

**Your
Future
Runs on
Cloud**

Siófok
2018. április 9-10.

Oracle
Cloud Day

Autonóm adatbázisok: gépi tanulás a működéskritikus rendszerekhez

- Think Autonomous Database:
Machine Learning Meets Mission-Critical


Fekete Zoltán
vezető műszaki tanácsadó, Oracle



ORACLE®

Safe Harbor Statement

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, timing, and pricing of any features or functionality described for Oracle's products may change and remains at the sole discretion of Oracle Corporation.



Próbálja ki az autonóm adatbázist! Jelentkezzen az ügyfél hands-on ATP workshopra!

2019. április 25.

jelentkezés: Julia.Gyenes@oracle.com

Zoltan.Fekete@oracle.com

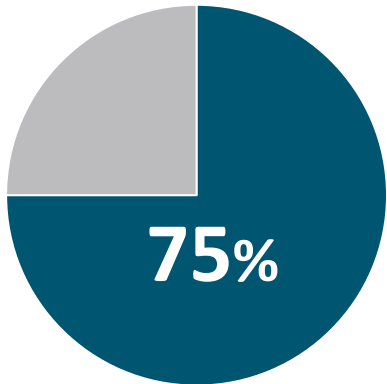
Szabolcs.Radnai@oracle.com

Tibor.Slamovits@oracle.com

https://apexapps.oracle.com/pls/apex/f?p=44785:50:16056833721841:::50:P50_COURSE_ID,P50_EVENT_ID:251,5925
+

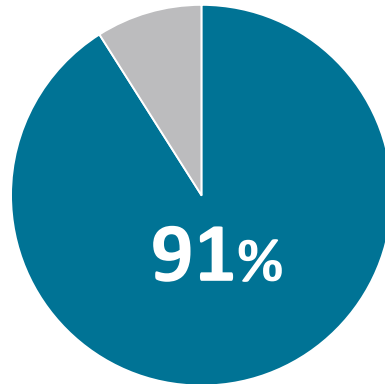
In Pursuit of Optimal Data Management

Cost & Complexity



3/4 Cost of Database Management spent on labor
- [IDC](#)

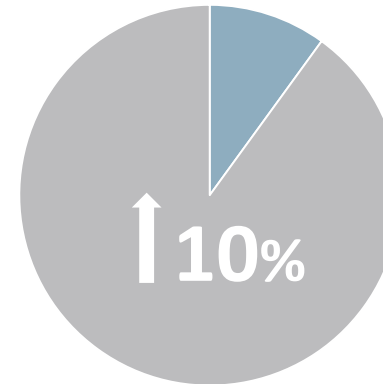
Reliability



91% experience unplanned data center outages
- [Healthcare IT News](#)

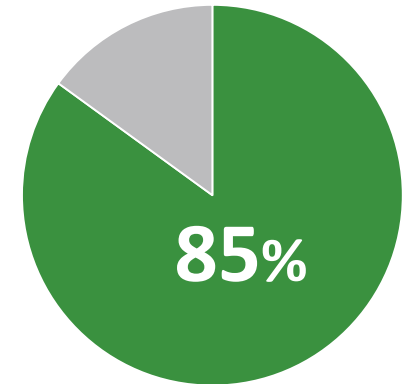
Database downtime costs
\$7,900 / minute
- [DB Maestro](#)

Speed of Innovation



10% increase in data accessibility translates into
\$65.7 million in net income
- [Baseline Magazine](#)

Security



85% of security breaches occurred after the CVE was published
- [DB Maestro](#)

Az Oracle **ezt javasolja**: Autonomous Database

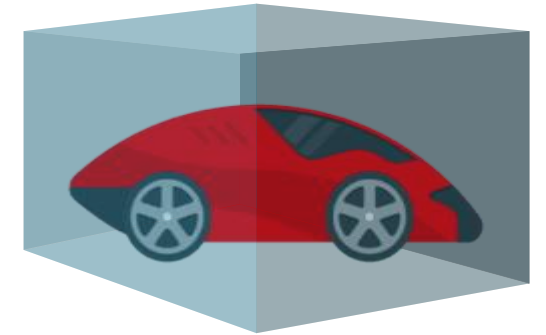
- **Self-Driving – önvezető**

- Kevesebb emberi hiba, kisebb költség, nagyobb produktivitás, ön-patchelés, ön-tuningolás, skálázás leállítás nélkül



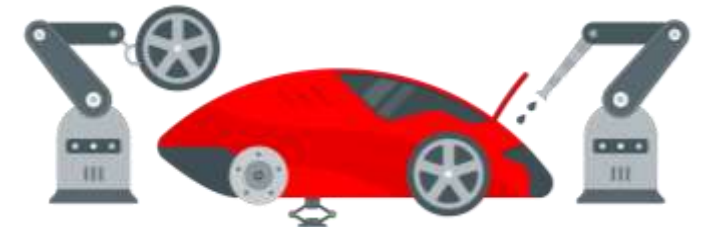
- **Self-Securing – önvédő, önálló biztonság**

- Védelem: külső támadások, ártó belső felhasználók ellen
 - Patch-ek, titkosítás,...



- **Self-Repairing – önjavító**

- Automatikus védelem a leállások ellen



Autonomous Database Removes Generic Tasks

Freedom from Drudgery for DBA: More Time to **Innovate** and Improve the Business

- **Tasks Specific to Business and Innovation**

- Architecture, planning, data modeling
- Data security and lifecycle management
- Application related tuning
- End-to-End service level management

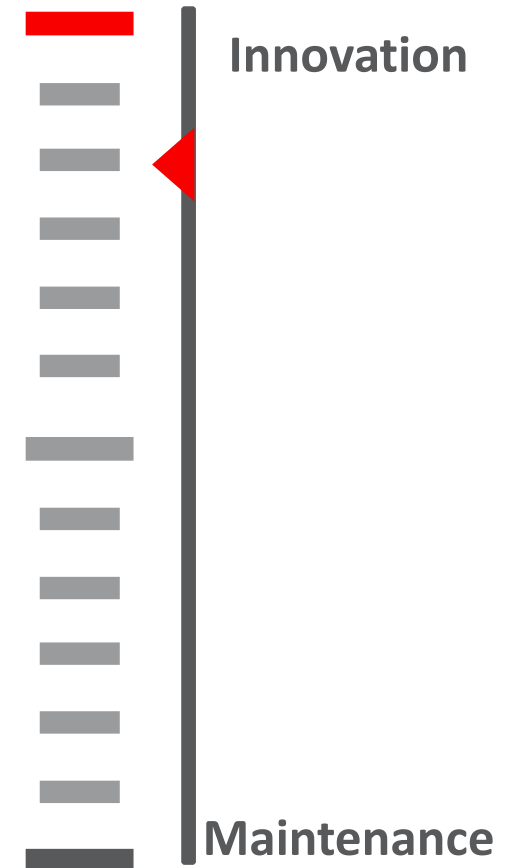


- ~~**Maintenance Tasks**~~

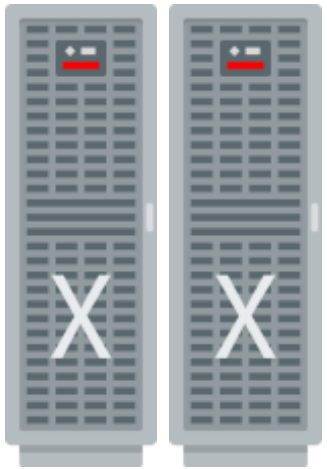
- ~~– Configuration and tuning of systems, network, storage~~
- ~~– Database provisioning, patching~~
- ~~– Database backups, H/A, disaster recovery~~
- ~~– Database optimization~~



Value Scale



Exadata: a legmodernebb adatbázis infrastruktúra



**Exadata
On-Premises**



**Exadata
Cloud at
Customer**



**Exadata
Cloud
Service**



**Autonomous
Database Cloud**



Full Database Lifecycle is Automated



Provisioning

Rapidly creates **scalable mission critical** databases

Creates **Exadata⁺**
Cloud Infrastructure,
RAC⁺ scale-out database,
Active Data Guard⁺ standby



Security

Protects from external and internal threats

Monitors threats, applies security **updates online⁺**, stops admin snooping with **DB Vault⁺**, **encrypts** all data

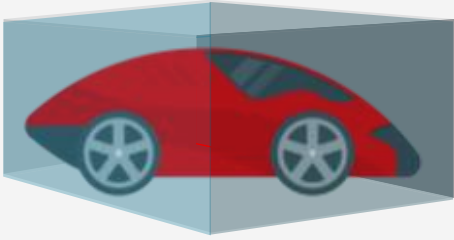


Management

Automates all infrastructure and database management

Performs **all OS and SYSDBA** operations, tunes settings, patches all software **online⁺**, diagnoses **errors⁺**

Full Database Lifecycle is Automated



Protection

Recovers from any failure
without downtime

Automates backup, restore,
application transparent⁺
failover in **scale-out cluster⁺**
or to **active remote standby⁺**



Scaling

Scales online for highest
performance and lowest cost

Instant online elasticity⁺
of **serverless**
compute and storage
enables **true pay-per-use⁺**



Optimization

Machine Learning optimizes
database for each workload

Continuously optimizes
memory, **data formats,**
indexes⁺, parallelism⁺, and
plans⁺ for each workload

Create Autonomous Data Warehouse [help](#) [cancel](#)

COMPARTMENT

Demo

DISPLAY NAME

ADWCdemo

DATABASE NAME

ADWCDEMO

The name must contain only letters and numbers, starting with a letter. 14 characters max.

CPU CORE COUNT

1

STORAGE (TB)

1

The number of CPU cores to enable. Maximum cores per database: 128. Available cores are subject to your tenancy's service limits.

The available storage, up to 126 TB.

Administrator Credentials

Set the password for your Autonomous Data Warehouse ADMIN user here:

USERNAME READ-ONLY

ADMIN

PASSWORD

.....

CONFIRM PASSWORD

.....

LICENSE TYPE

☒ MY ORGANIZATION ALREADY OWNS ORACLE DATABASE SOFTWARE LICENSES

Bring my existing database software licenses to the database cloud service ([details](#)).

☐ SUBSCRIBE TO NEW DATABASE SOFTWARE LICENSES AND THE DATABASE CLOUD SERVICE

Fill in the Compartment, Display Name, Database Name, set Password and Confirm Password for the ADMIN user fields. Scroll down

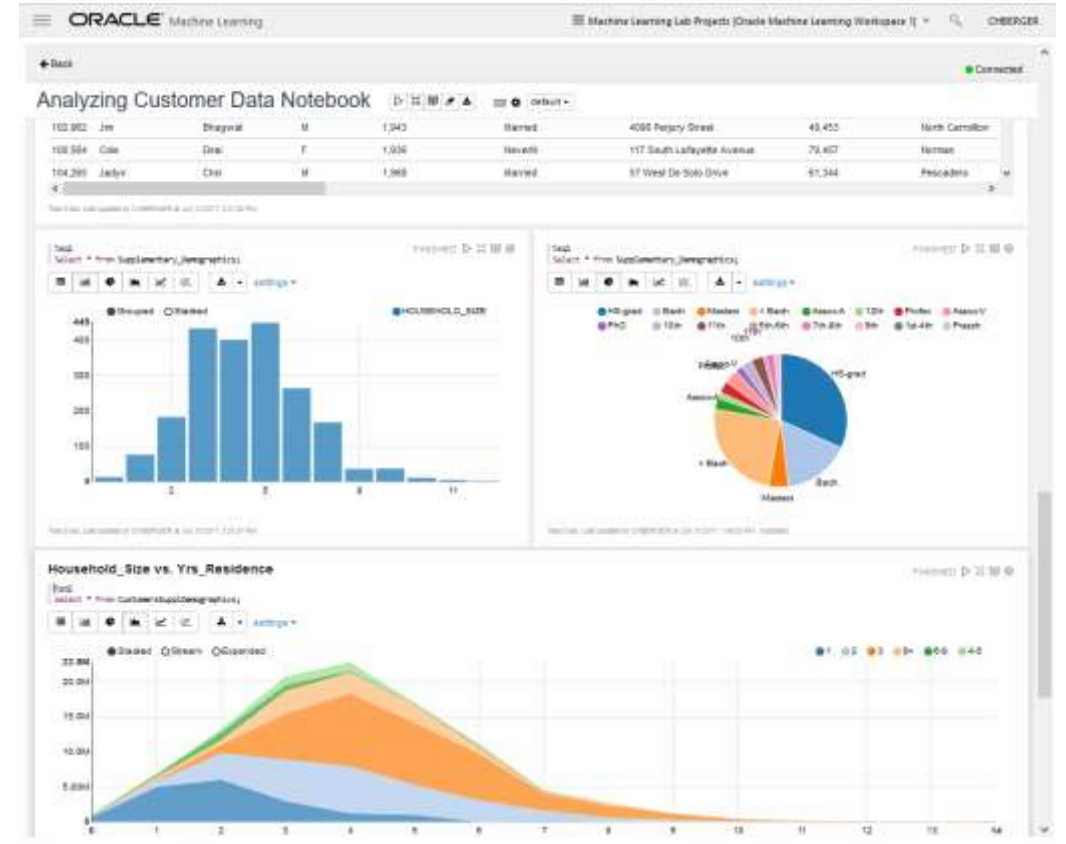
New / Select Database Connection

Connection Na...	Connection De...
<div>Connection <u>N</u>ame admin@testdw</div> <div><u>U</u>sername admin</div> <div><u>P</u>assword</div> <div><input checked="" type="checkbox"/> <u>S</u>ave Password <input type="checkbox"/> Connection Color</div> <div>Oracle</div> <div>Connection Type Cloud Wallet Role default</div> <div><u>C</u>onfiguration File askan/Downloads/Wallet_testdw.zip <input type="button" value="Browse..."/></div> <div><u>S</u>ervice testdw_high</div> <div><input type="checkbox"/> <u>U</u>se HTTP Proxy <input type="button" value="Configure"/> <u>Q</u>SS</div> <div><input type="checkbox"/> OS Authentication <input type="checkbox"/> Kerberos Authentication <input type="button" value="Advanced..."/></div>	

Status :

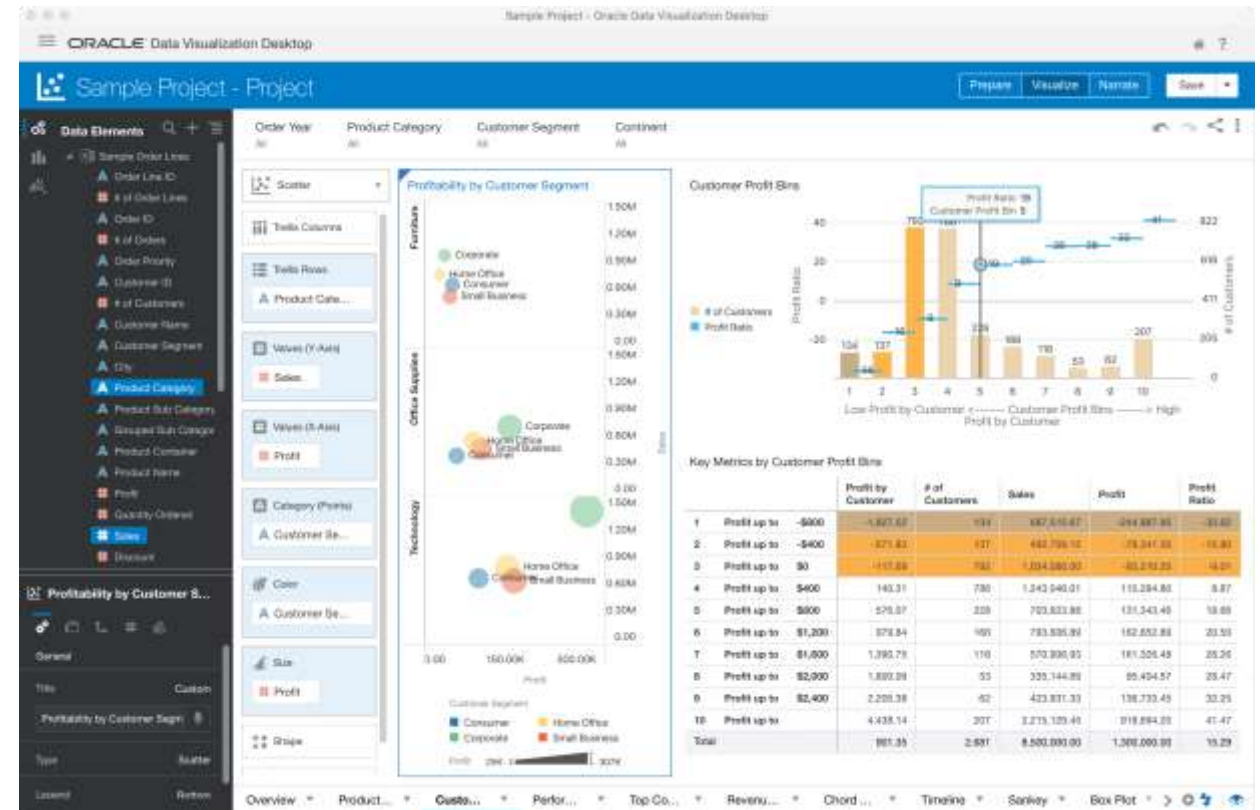
Oracle ML: Built-in Notebooks

- Quickly start running queries with built-in web-based notebooks
 - No need to install a client query tool
- Initially supports SQL and PL/SQL
- Based on Apache Zeppelin
- Roadmap
 - R and Python support
 - Common UI for data scientists across multiple services



Oracle Data Visualization Desktop

- Self-service data exploration for business users
 - Rich, interactive visualizations
- Included with ADW free of charge for unlimited number of users
 - Also available as cloud version within Oracle Analytics Cloud



Data Loading Options

- Data loading via SQL*Net, JDBC
 - Suitable for small volumes of data
 - SQL*Loader from local filesystem
 - ETL scripts that use DML to insert data
 - Data integration tools, e.g. ODI
 - Use FastConnect for higher bandwidth for larger data volumes
- Data loading from Oracle Object Storage
 - Preferred method for large volumes of data

Data Loading Example

```
begin
  dbms_cloud.copy_data(
    table_name => 'CHANNELS',
    credential_name => 'OBJ_STORE_CRED',
    file_uri_list => 'https://swiftobjectstorage.us-ashburn-1.oraclecloud.com/v1/adwdemo/DEMO_DATA/channels.csv',
    format => json_object( 'type' value 'CSV', 'skipheaders' value '1')
  );
end;
/
```

channels.csv

```
"CHANNEL_ID","CHANNEL_DESC","CHANNEL_CLASS","CHANNEL_CLASS_ID","CHANNEL_TOTAL","CHANNEL_TOTAL_ID"
3,"Direct Sales","Direct",12,"Channel total",1
9,"Tele Sales","Direct",12,"Channel total",1
5,"Catalog","Indirect",13,"Channel total",1
4,"Internet","Indirect",13,"Channel total",1
2,"Partners","Others",14,"Channel total",1
```

Autonomous Optimizations | Specialized by Workload

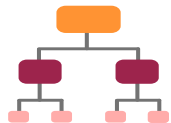
Autonomous Data Warehouse



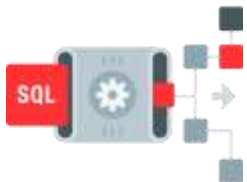
Optimizes Complex SQL



Columnar Format



Creates Data Summaries



Plan Stability and Run Away Query Prevention

Autonomous Transaction Processing

Optimizes Response Time

Row Format

Creates Indexes

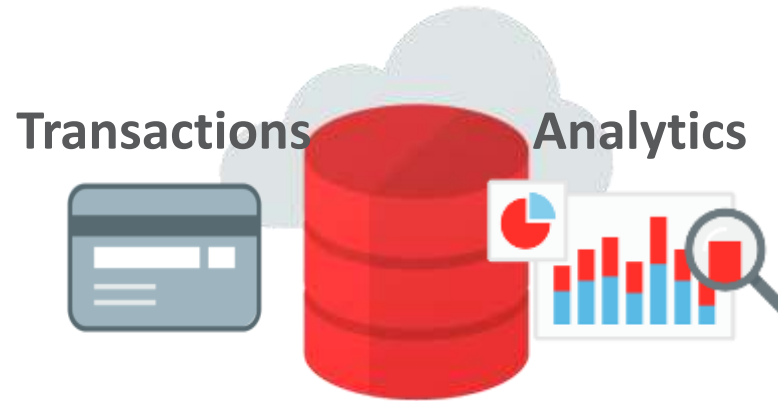
Autonomous Transaction Processing Use Cases

Departmental or Mission Critical Applications¹



Support Business Operations

Mixed Workloads



Real-Time Analytics and Machine Learning

Application Development

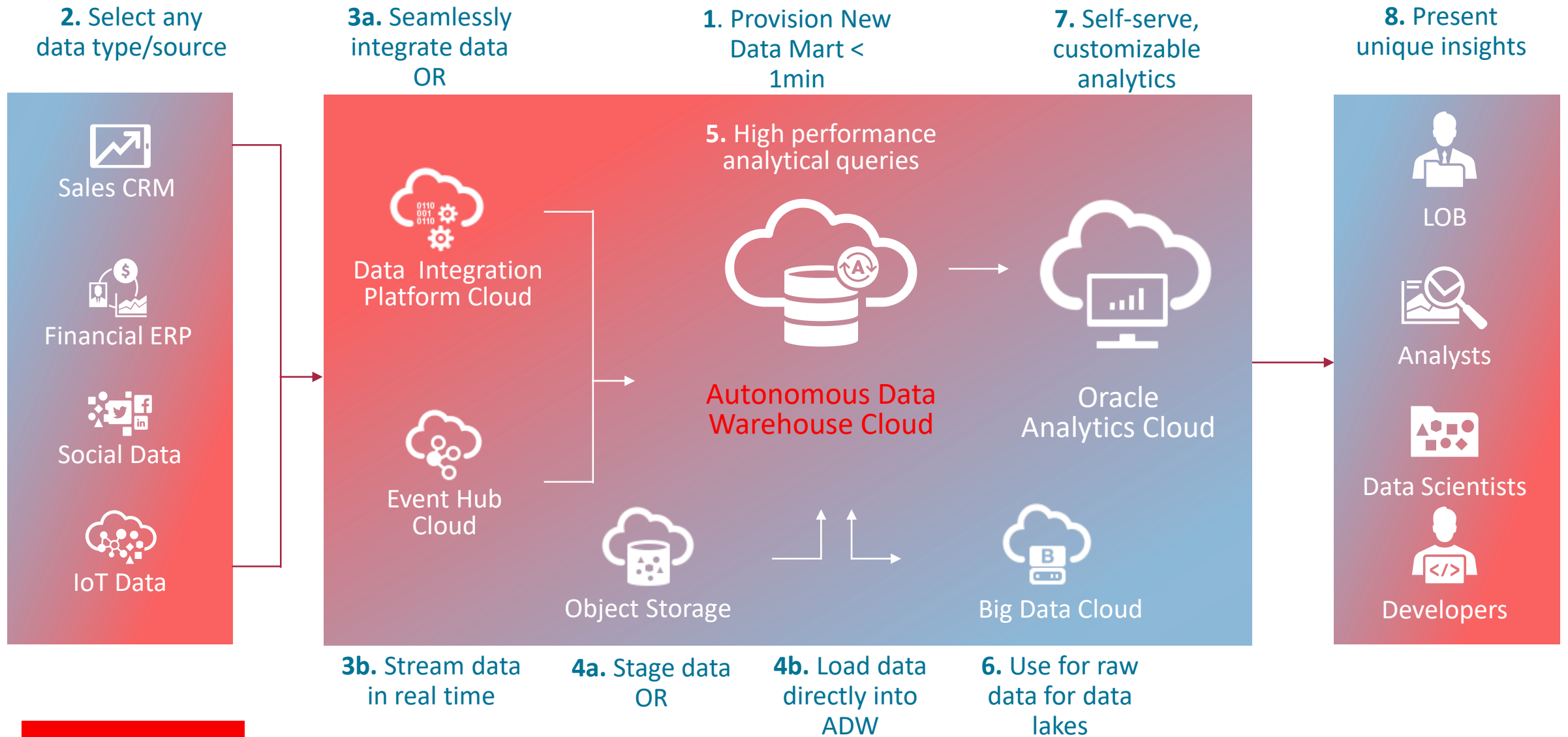


Innovate Faster

19c

Feature / Option / Pack	SE2	EE	EE-ES	DBCS SE	DBCS EE	DBCS EE-HP	DBCS EE-EP	ExaCS	Notes
Automatic Indexing	N	N	Y	Y	Y	Y	Y	Y	EE-ES: Available on Exadata. Not available on Oracle Database Appliance.
SQL Quarantine	N	N	Y	Y	Y	Y	Y	Y	EE-ES: Available on Exadata. Not available on Oracle Database Appliance.
Real-Time Statistics	N	N	Y	Y	Y	Y	Y	Y	EE-ES: Available on Exadata. Not available on Oracle Database Appliance.
High-Frequency Automatic Optimizer Statistics Collection	N	N	Y	Y	Y	Y	Y	Y	EE-ES: Available on Exadata. Not available on Oracle Database Appliance.
Client Side Query Cache	N	Y	Y	N	Y	Y	Y	Y	
Query Results Cache	N	Y	Y	N	Y	Y	Y	Y	
PL/SQL Function Result Cache	N	Y	Y	N	Y	Y	Y	Y	

Follow the Data! *Storyline*



Oracle University – online courses for Autonomous Database

Topics:

Oracle Autonomous Database Workshop

- Provision Autonomous Database instance
- Use Oracle Machine Learning with Autonomous Database
- Identify the typical workflow for using Autonomous Database
- Work with data sets
- Monitor and manage Autonomous Database Cloud service instances

- Load data into service instances

Level:
a great starting point for
developers,
administrators, architects

Oracle University – online course for Machine Learning

Topics:

Using Oracle Machine Learning with Autonomous Database

- Features in OML that will enable effective collaboration in a global workspace
- Identify Oracle Cloud services that are compatible with Oracle Machine Learning
- Explain the capabilities and features of Oracle Machine Learning (OML)
- Explore data visualizations capabilities of Oracle Analytics Cloud

- Creating Visualizations in Oracle Machine Learning Using Analytics Cloud

Level:
a great starting point for
Analysts, Data Scientist,
Managers

Oracle DB 11.2-19c

<https://apex.oracle.com/database-features/>

- 19c: 91 NF

https://apex.oracle.com/database-features/

Automatic Indexing
The automatic indexing feature automates index management tasks, such as creating, rebuilding, an...
19c Release Automatic Indexing

Automatic Resolution of SQL Plan Regressions
SQL plan management searches for SQL statements in the Automatic Workload Repository (AWR). P...
19c Release SQL Plan Management

Automatic Support for Both SASL and Non-SASL Active Directory Connections
Starting with this release, both Simple Authentication and Security Layer (SASL) and Transport Layer ...
19c Release Active Directory

Big Data and Performance Enhancements for In-Memory External Tables
In-Memory external tables add support for ORACLE_HIVE and ORACLE_BIGDATA drivers, parallel que...
19c Release In-Memory Column Store

Bitmap based count distinct SQL Function
New bitvector SQL operators can be used to speed up COUNT DISTINCT operations within a SQL qu...
19c Release SQL

Clear Flashback logs periodically for increased FRA size predictability

Safe Harbor Statement

The preceding is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, timing, and pricing of any features or functionality described for Oracle's products may change and remains at the sole discretion of Oracle Corporation.

Integrated Cloud

Applications & Platform Services

ORACLE®