample"},  
                      {"owner": "myschema",  
                        "name": "customer"}]  
        }'  
);
```

Pluggable models make it easy to improve your apps

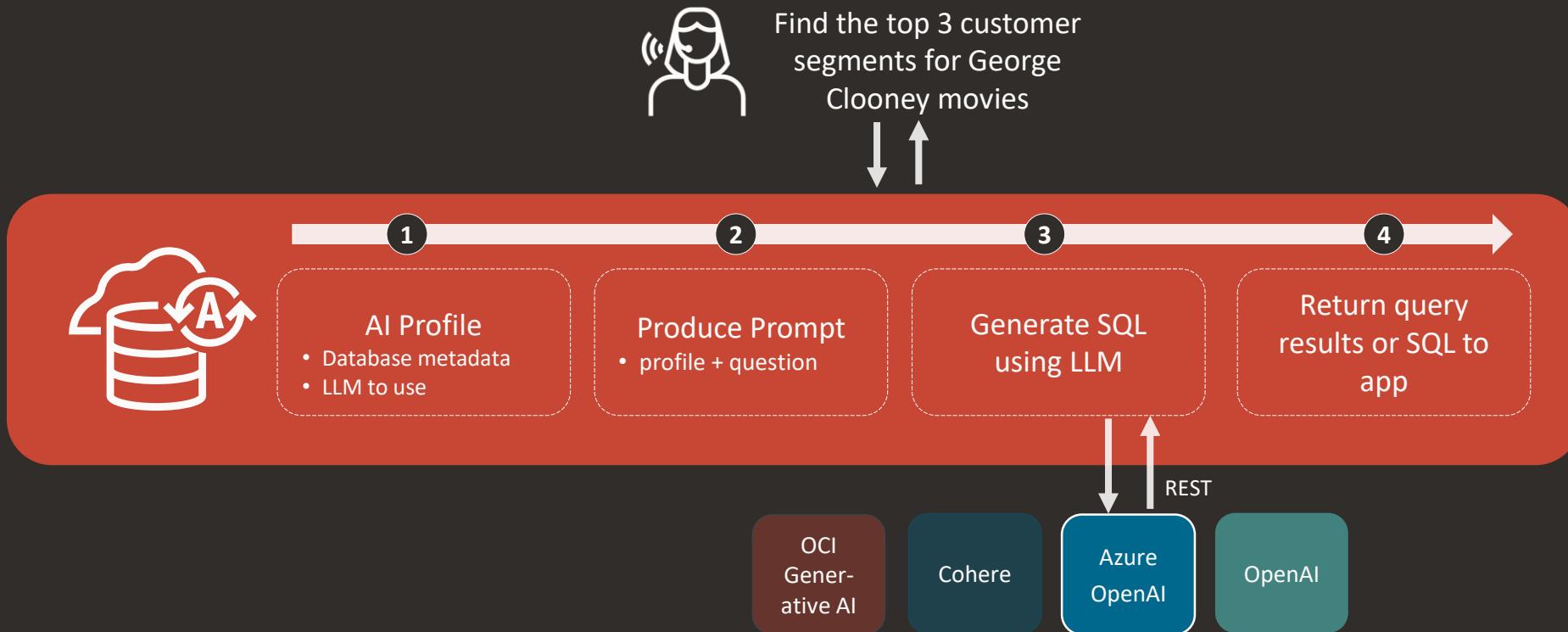
Select AI Profiles future-proof your solutions

NEW! Select AI supports Azure OpenAI

- Continues Oracle deep partnership with Azure
- Benefit from Azure data privacy, governance and security
- Use latest models from OpenAI and fine-tune for better results



SQL query generation process flow



Demonstration

The screenshot shows the ChatDB APEX App interface. At the top, there's a navigation bar with 'ChatDB' and other tabs. Below it is a conversation pane with messages like 'George Clooney: Known for ...', 'Albert Einstein: A Brief Intro...', and 'Exploring NYC: A One-Week ...'. A large text area displays awards information for George Clooney. Below this is a table titled 'what are our total number of views for each George Clooney movie' with columns 'TITLE' and 'TOTAL_VIEWS'. The table data is as follows:

TITLE	TOTAL_VIEWS
Syriana	1,144.00
The Perfect Storm	2,262.00
Gravity	3,031.00
Ocean's Eleven	4,214.00
Ocean's Twelve	2,890.00

At the bottom, there are buttons for 'Explore' and 'Explain', and a text input field with placeholder 'Ask a question'.

The screenshot shows the Oracle SQL Worksheet interface. The 'Worksheet' tab is active, displaying a query:

```
1 select ai
2 what are our top 10 streamed movies
3 that were released after 2010;
```

Below the worksheet is a 'Script Output' tab showing the SQL query and its execution time: 'All Rows Fetched: 10 in 8.263 seconds'. The 'Query Result' tab shows the output table:

MOVIE_TITLE	STREAM_COUNT
1 Avengers: Endgame	81074
2 Captain Marvel	33587
3 Star Wars Episode IX: The Rise of Skywalker	31331
4 Spider-Man: Far from Home	29021
5 Aladdin	24058
6 The Lion King	22627
7 Aquaman	20357
8 Avengers: Infinity War	18813
9 Toy Story 4	17426
10 Bohemian Rhapsody	16936

ChatDB APEX App

“Speak Human” to Autonomous Database to get your business questions answered

Select AI

Behind the scenes: How you can use Select AI to deliver natural language apps

Integrate natural language queries with your application

SELECT AI what are our top selling movies?

Result:

Movie Title	Total Sales
Aladdin	82426.71
Aquaman	78091.19
Captain Marvel	77146.21
The Lion King	66606.75
Spider-Man: Far from Home	66516.26

Optional ACTION keywords:

runsql	return sql result set
narrate	return a conversational result
showsql	return the generated query
chat	general AI-chat conversation

SQL Worksheet History

Worksheet Query Builder

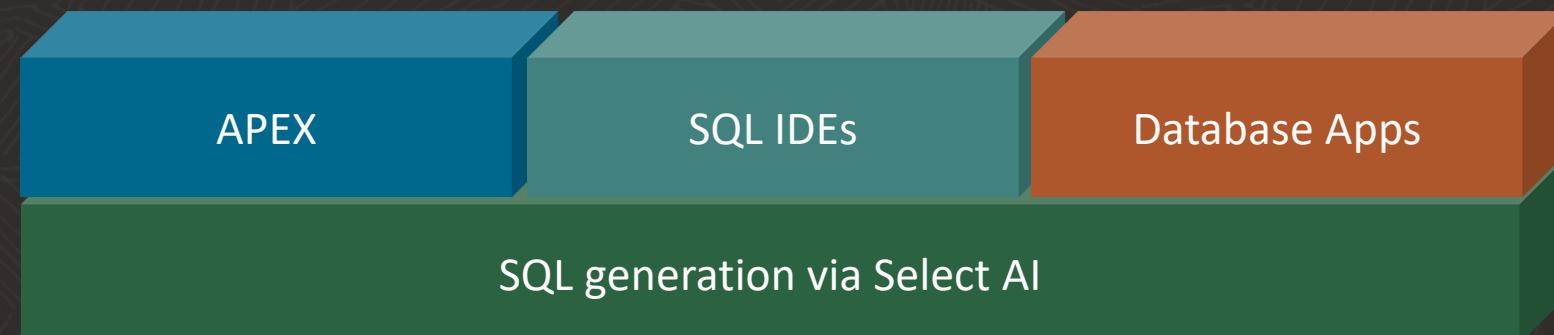
```
27 -- Some of our data
28 select * from movies;
29 select * from streams;
30
31 -- Actions:
32 -- 1. chat      - general AI chat
33 -- 2. runsql    - [default] ask a question and get a structured result
34 -- 3. narrate   - ask a question and get a conversational result
35 -- 4. showsql   - SQL used to produce the result
36
37 -- Actions work across models (Cohere, GPT)
38
39 -- ~~~~
40 -- Question that doesn't use MovieStream private data
41 select ai chat
42 what is a movie streaming service ;
43
44 -- ~~~~
45 -- Different ways of asking a simple question
```

Script Output X
| Task completed in 3.195 seconds

Select AI – *available today!*

Foundation functionality for SQL-to-Natural-Language for any database application

- Available immediately via any existing client or database driver – *no new downloads or installations*
- Inherit security and authentication of the database
- Choice of Large Language Models – *easily adaptable to latest technology or proprietary extensions*





- "Albert Einstein: A Brief Intro..."
- Exploring NYC: A One-Week ...
- Summary of the movie "Big"
- Harrison Ford's Notable Achi...



No questions have been asked!



Ask a question

Ask Database 

Successful Use Cases



Lyft cuts time to financial close in half

“When I have a process running in the middle of the night, I can’t tell you the exact minute it’s going to stop. With the autoscaler in Oracle Autonomous Data Warehouse, it scales the number of CPUs automatically, so I don’t have to pay for idle hours. That’s very attractive to my finance team.”

Jay Weiland

Director of Corporate Solutions, Lyft

Business Challenge:

Ride-share pioneer needed to scale from start up to processing billions of financial transactions a year with single source of information for one data model.

Results:

- ✓ ERP consolidated 30 systems to improve revenue accounting that cut time to close by more than 50%
- ✓ ADW created a single data model for more accurate, faster insights with less maintenance
- ✓ Auto-scaling provides capacity for performance during peak reporting periods and cost flexibility
- ✓ Data masking allows anyone to analyze confidential information
- ✓ OAC empowers finance team with access to data and visualization tools to explore growth

Products:

Oracle Cloud ERP Fusion Cloud

Oracle Autonomous Data Warehouse

Oracle Analytics Cloud

Implementation Partner: Deloitte

Read [story](#)



OUTFRONT Media innovates sales reporting

“Oracle Autonomous Data Warehouse and Analytics allows our business users to adopt data analytics and visualization tools that helps us achieve maximum results for our customers, which in turn grows our business.”

Derek Hayden

Senior Vice President of Data Strategy and Analytics, OUTFRONT Media

Business Challenge:

OUTFRONT Media is leader in outdoor advertising with more than 500,000 digital and static billboards in North America. It needed to change its Oracle Database Cloud Service data platform to something more robust and flexible.

Results:

- ✓ ADW provisions quickly, autoscales on demand, and ingests 1TB of external data in 30 minutes vs weeks
- ✓ Self-tuning reduced complex pricing query to 6 minutes then to 2 seconds
- ✓ 25% productivity increase for more valuable data modeling and dashboards
- ✓ Less cost with consumption-based pricing vs on-prem and subscription database cloud services
- ✓ OAC enables business users to visualize trusted data for more effective decision making and collaboration with customers

Products Used:

Oracle Autonomous Data Warehouse

Oracle Spatial Studio

Oracle Analytics Cloud

[Read story](#)



Resources

- **Autonomous Database Get Started**

<https://www.oracle.com/autonomous-database/get-started>

- **Autonomous Data Warehouse**

<https://www.oracle.com/autonomous-database/autonomous-data-warehouse/>

- **Autonomous Transaction Processing**

<https://www.oracle.com/autonomous-database/autonomous-transaction-processing/>

- **Autonomous JSON Database**

<https://www.oracle.com/autonomous-database/autonomous-json-database>

- **Autonomous Database Free services**

<https://www.oracle.com/autonomous-database/free-trial/>

- **Architecture Center Autonomous Database**

<https://docs.oracle.com/en/cloud/paas/autonomous-database/index.html>

- **Machine Learning on Oracle Databases**

<https://www.oracle.com/br/artificial-intelligence/database-machine-learning/>



- **Oracle Licenses e-mail**

infoprice@oracle.com

- **Oracle Partner Network**

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

- **Oracle Live Labs**

<https://apexapps.oracle.com/pls/apex/r/dbpm/livelabs/home>

- **Oracle Live Labs Oracle Machine Learning Fundamentals**

<https://www.oracle.com/cloud/price-list/>

- **Oracle Rewards Program**

<https://www.oracle.com/br/cloud/rewards>

- **OCI Costo Estimator**

<https://www.oracle.com/br/cloud/costestimator.html>

- **OCI Price List**

<https://www.oracle.com/cloud/price-list/>

- **Software Investment Advisor**

<https://www.oracle.com/corporate/software-investment-advisory>



- **OCI Cloud Free Tier**

<https://www.oracle.com/cloud/free/>

- **Oracle Autonomous Database demonstrations**

<https://www.oracle.com/database/autonomous-database/adb-demos/>

- **OCI Licensing Manager Blog**

<https://blogs.oracle.com/cloud-infrastructure/post/announcing-license-manager-for-oracle-cloud-infrastructure>

- **OCI Licensing Manager Doc Overview**

<https://docs.oracle.com/en-us/iaas/Content/LicenseManager/Concepts/licensemanageroverview.html>



Thank you

Marcel Lamarca

marcel.lamarca@oracle.com



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