ORACLE
Oracle Global Leaders Program

Oracle Autonomous Database Update

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Mission Critical Database Technologies

Oracle Autonomous Database

A new era of cloud database where everything is automated

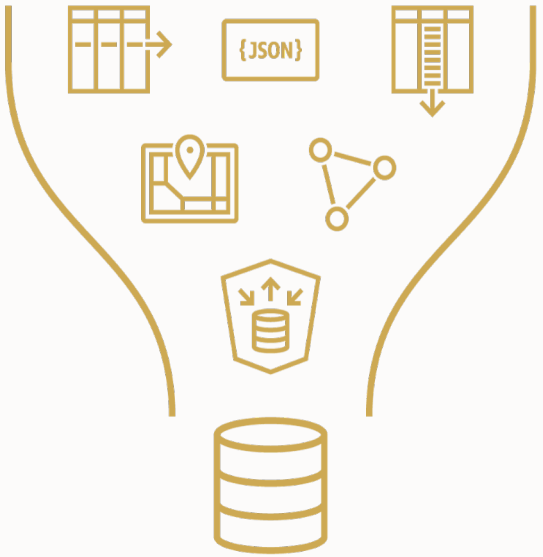
Enterprise-Class

Security, availability, scalability, and performance

Self-Driving

With true cloud-elasticity for low cost

Most Productive



Converged Database plus self-service tools for business analysts, developers and more

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Enterprise Security in Autonomous Database

Unmatched security in the cloud keeps your data safe

Secure database infrastructure

- Always encrypted both at rest and in motion
- Always audited
- Always patched

Automated data protection

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

Even prevents privileged users from accessing others' business data

- Utilizing Oracle's unique Database Vault

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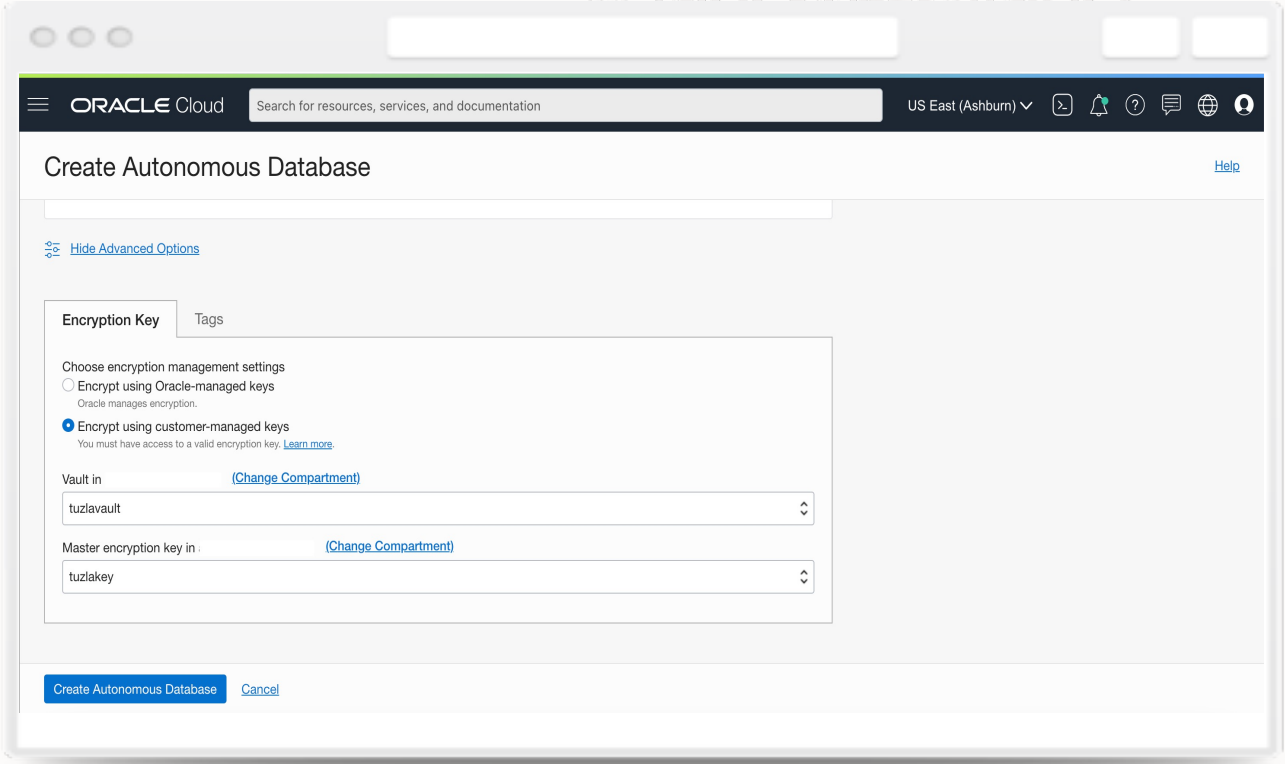
NEW

Enterprise Security in Autonomous Database

Customer Managed Keys

ADB now provides two options for encrypting the data in your database:

- Oracle-managed encryption keys (default)
- Customer-managed encryption keys



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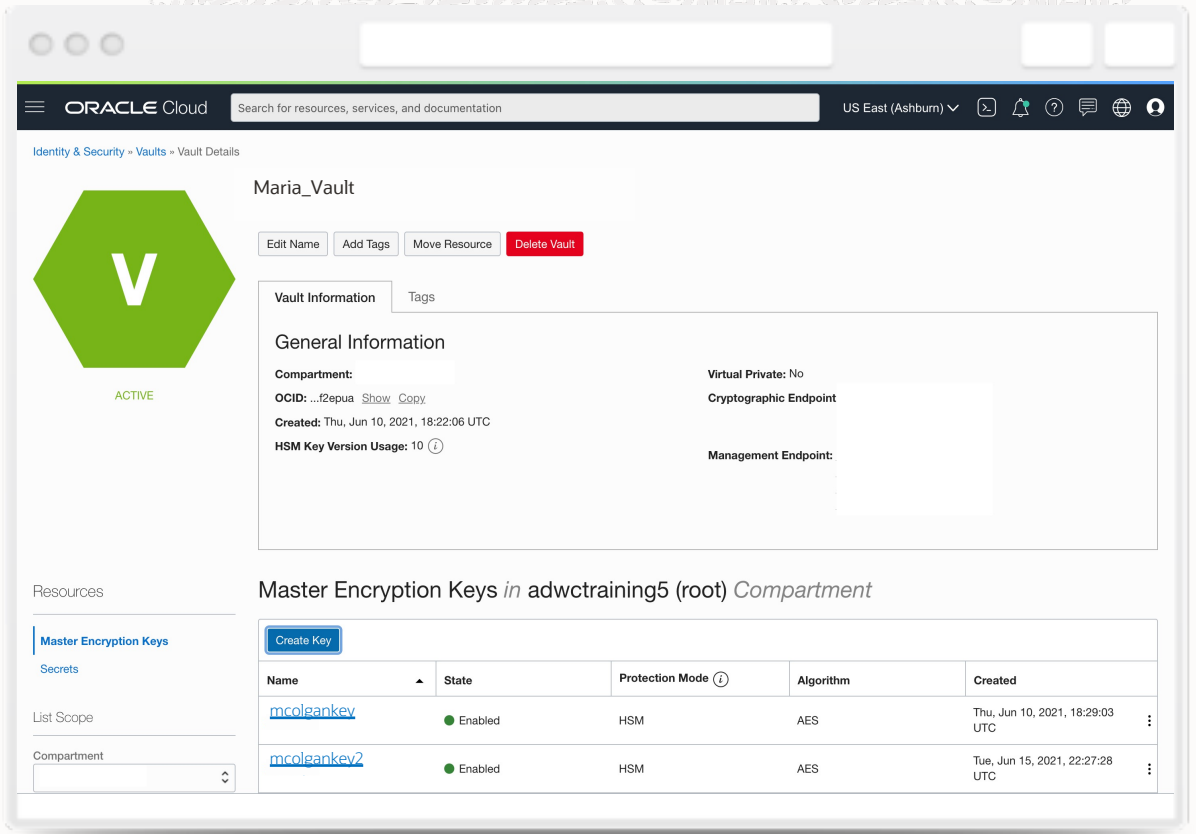
Customer managed keys integrates with Oracle Cloud Infrastructure Vault service

- Need to create an OCI Vault and a Master Encryption Key inside the vault
- Optionally, you can also import your own key



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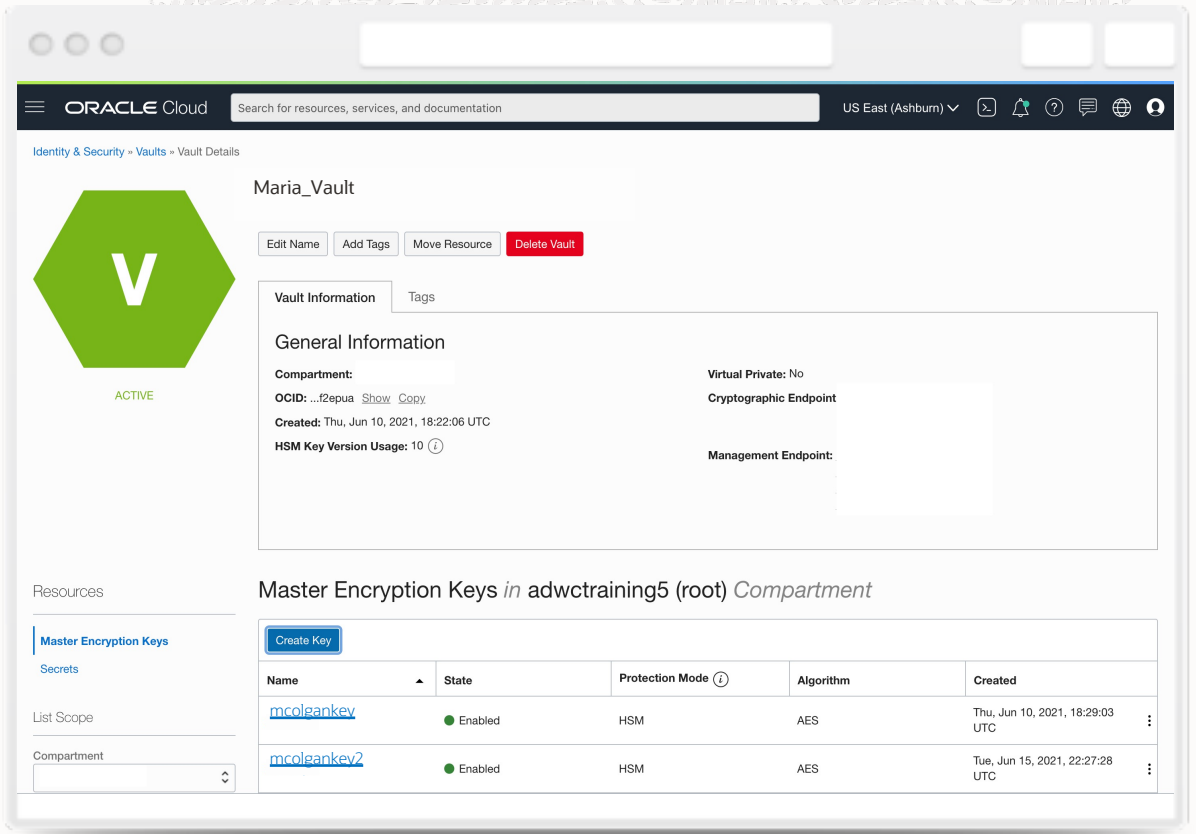
Rotating customer-managed master encryption key ADB generates a new TDE master key

- Operation is fast and does not require downtime



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Self-Driving Autonomous Database

Automatically Configured and Optimized By Workload

Automatically configures the database, to optimize it for specialized workloads

- Data Warehouse, Transaction Processing , JSON, APEX, Graph

Everything from memory, data formats, and access structures are optimized to improve performance

- User simply define tables, load data, run queries

Workload Automatically tuned as system runs

- Automatic statistics gathering
- Automatic Indexing

Full lifecycle managed using Service Console UI, REST APIs or Language SDK

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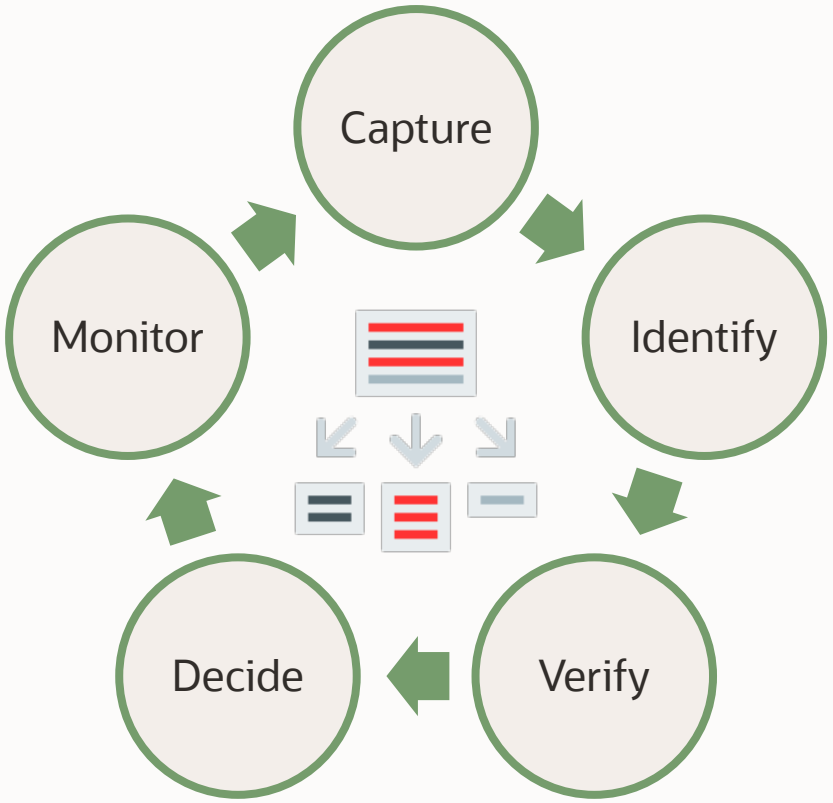
NEW

Self-Driving Autonomous Database

Automatic Partitioning Applies Partitioning to Tables and Indexes to Improve Performance



Identifies candidate tables by analysing the captured workload

- Tables must be 64GB or larger and have up to date statistics

Chooses from the following partition methods using a single-column partitioning key:

- INTERVAL AUTOMATIC: best suited for ranges of partition key values
- LIST AUTOMATIC: applies to distinct partition key values
- HASH: partitioning on the partition key's hash values

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NEW

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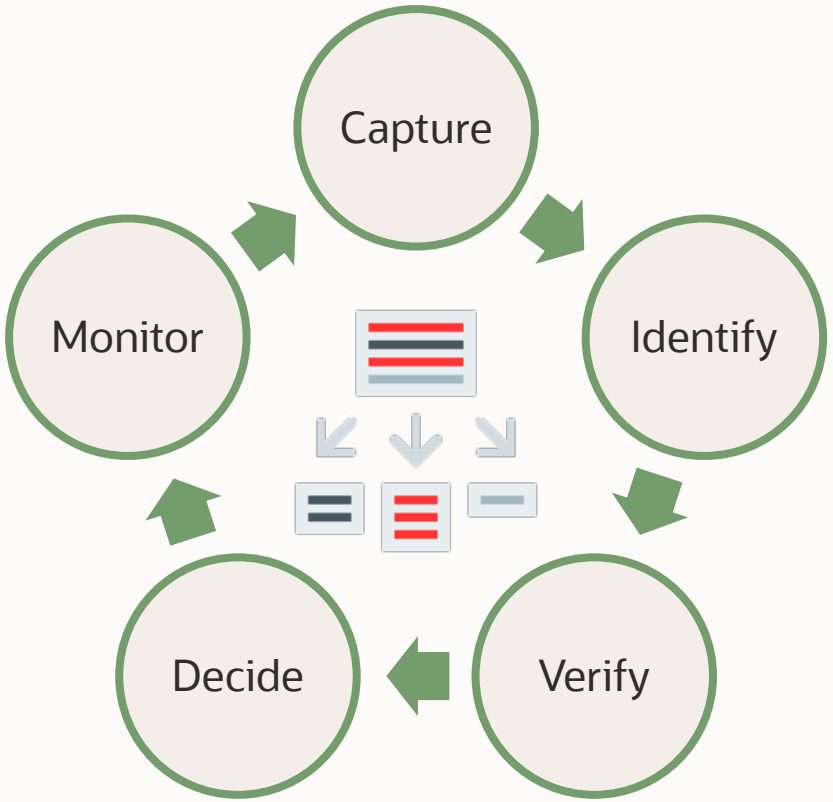

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Reinforcement Learning allows it to learn from its own actions as all candidate strategies are validated before being implementing

- Selects strategy with the highest estimated IO reduction

The entire process is fully automatic but transparency is equally important as sophisticated automation

- All tuning activities are auditable
- Controlled via new `DBMS_AUTO_PARTITIONING` package

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NEW

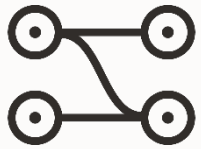
Most Productive Autonomous Database

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

Load

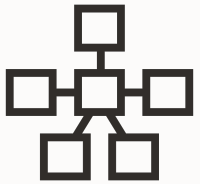
Simple drag & drop loading

Transforms



Declarative transformations and data cleansing

Business Model



Automatically create powerful business models

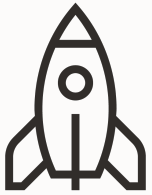
Insights

Guided discovery of hidden patterns and anomalies

Model

Easily create models with AutoML

Deploy



Integrate ML models into apps via REST or SQL

Graph Analysis

Discover related connections and patterns

Self-Service Tools

Build, deploy and manage data-driven applications

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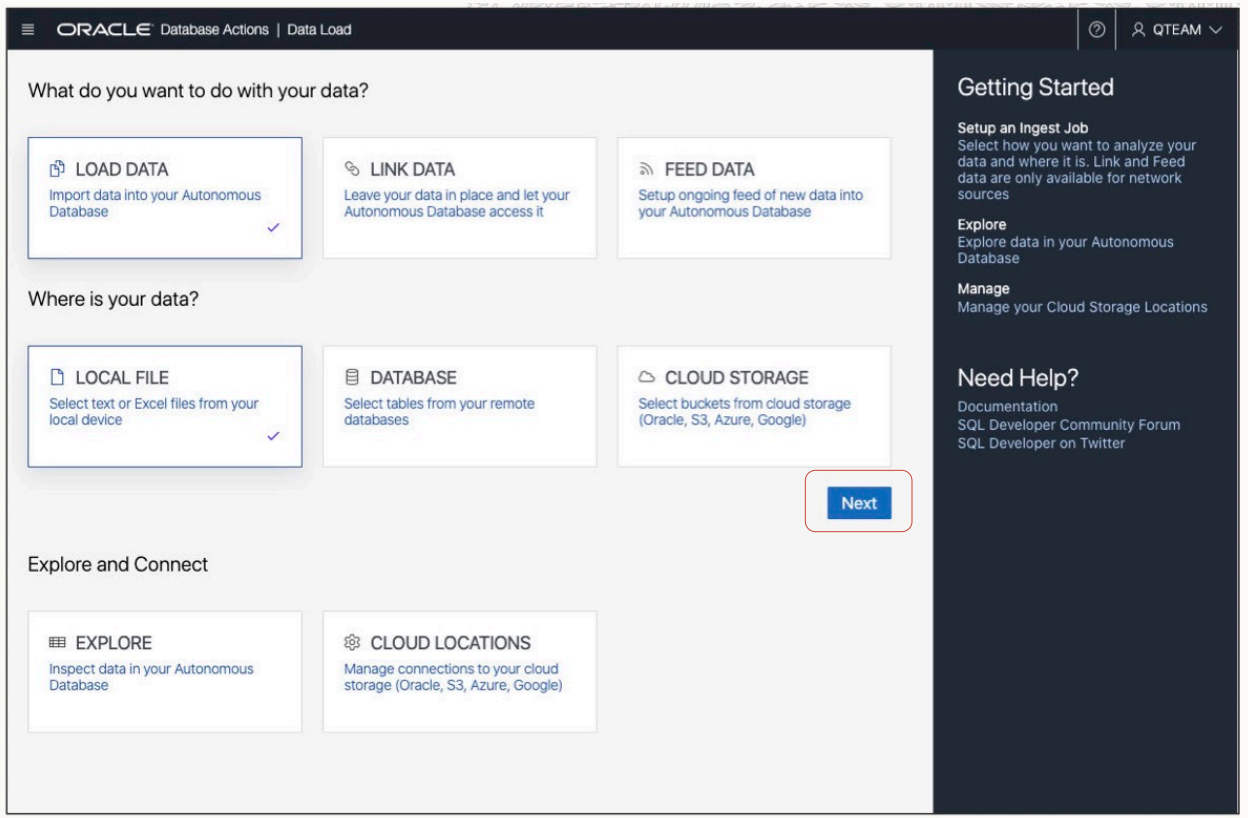
Load Data From Anywhere

Simple ‘Drag and Drop’ Data Loading

- Files on local computer
- Files in Object Storage
  - Incl AWS S3, Azure Blob Storage, Google, or an AWS-S3 compliant store)
- Other Oracle Databases (on-prem and cloud)

Or simple link to external data that either in flat files or another database

- Then query data as if it was part of ADB



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Data Load / Load Cloud Object

MOVIESTREAM

Search...

- customer.csv
- customer_segment.csv
- custsales-201901.csv
- custsales-201903.csv
- custsales_201902.csv
- genre.csv
- movies.json

MOVIESTREAM

Search...

- customer.csv
- customer_segment.csv
- custsales-201901.csv
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- custsales_201902.csv
- genre.csv
- movies.json

Source:
movies.json (5653546B)
Target:
MOVIES_COLLECTION

Source:
genre.csv (334B)
Target:
GENRE

Source:
customer.csv (40863934B)
Target:
CUSTOMER

Status: Running (2/3) - Total time 00:45

Source:
movies.json (5653546B)
Target:
MOVIES_COLLECTION

Source:
genre.csv (334B)
Target:
GENRE

0
00:44

Source:
customer.csv (40863934B)
Target:
CUSTOMER

What do you want to do with your data?

LOAD DATA
Import data into your Autonomous Database

LINK DATA
Leave your data in place and let your Autonomous Database access it

FEED DATA
Setup ongoing feed of new data into your Autonomous Database

Where is your data?

LOCAL FILE
Select text or Excel files from your local device

DATABASE
Select tables from your remote databases

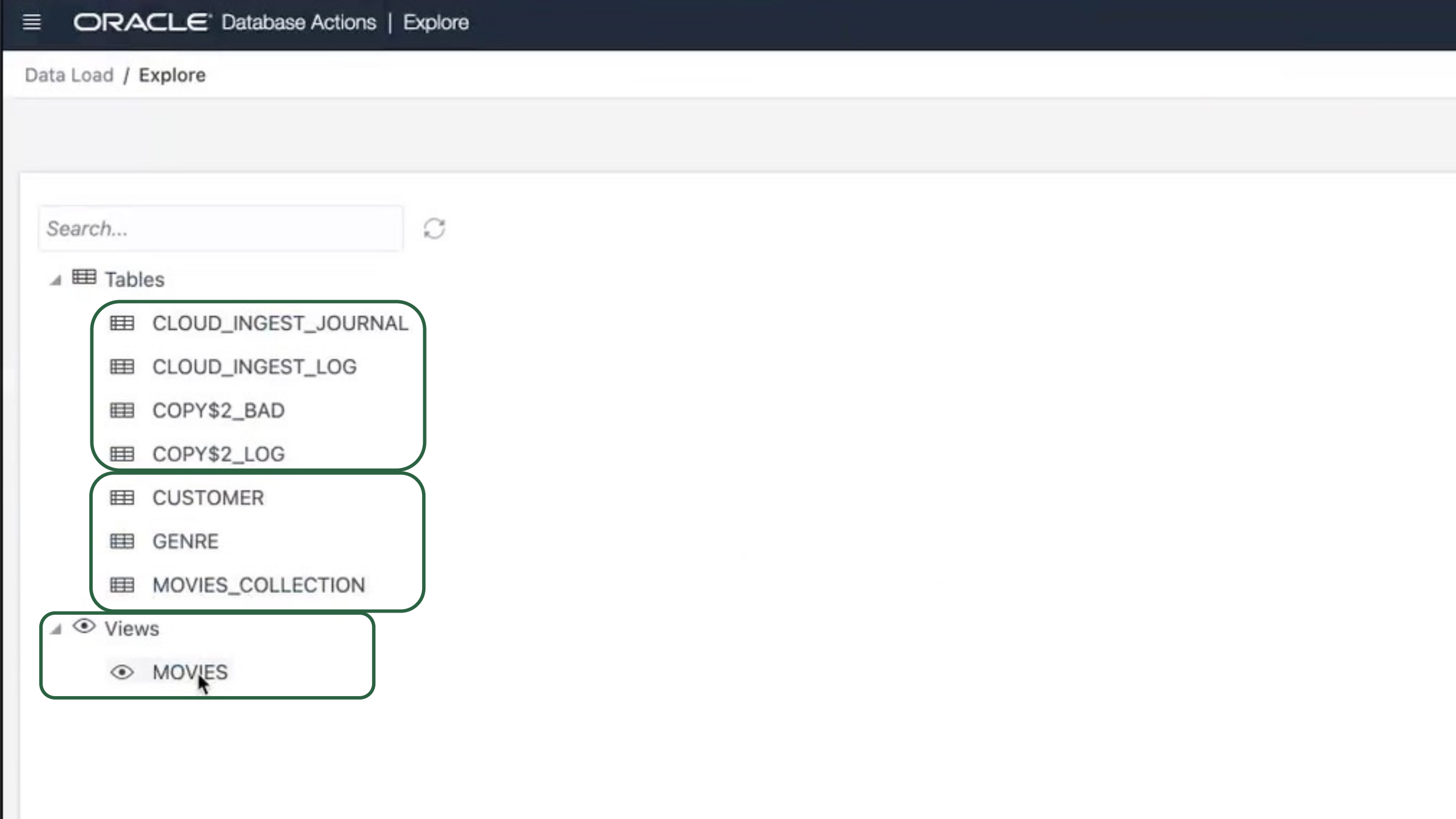
CLOUD STORAGE
Select buckets from cloud storage (Oracle, S3, Azure, Google)

Next

Explore and Connect

EXPLORE
Inspect data in your Autonomous Database

CLOUD LOCATIONS
Manage connections to your cloud storage (Oracle, S3, Azure, Google)


ORACLE Database Actions | Explore
Data Load / Explore
Search...
Tables
CLOUD_INGEST_JOURNAL
CLOUD_INGEST_LOG
COPY$2_BAD
COPY$2_LOG
CUSTOMER
GENRE
MOVIES_COLLECTION
Views
MOVIES

Zero-Code Data Transforms

Declarative, zero-code

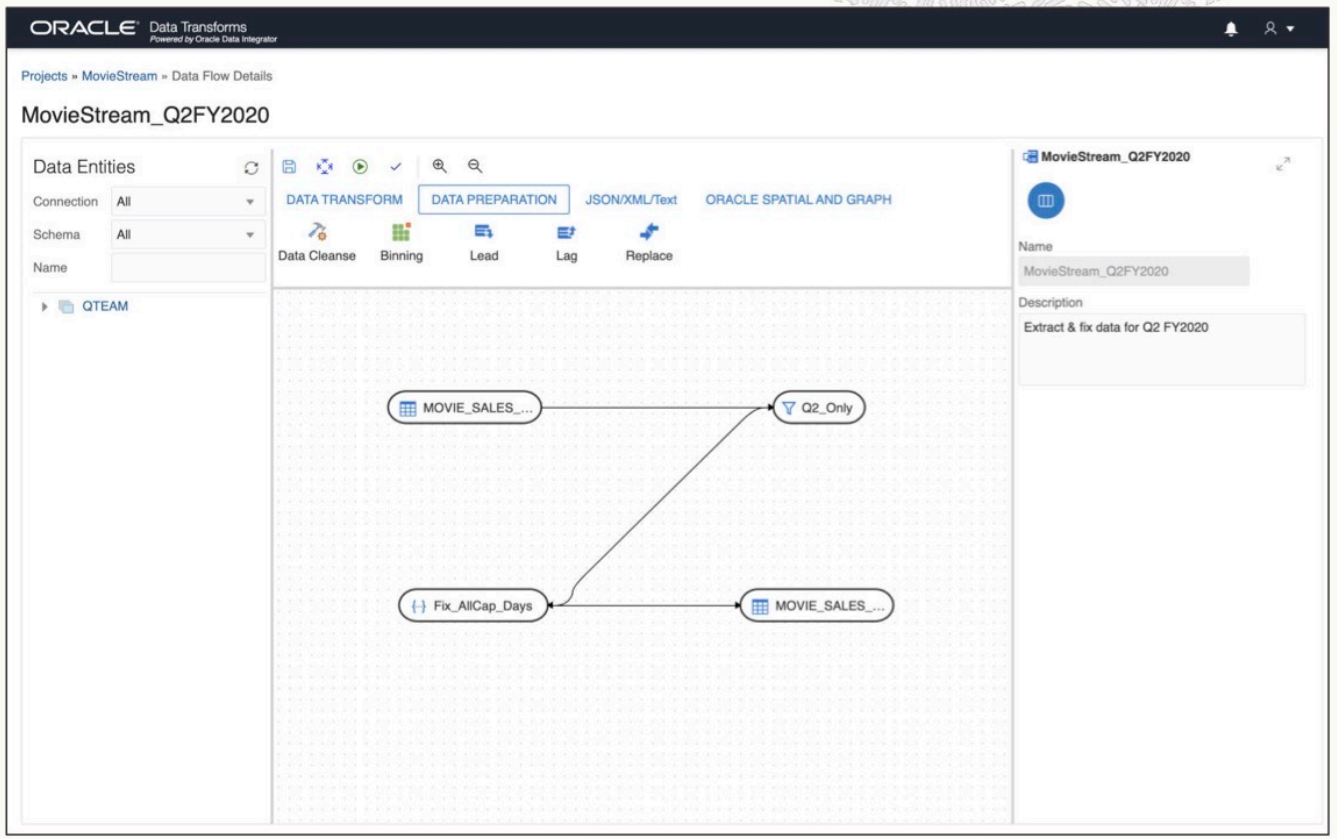
- New, easy-to-use cloud UI
- ‘Drag and Drop’ to create Maps

Rich set of transformation operators

- Transform, Quality, Analytic, Spatial, ML
- All DB Operators

Autonomous discovery

- Discover relationships, recommend actions
- Auto code generation



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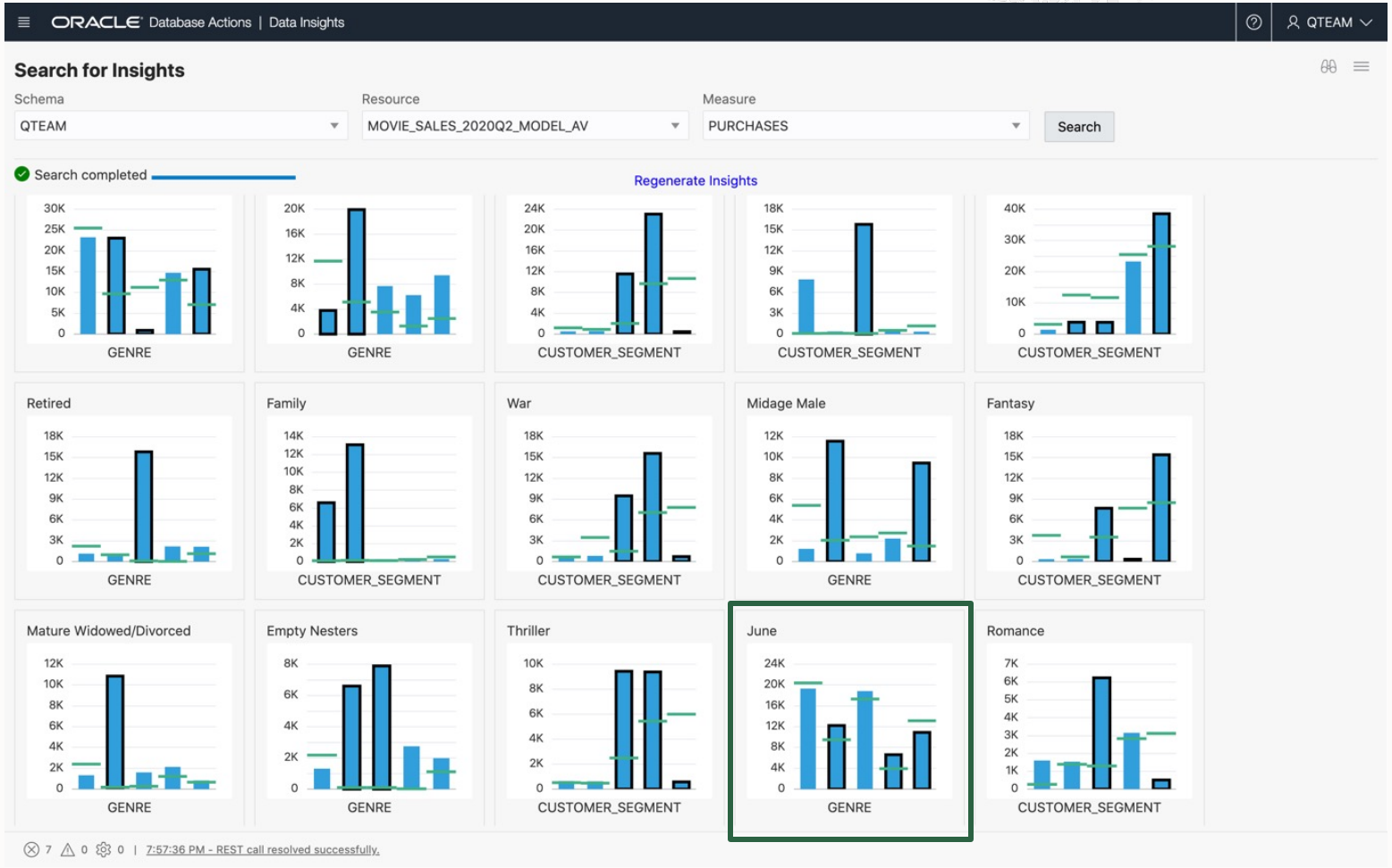
Auto-Insights – Data Discovery Driven by Machine Learning

Automatic Insight Discovery

- Discovers hidden patterns and outliers
- Crawls over business model, running as background process
- Uses a variety of ML algorithms including singular value decomposition



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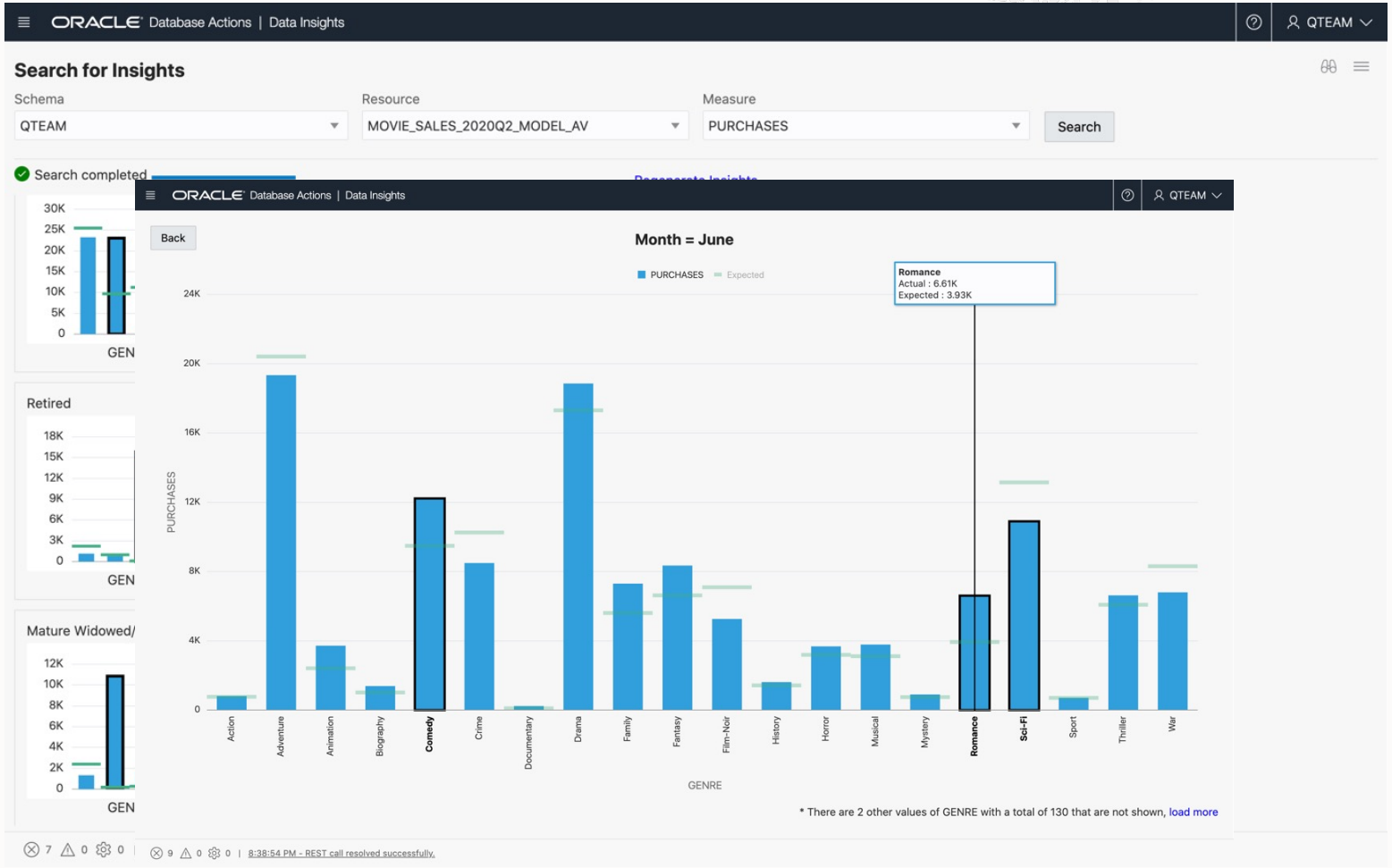

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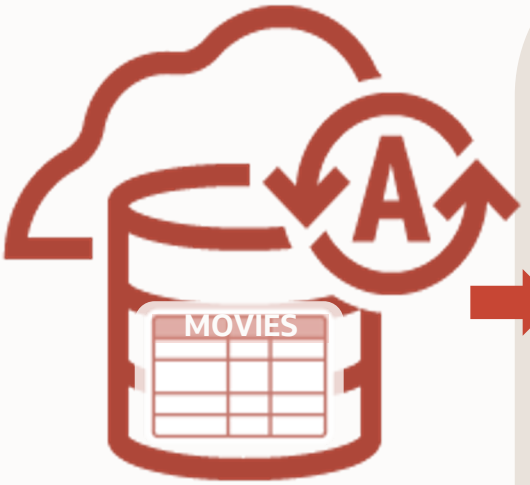
Oracle Database AutoML

Simplify ML modeling and Increase data scientist productivity



Auto Algorithm Selection

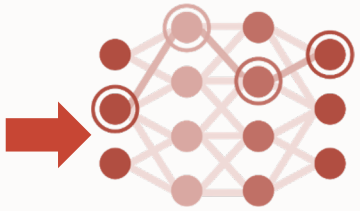
Identify best prediction algorithm for each workload

Auto Feature Selection

Identify data that best predicts outcome

Auto Model Tuning

Identify model parameters for best performance



ML Model

Plus...

Feature Prediction Impact

Rank features influence on scoring
Algorithm-agnostic technique

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How Do I?

Use AutoML
How to create AutoML Experiments

Get Started
Get started with Oracle Machine Learning

Create Notebooks
How to create a notebook

Create Jobs
How to create a job

Manage Permissions
How to manage collaborative permissions in workspaces

Try It
Follow along with a hands on workshop

Quick Actions

AutoML
Create and run AutoML Experiments

Scratchpad
Run Scratchpad

Notebooks
The place for data discovery and analytics

Jobs
Schedule notebooks to run at certain times

Examples
Check out some examples

Recent Activities

today

Movie Stream **updated** MovieStream - Quick Review notebook in Movie Project [Movie Workspace]
4/16/21 4:37 PM

Create Experiment

Name *

Exp

Comments

Data Source *

Predict *

Select Prediction Target

Prediction Type *

Select Prediction Type

Case ID

Select Case ID

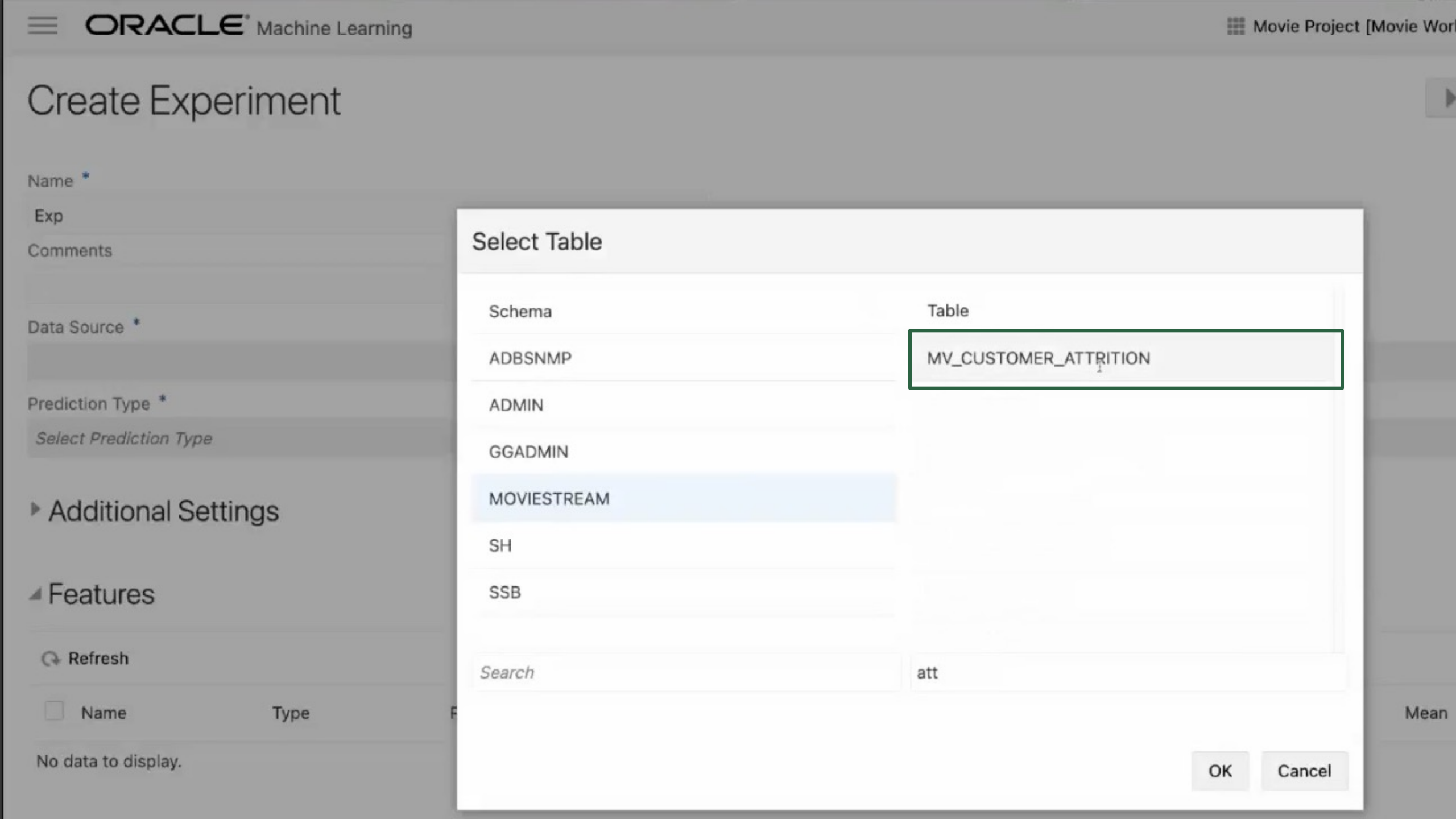
Additional Settings

Features

Refresh

Name	Type	Percent NULLs	Distinct Values	Min	Max	Mean

No data to display.


ORACLE Machine Learning
Movie Project [Movie Wor
Create Experiment
Name *
Exp
Comments
Data Source *
Prediction Type *
Select Prediction Type
Additional Settings
Features
Refresh
Name
Type
Mean
No data to display.
Select Table
Schema
Table
ADBSNMP
MV_CUSTOMER_ATTRITION
ADMIN
GGADMIN
MOVIESTREAM
SH
SSB
Search
att
OK
Cancel

Create Experiment

Start | Save | Cancel

Name *

Exp

Comments

Data Source *

MOVIESTREAM.MV_CUSTOMER_ATTRITION

Prediction Type *

Classification

Predict *

TARGET

Case ID

CUST_ID

Additional Settings

Features

<- Experiments

AutoML Customer Churn Propensity

▶ Experiment Settings Edit

Accuracy

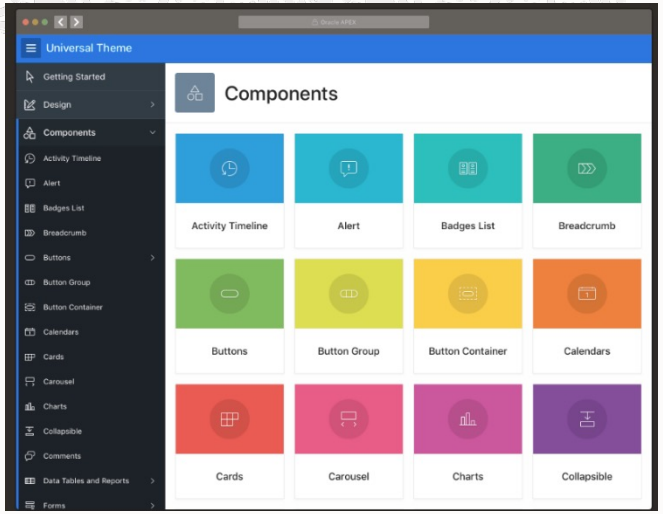
Leader Board

Deploy Create Notebook Metrics

Algorithm	Model Name	Accuracy
Generalized Linear Model	glm_31b393c70b	0.9993
Neural Network	nn_c60ff5f915	0.9948
Support Vector Machine (Linear)	svml_ddc9f03d3d	0.9911
Generalized Linear Model (Ridge Regr...	glmr_6ec9cbd11e	0.9801

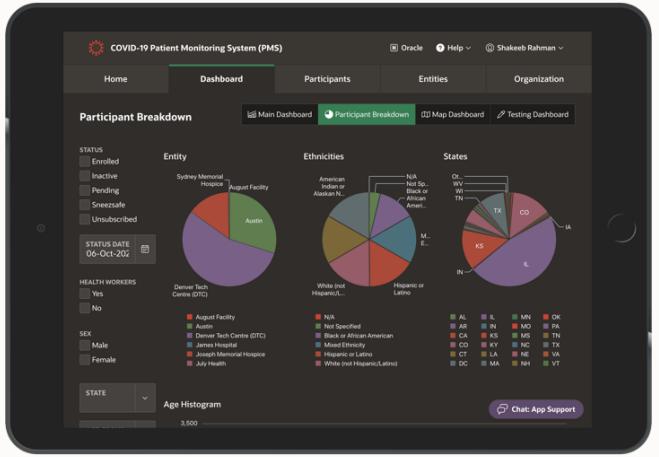
Self-Service Tools for LoB Developers

Modern tools to build data-driven apps fast with APEX



Built-in Application Express (APEX)

- Simple low-code web-based app development and execution
- Intuitive interface guides developers through creation of powerful apps
- Extensive library of pre-built components
  - Powerful components enable high-levels of functionality with almost zero coding required
- Eliminates 98% of hand coding



Built-in REST Data Services (ORDS)

- Makes database access from applications super simple by automatically building REST interfaces to database tables and procedures

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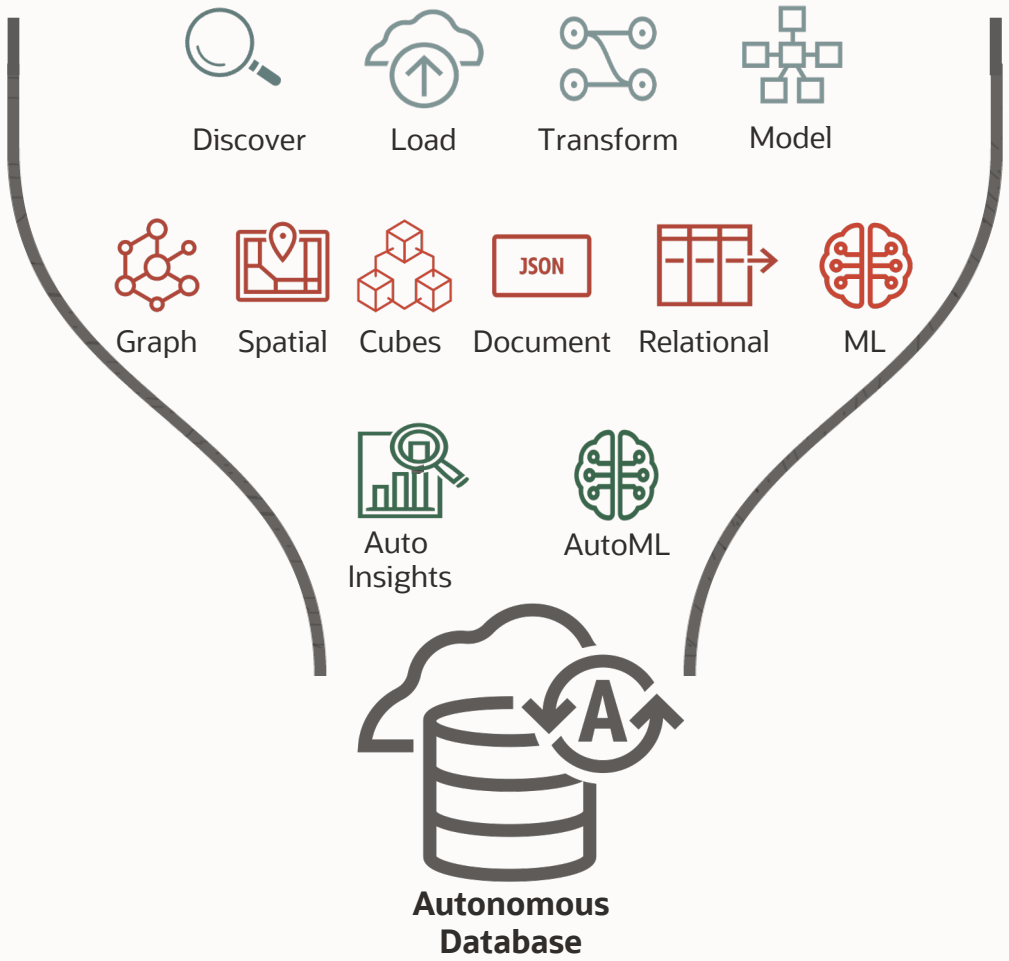
* https://apex.oracle.com/en/platform/low-code/intro/

Autonomous Database Delivers Fast and Easy Data Driven Insights



Built-In Data Acquisition

Discover and Extract data from hundreds of sources including Object Store, Drag-n-drop tools for Bulk & Real-Time Load and Transformation

Embedded Analytic Engines

Graph Analytics, Spatial Analytics, Cube (Multidimensional) Analytics, Document Analytics, Relational Analytics, and Machine Learning

Automated Analytics

Automatically creates business models, discovers hidden insights, and builds machine learning models

Autonomous with Converged Architecture

Simplicity of automated full stack analytics enables business users and data scientists to quickly unlock value from data

Summary

Spend Less

Innovate More

Reduce Risk

1

World's Best Database Cloud Automation

- Automate everything for DBAs, developers, & business analysts, lowering admin and runtime costs

2

Developers Focused on Innovation

- Simply invoke UI or SQL to run reports, ML, graph, spatial, blockchain, IoT, etc. in a converged database

3

Proven Protection Reduces Risk

- Automate everything for DBAs, developers, & business analysts

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