



# Disrupción en el Cloud con Autonomous DW Cloud and Analytics

Jordi Trill

Big Data and Core Tech BDM

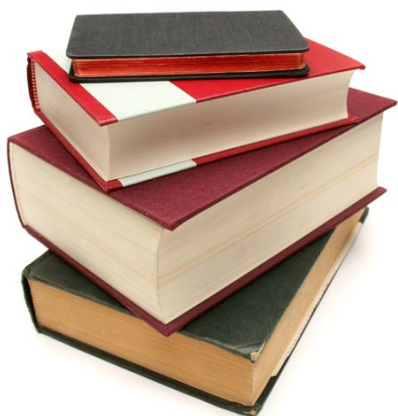
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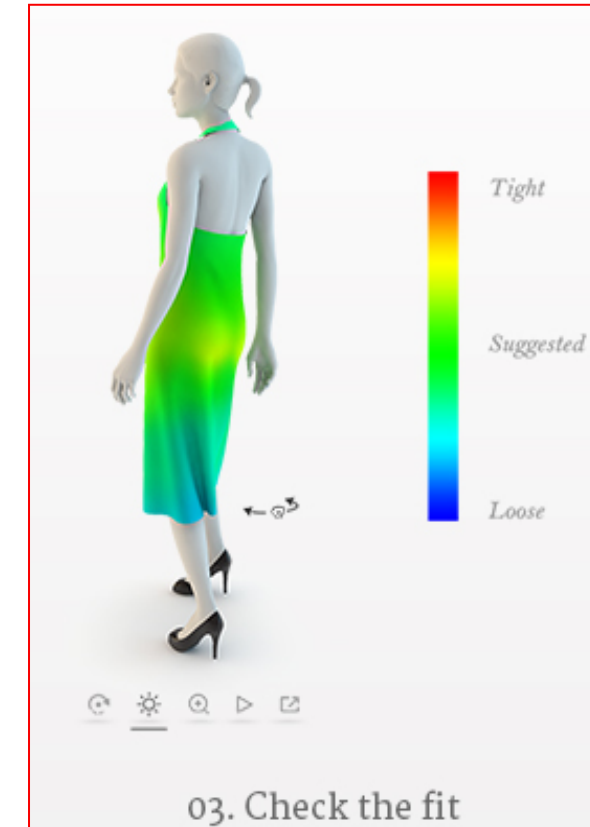
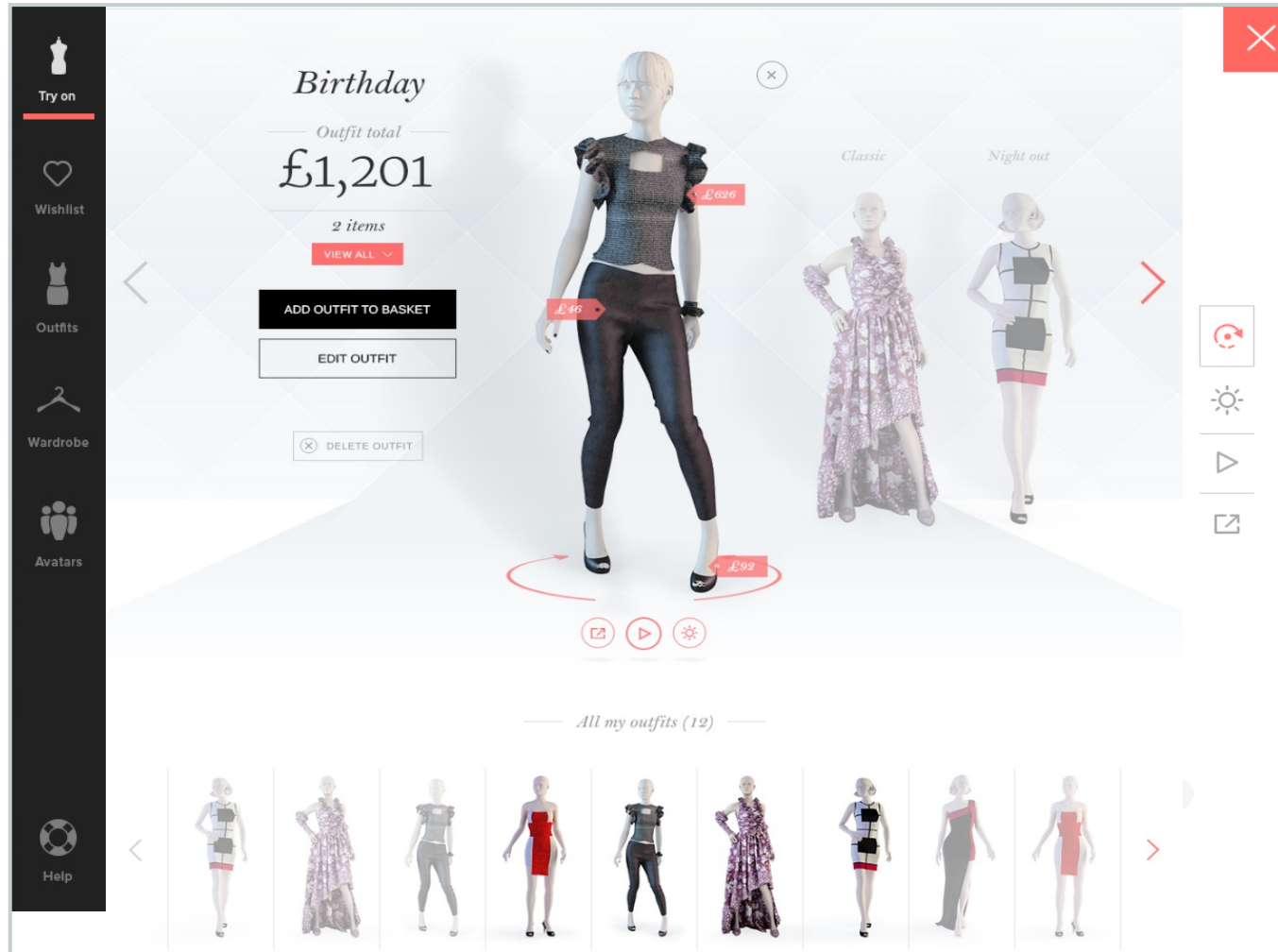
**DELIVEROO**  
PROPER FOOD, PROPER DELIVERY







# Avascope – 3D Visualisation & Fit Technology



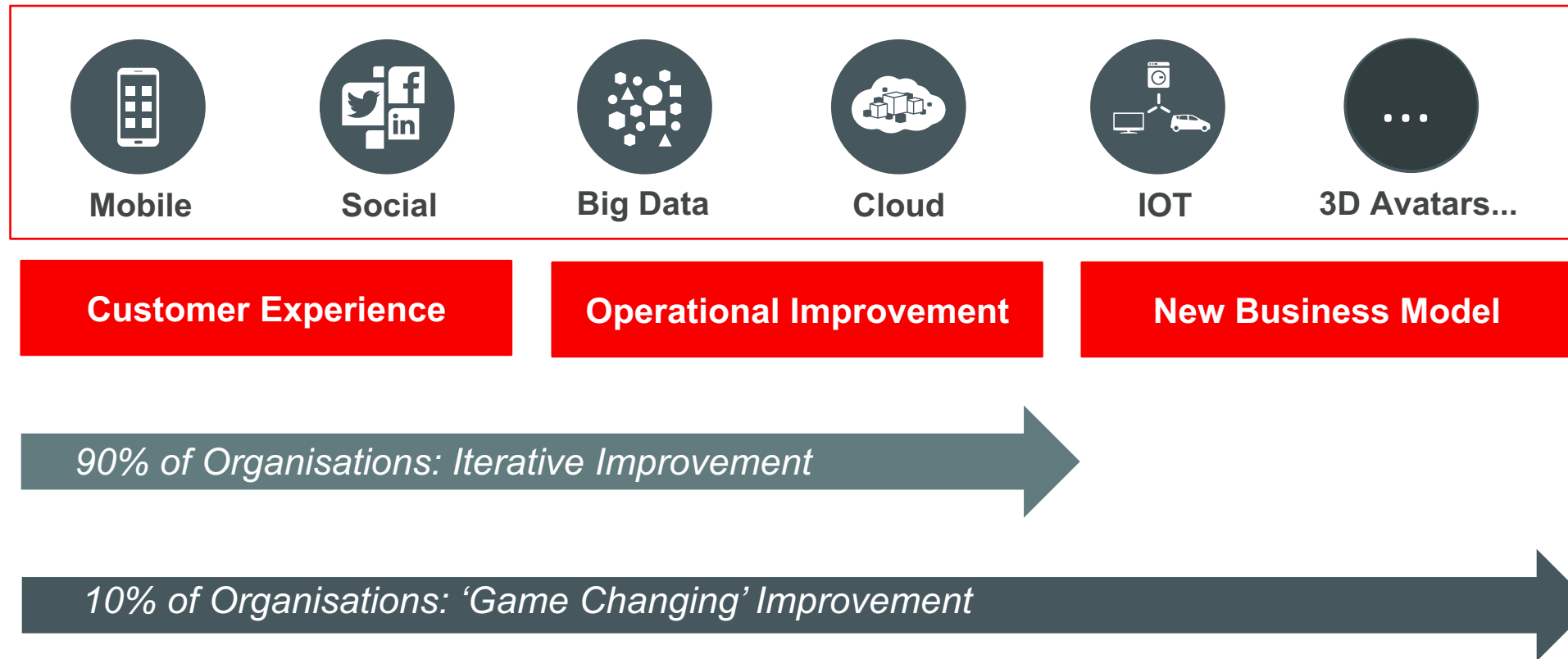


“The Digital Single Market could add €375 billion–415 billion per year to annual GDP by 2022, and by 2025, digitalization of companies and industries could add €2.5 trillion to European GDP”

– Digital Europe: pushing the frontier, capturing the benefits, McKinsey, June 2016

<http://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/digital-europe-realizing-the-continents-potential>

# Digital Transformation changes the rules of the game





# A Big Data Definition

“ Big Data: Techniques and Technologies that Enable Enterprises to Effectively and Economically Analyze **All** of their Data”

- IDC, Carl Olofson

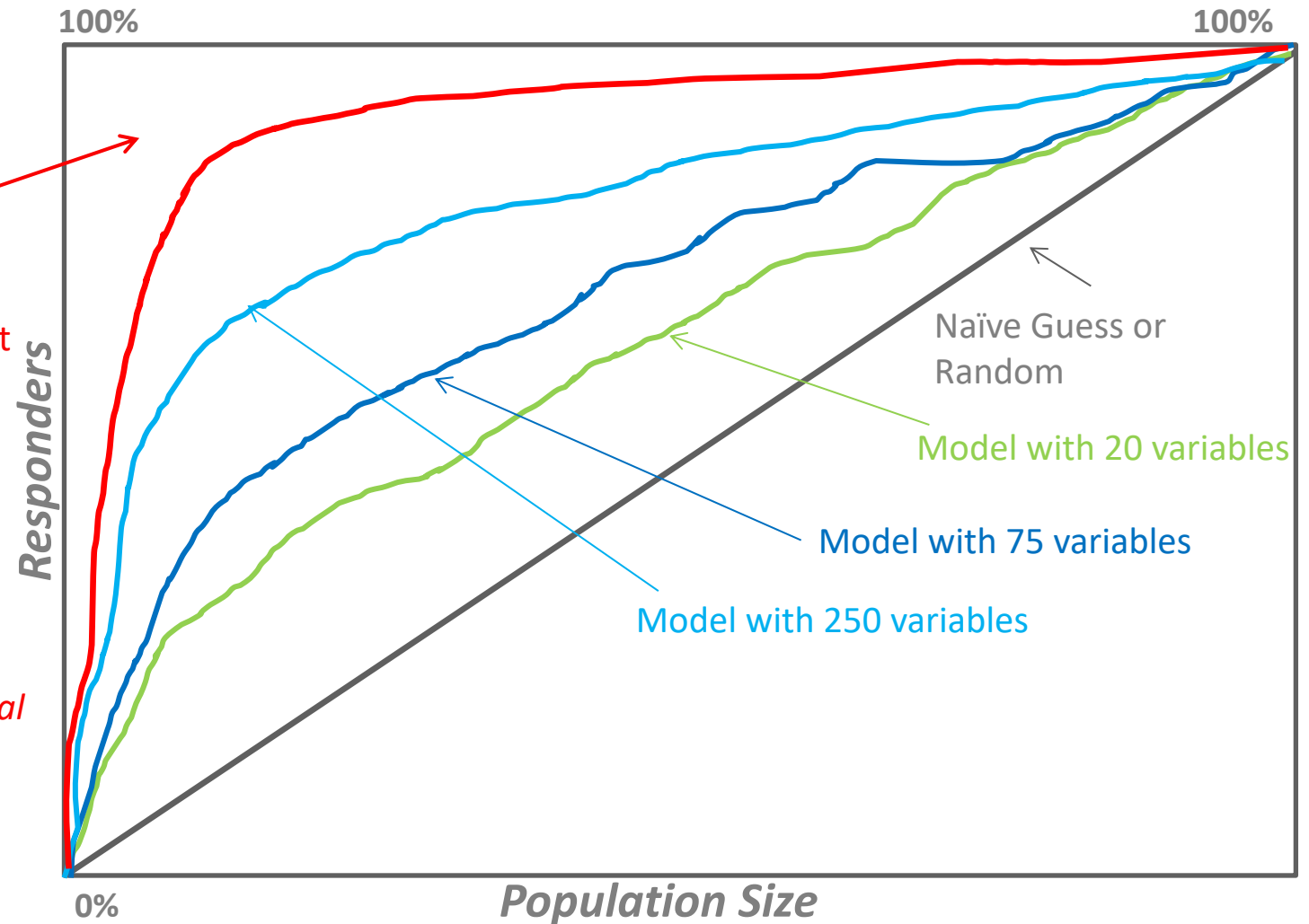
# More Data Variety—Better Predictive Models

Increasing sources of relevant data can boost model accuracy



Model with “Big Data” and hundreds -- thousands of input variables including:

- Demographic data
- Purchase POS transactional data
- “Unstructured data”, text & comments
- Spatial location data
- Long term vs. recent historical behavior
- Web visits
- Sensor data
- etc.



# Oracle's Big Data Strategy

## Data Sources



## Big Data Platform

### Data Lab



**Innovation through data experiments  
and advanced analytics**

### Data Factory



### Data Management



**Store, manage,  
secure and query  
data using the right  
platform for the  
right job**

**High scale data integration and high  
velocity data processing**

## Enterprise Platforms



**Business Intelligence**



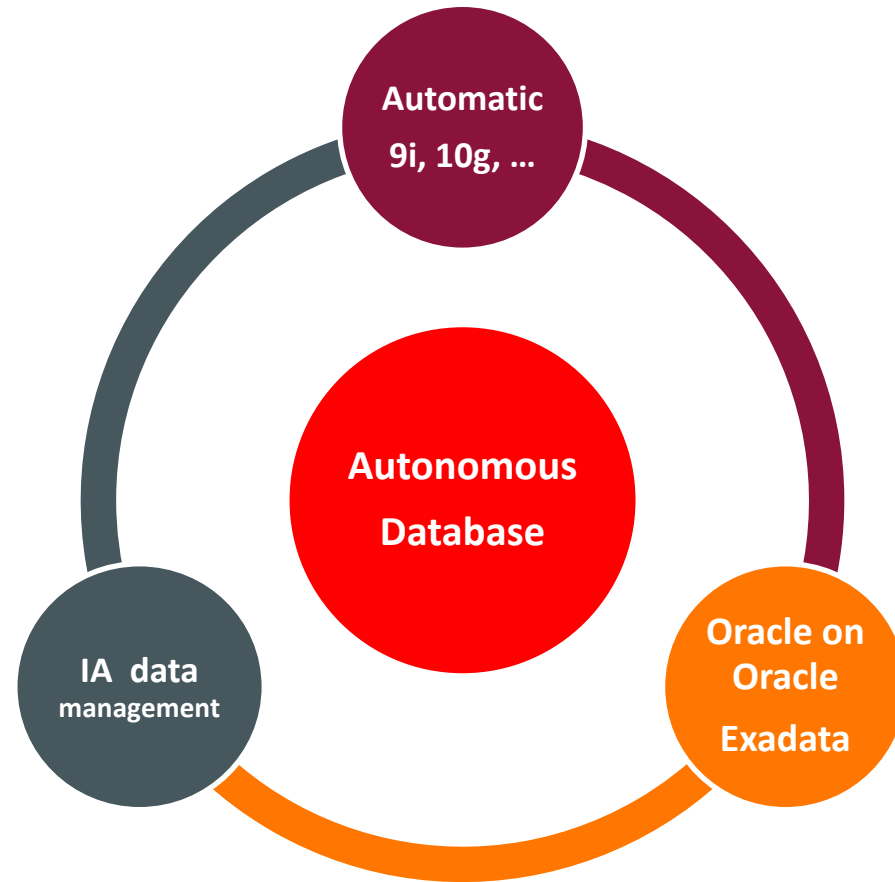
**Data Services**



**Applications**

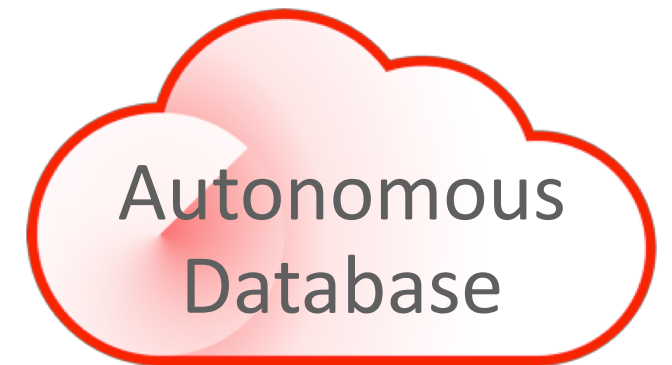


# The Big Confluence...



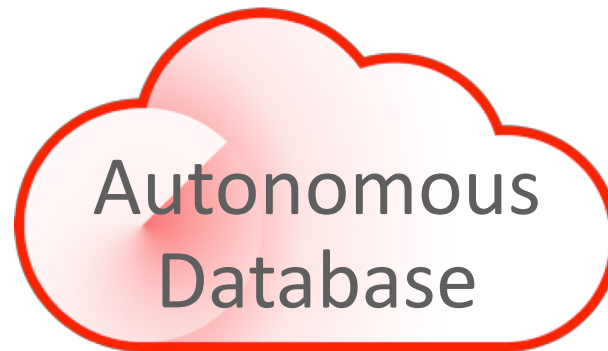
# Oracle's **Vision** for Autonomous Database

- **Self-Driving**
  - User defines service levels, database makes them happen
- **Self-Securing**
  - Protection from both external attacks and malicious internal users
- **Self-Repairing**
  - Automated protection from all downtime



# Autonomous Database **Goals**

- **Much Less Labor, Costs, Errors**
- **Much More Secure, Reliable**
- Much easier for developers to get started with an industrial strength database
- Support **Mission Critical** workloads at the biggest enterprises
- Run in Public Cloud or Cloud at Customer
- Four year effort that is in Beta test now



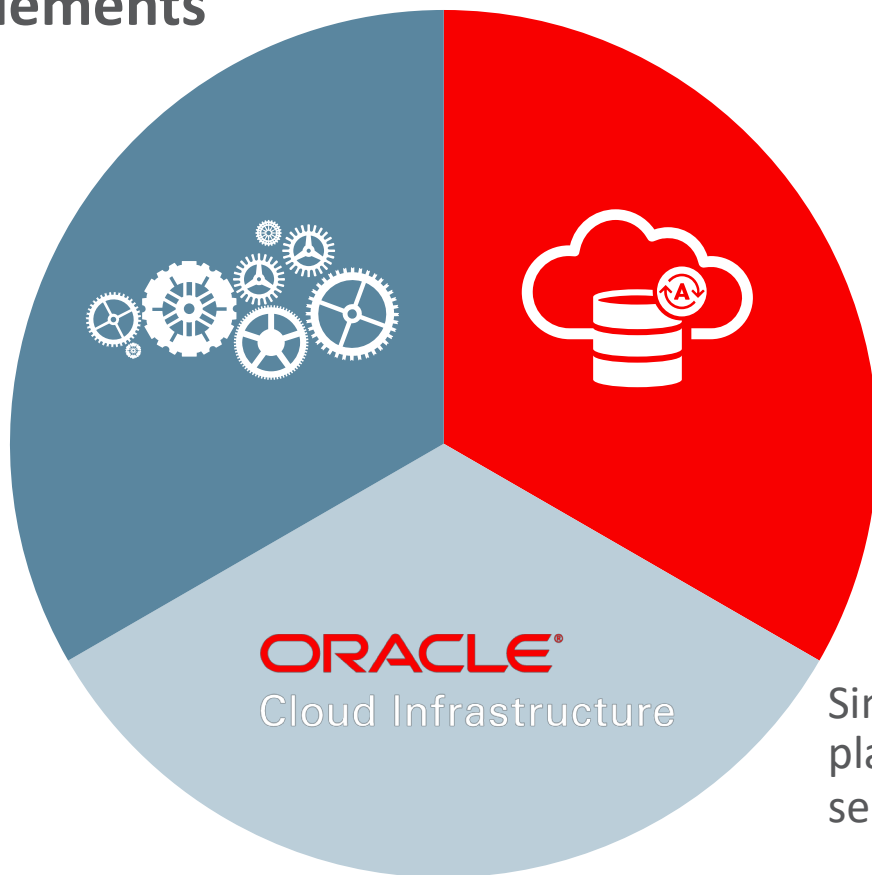


# Ingredients of an Autonomous Database

## Innovation Elements

### Policy-Driven Automation

Automation for optimal configuration for each workload



### Oracle Database 18c

Dozens of automated database features

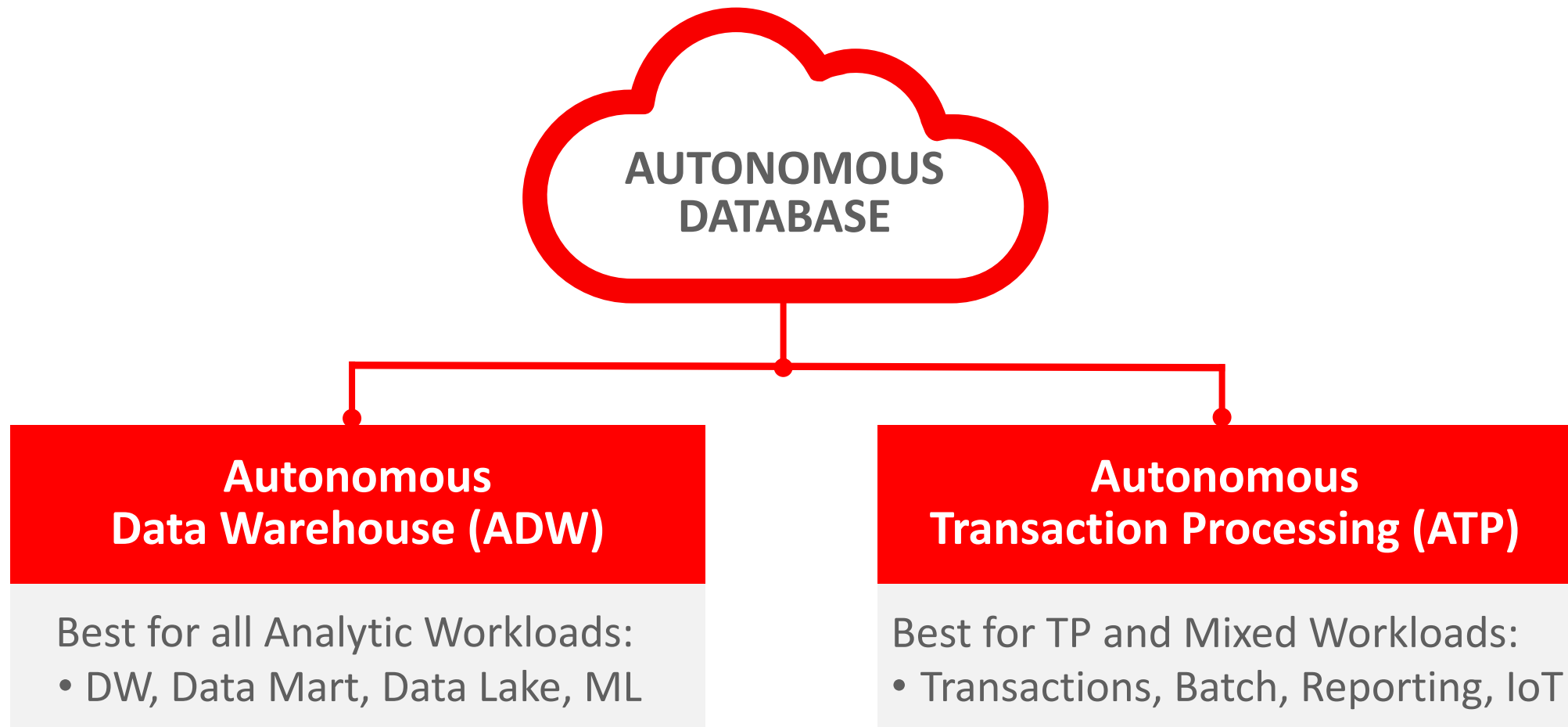
Single, standard platform as focus for self-driving automation

### Oracle Cloud infrastructure

## Based On Machine Learning Technology

- Higher volume of accurate data increases learning
- Leads to more accurate predictions
- Classify normal query patterns & automatically tune database
- Detect & connect anomalous events
- Purpose-built scalable infrastructure for ML

# One Autonomous Database - Optimized by Workload



# Automated vs. Autonomous

## Automated

- The car simplifies operations by automating tasks:
  - Cruise control
  - Emergency stopping
  - Warnings for lane changes
- The database simplifies operations:
  - Automatic storage management, automatic memory management, ...
  - Dozens of other features

## Autonomous

- The car drives itself
  - No need to use the steering wheel or brake.
  - Simply tell the car where you are going.
- The database manages itself
  - All features automatically implemented
  - Simply tell the database your goals



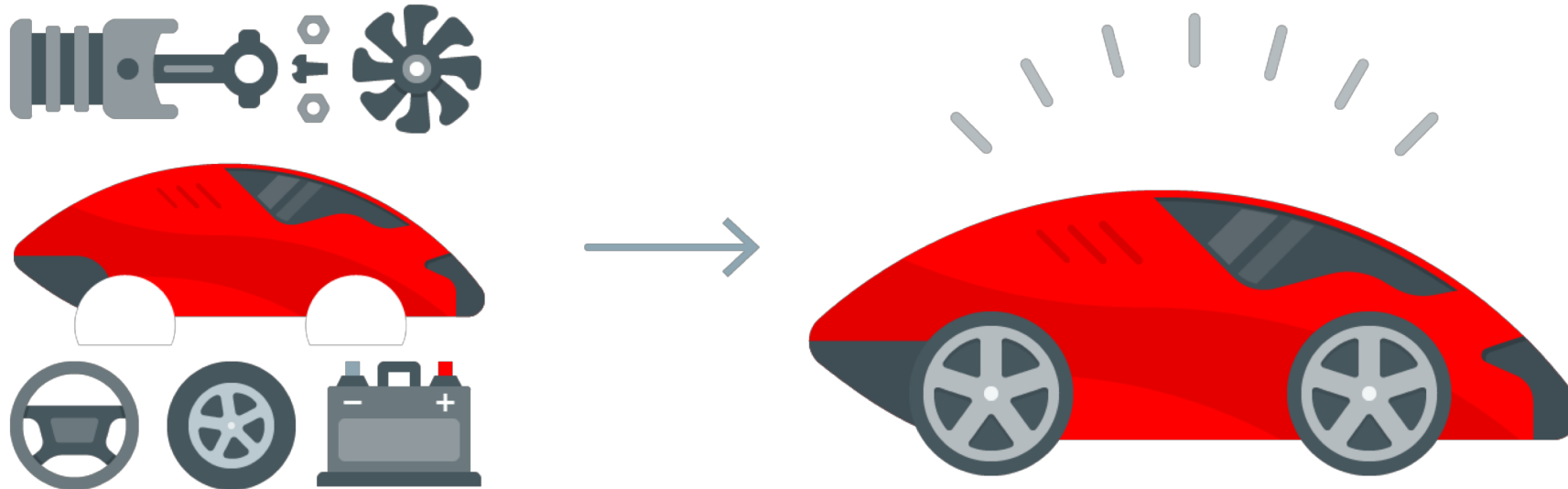
# Introducing: Autonomous Data Warehouse Cloud

- **Easy**
  - Automated management
  - Automated tuning: **Simply load data and run**
- **Fast**
  - Based on Exadata technology
- **Elastic**
  - Instant scaling of compute or storage with no downtime



# Autonomous Database is Automatically Provisioned

- Pre-built, pre-optimized, pre-tested



# Getting Started with Autonomous Data Warehouse Cloud

- Provisioning requires only 5 simple questions:
  - Database name?
  - Which data center?
  - How many CPU's?
  - How many TB's?
  - Admin password?
- New service created in <30 seconds (regardless of size)
  - Ready to connect via sqlnet

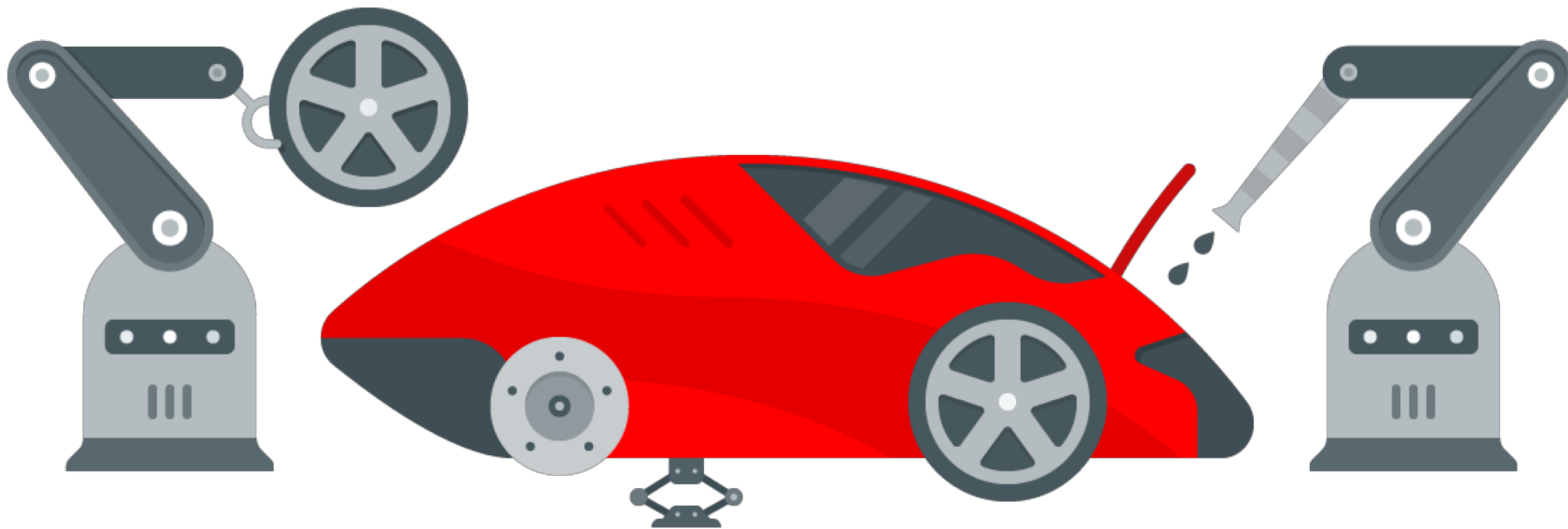
The screenshot shows the 'Create Service' page for Autonomous Data Warehouse Cloud in the Oracle Cloud My Services console. The page is titled 'Autonomous Data Warehouse Cloud Create Service' and includes a progress bar with 'Service' and 'Confirm' steps. The 'Service' section contains two columns of input fields: 'Details' and 'Configuration'. The 'Details' column includes fields for 'Database Name', 'Description', and 'Notification Email'. The 'Configuration' column includes fields for 'Region' (set to Ashburn), 'CPU Core Count (OCPU's)' (set to 1), 'Storage Capacity (TB)' (set to 1), 'Administrator Password', 'Confirm Administrator Password', 'Object Store URL', 'Object Store Username', and 'Object Store Password'. A 'Next' button is located at the top right of the form.

# What didn't you just see?

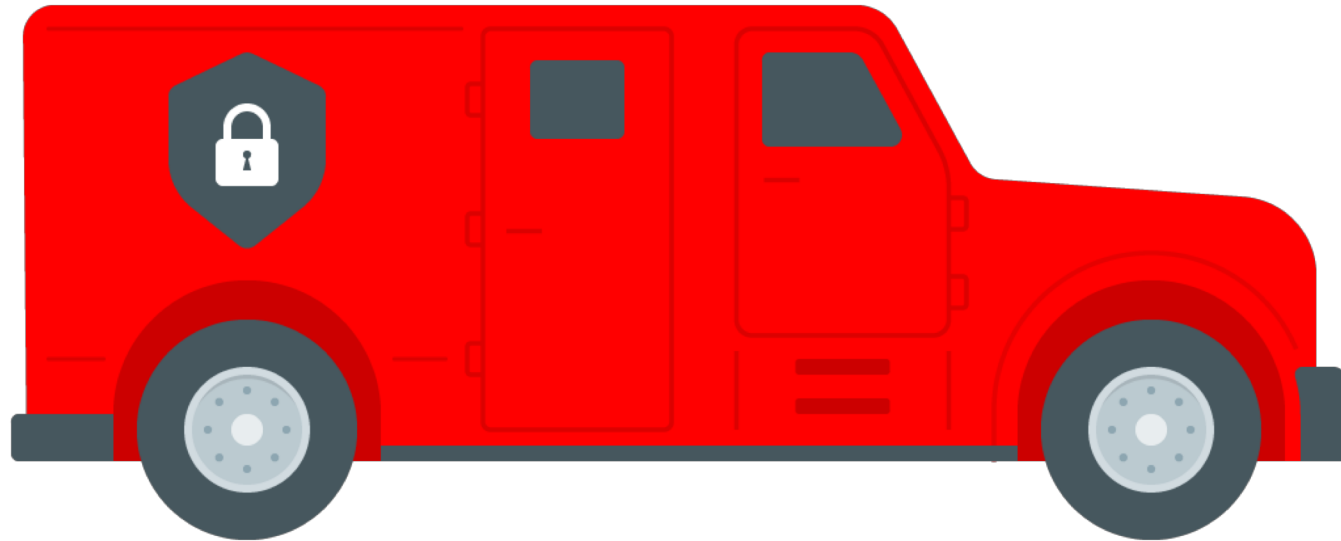
- No decisions for:
  - Details of the database software
  - Configuration of hardware
  - Characteristics of the database
  - Architecture for backups and availability
- All of this (and more) is automatically configured



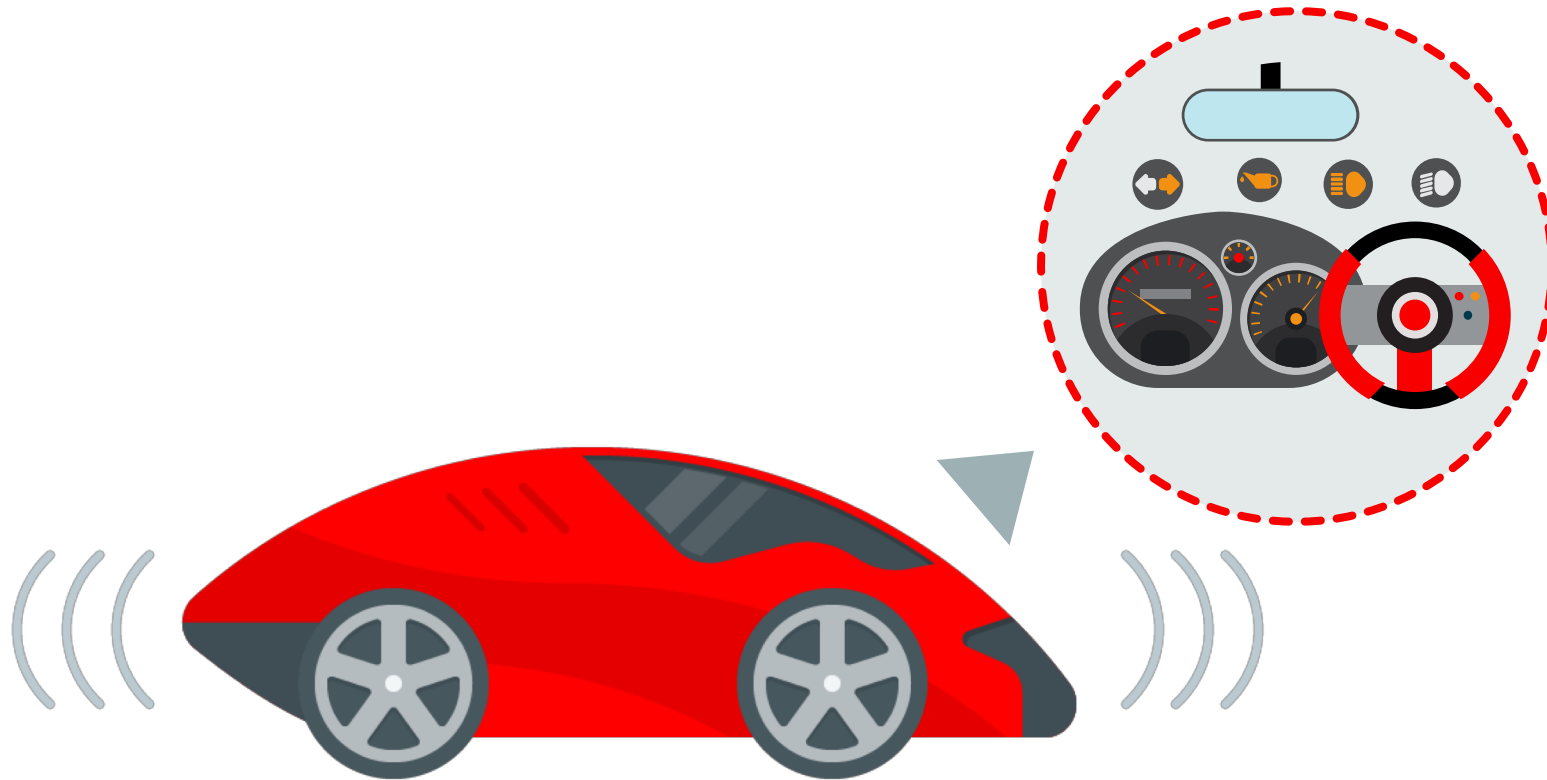
# Autonomous Database Automatically Patches Itself **Online**



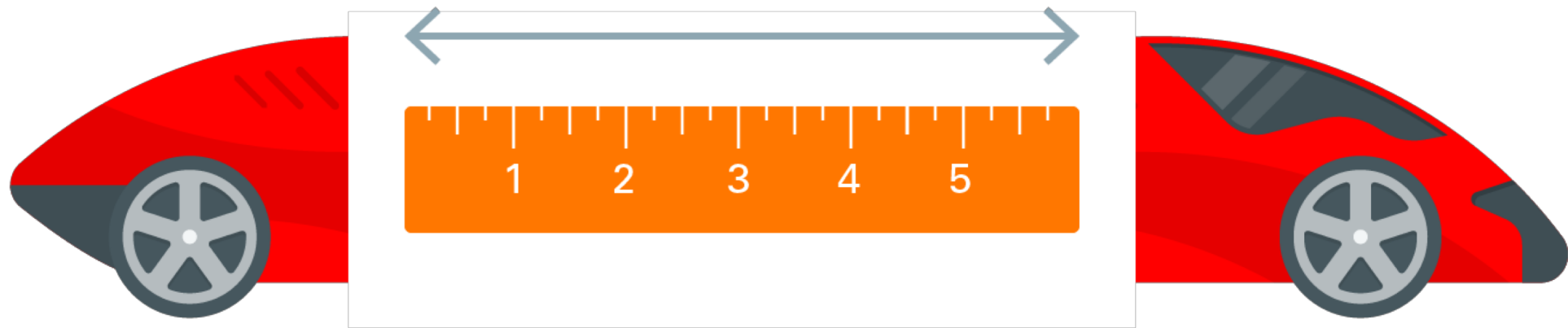
# Autonomous Database Automatically **Secures** Itself



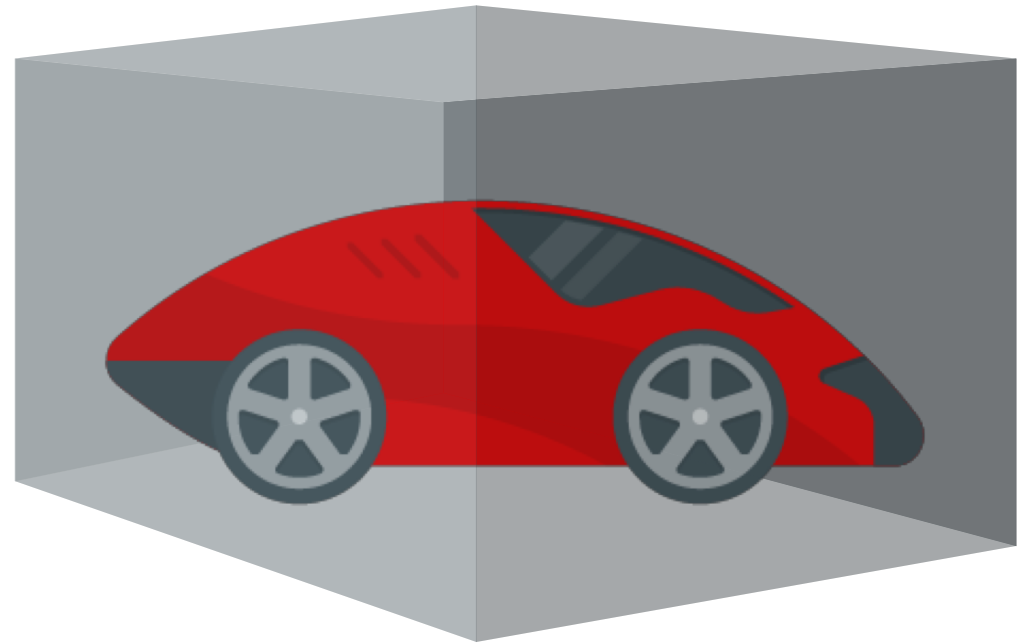
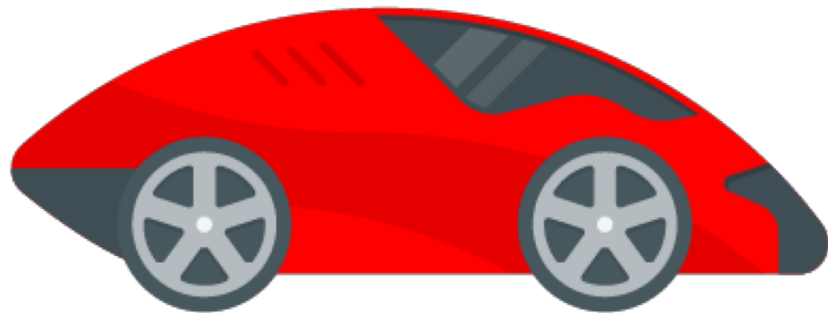
# Autonomous Database Automatically **Monitors** Itself



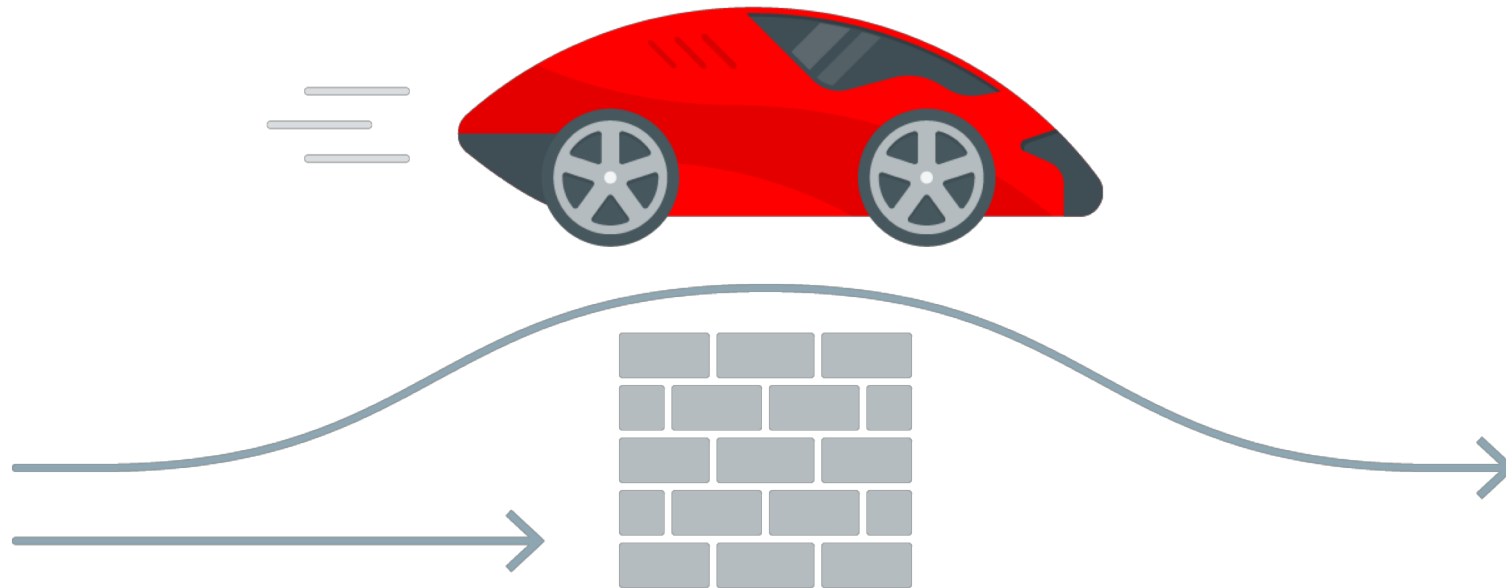
# Autonomous Database Automatically Scales



# Autonomous Database Automatically **Backs Itself UP**

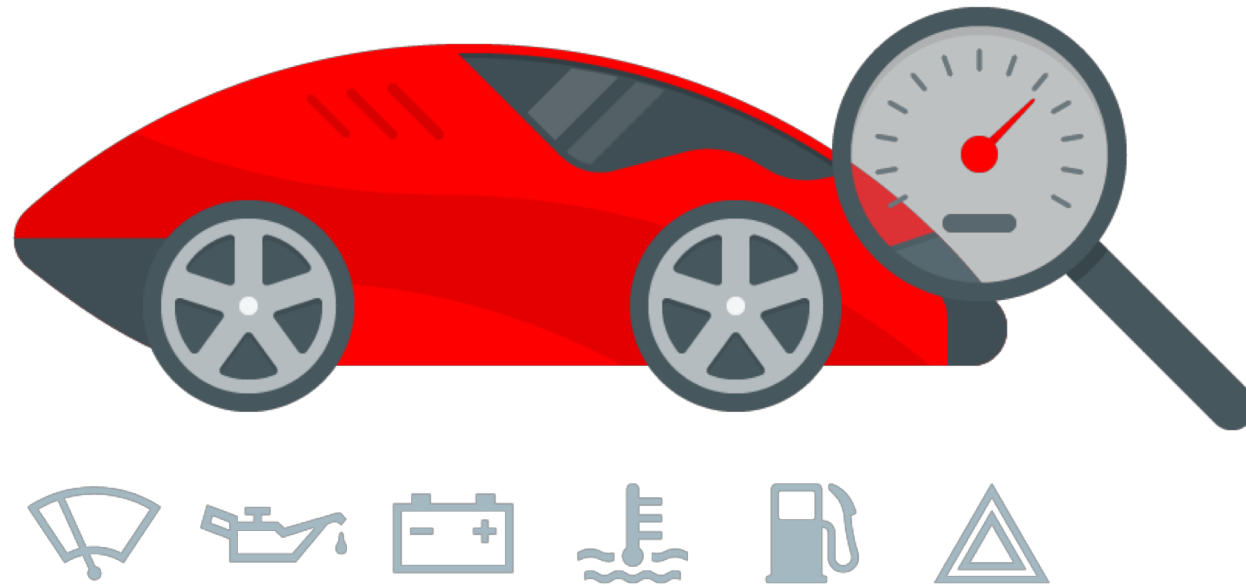


# Autonomous Database Automatically **Withstands Failures**

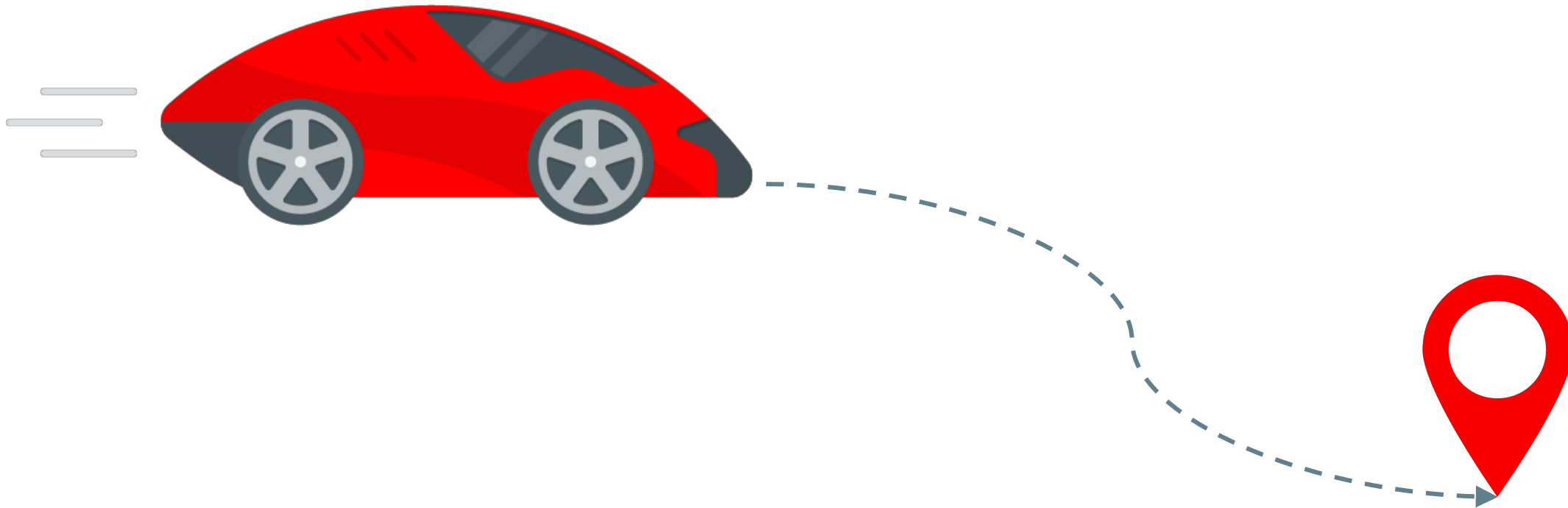




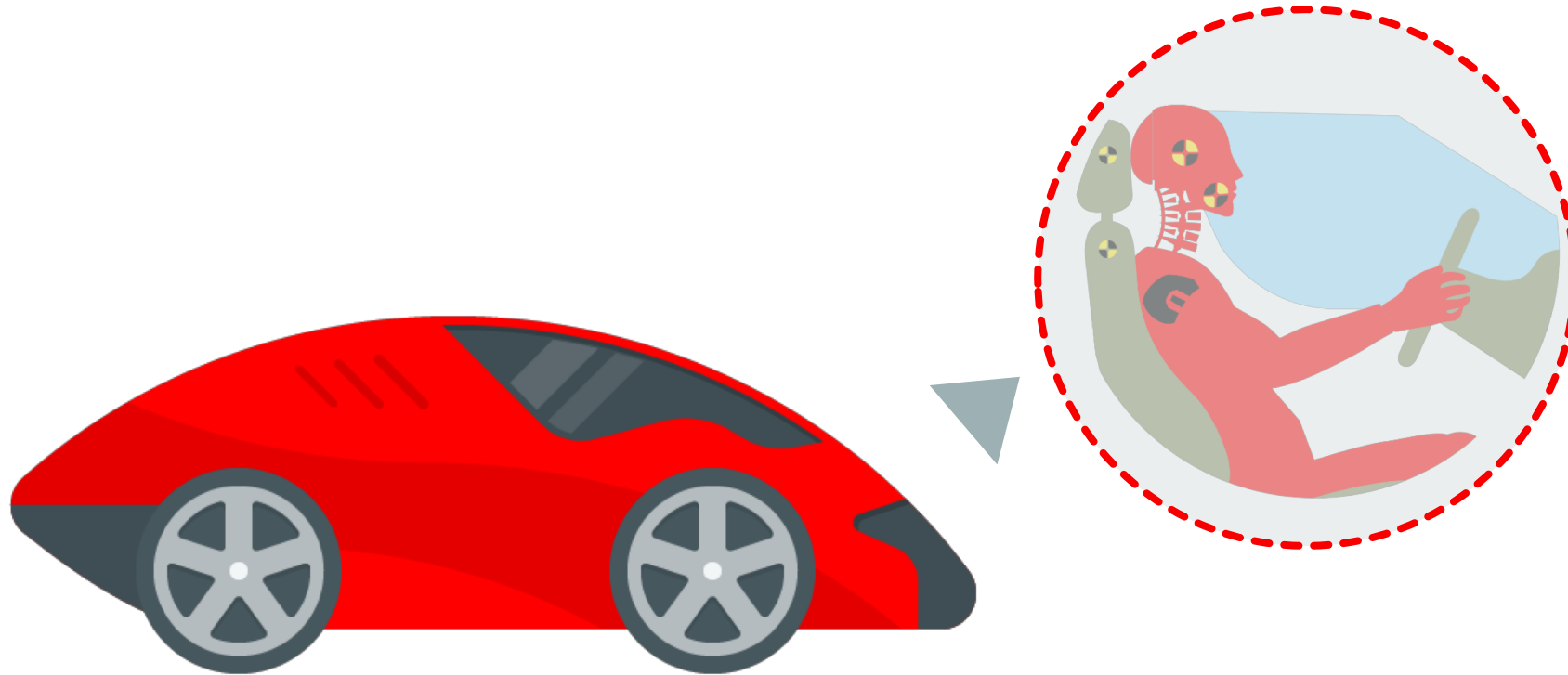
# Autonomous Database Automatically Diagnoses Performance



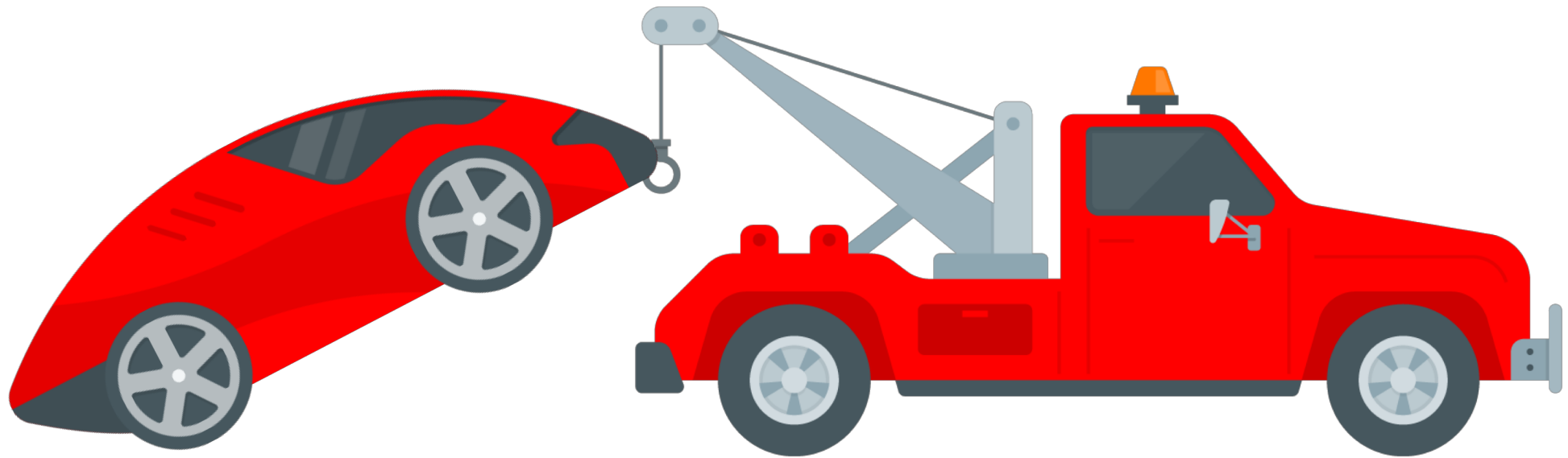
# Autonomous Database Automatically Optimizes Itself



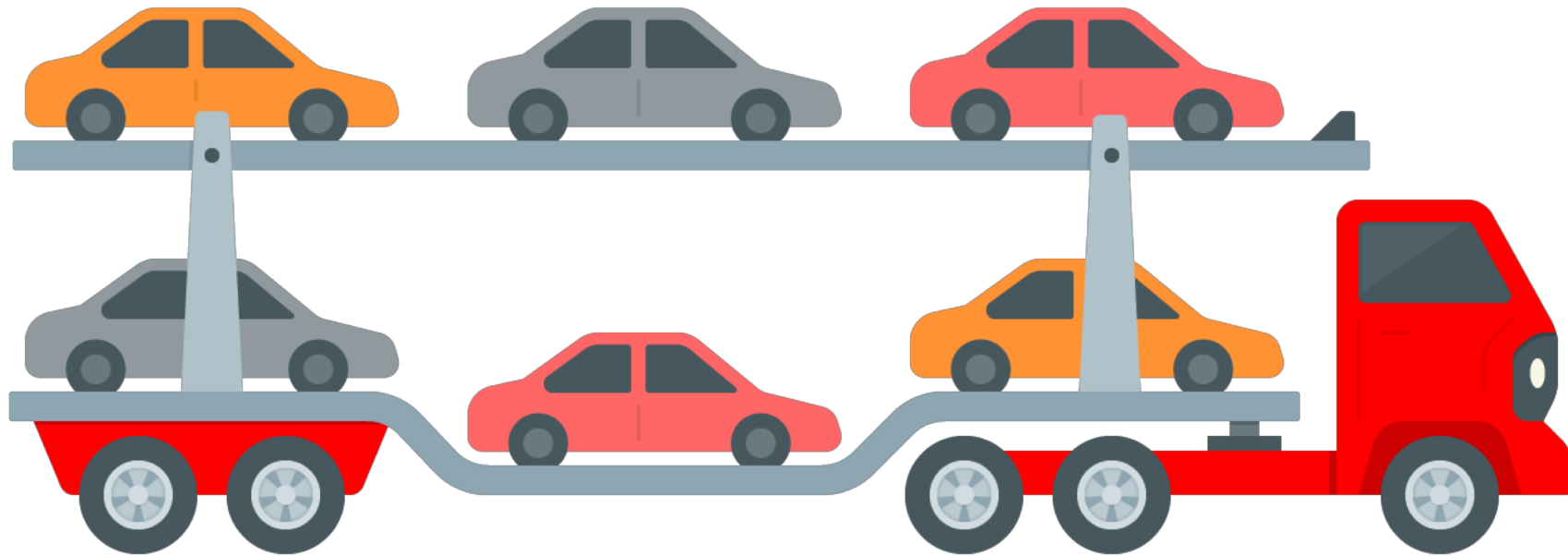
# Autonomous Database Automatically Ensures Changes are Safe



# Autonomous Database Automatically **Handles Errors**



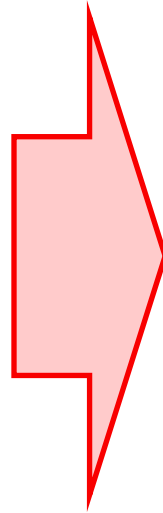
# Autonomous Database Automates Migration and Data Loading



# What does Autonomous Database mean for the DBA?

## Less time on Administration

- Less time on infrastructure
- Less time on patching, upgrades
- Less time on ensuring availability
- Less time on tuning



## More time on Innovation

- More time on database design
- More time on developing new apps
- More time on data analytics
- More time on securing data

**Challenge: There are more data management tasks than humans to do the work**

# Instant Elasticity: Pay for Exactly What you Use

- Size the DW to the exact number of OPCU's and TB's required
  - Not constrained by fixed building blocks
- Scale the DW on demand
  - Independently scale compute or storage
  - Resizing occurs instantly, fully online
- Shut off idle compute save money
  - Restart instantly



# Supported by a rich Data Warehouse Ecosystem

## Oracle Autonomous Data Warehouse Cloud supports:

- **Existing tools** running on-premise or in Oracle Cloud
  - Oracle BI and data-integration tools
  - 3<sup>rd</sup> party BI tools
  - 3<sup>rd</sup> party data-integration tools
- Connectivity via SQL\*Net

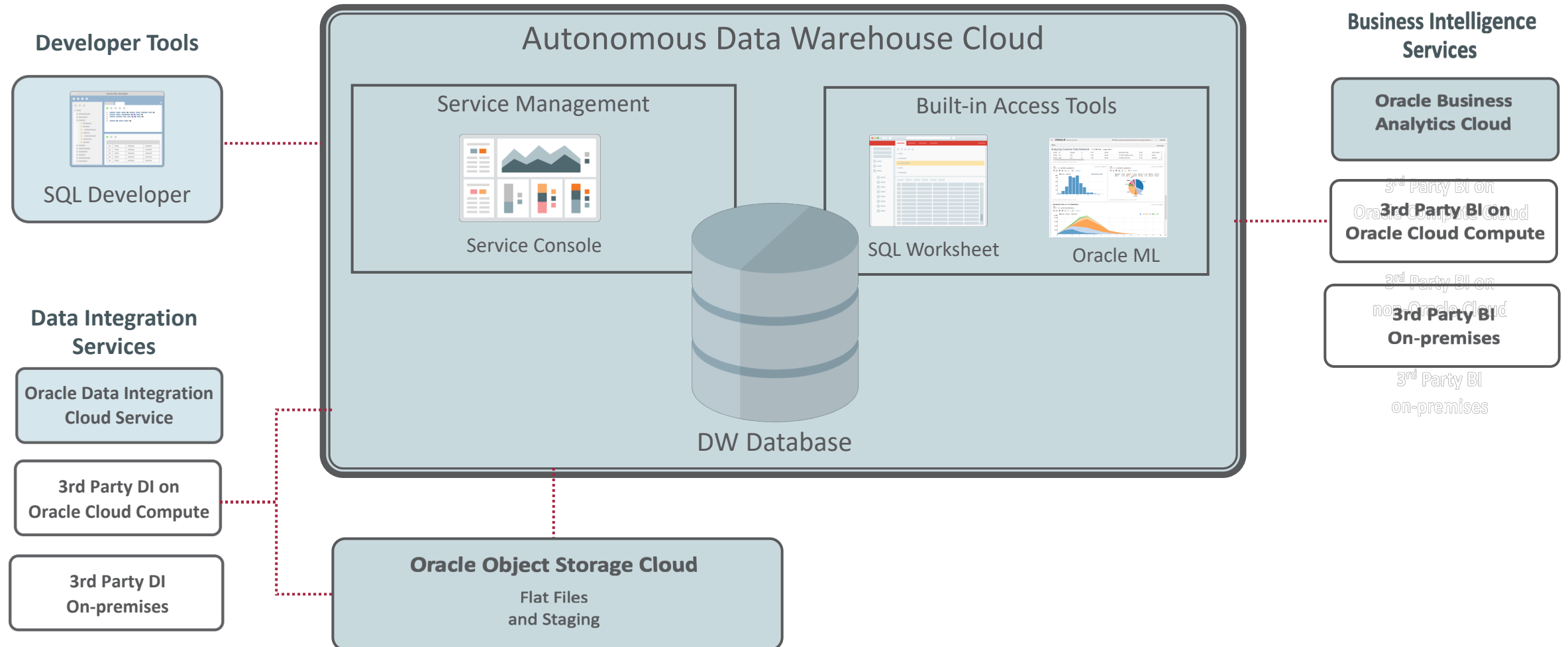
### Oracle Cloud Services

- Oracle Analytics Cloud
- Oracle Data Integration Platform Cloud
- and others...

# Autonomous Data Warehouse Cloud: Support From Strategic Partners

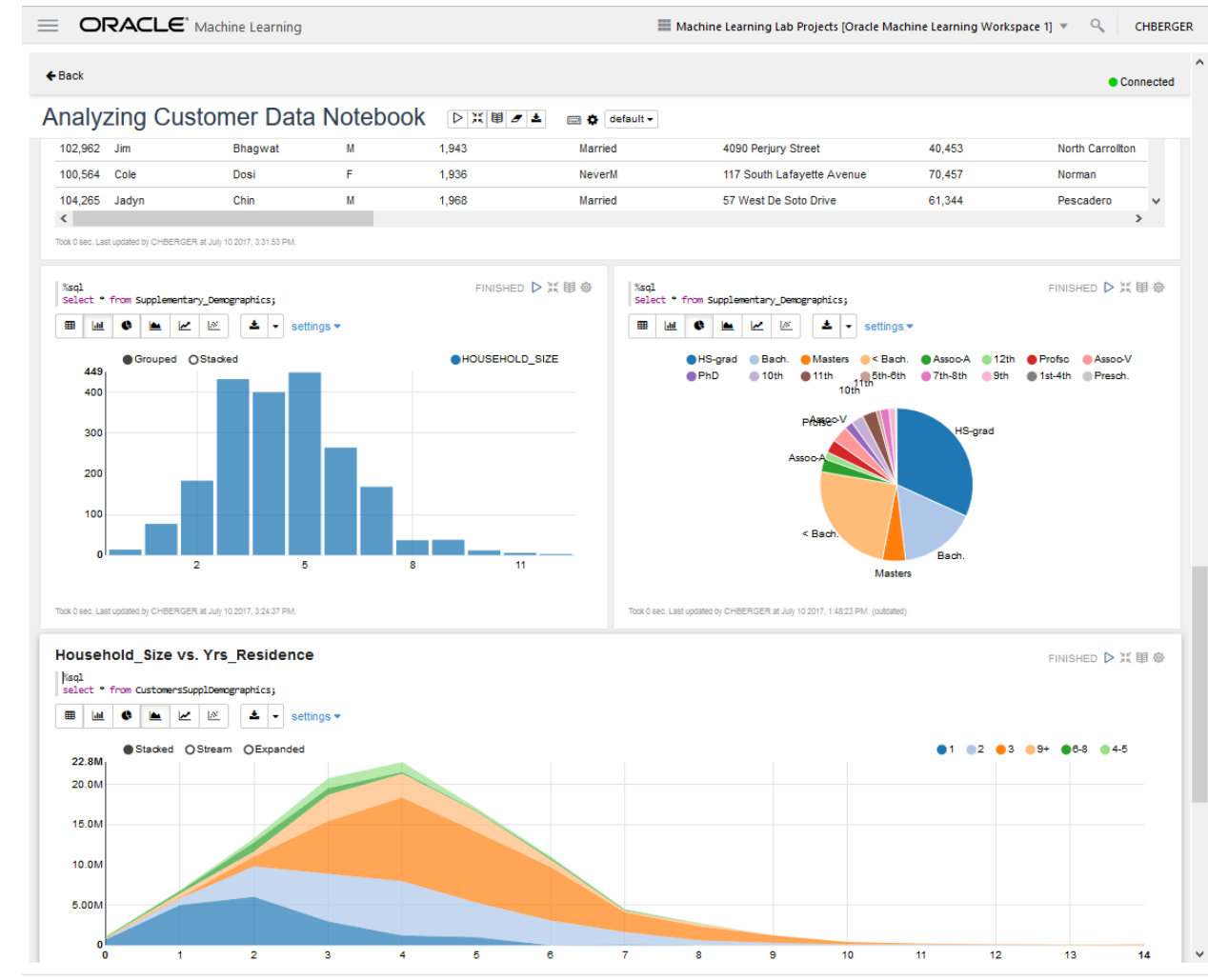


# Autonomous Data Warehouse Cloud: Architecture

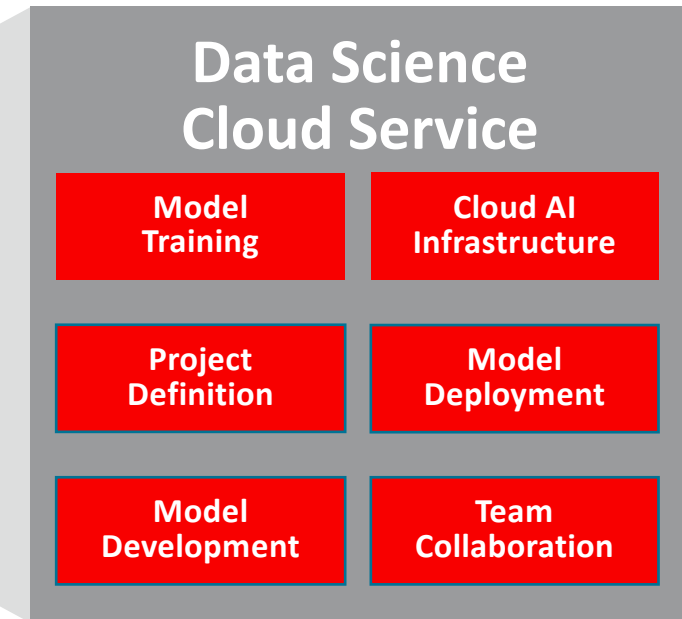
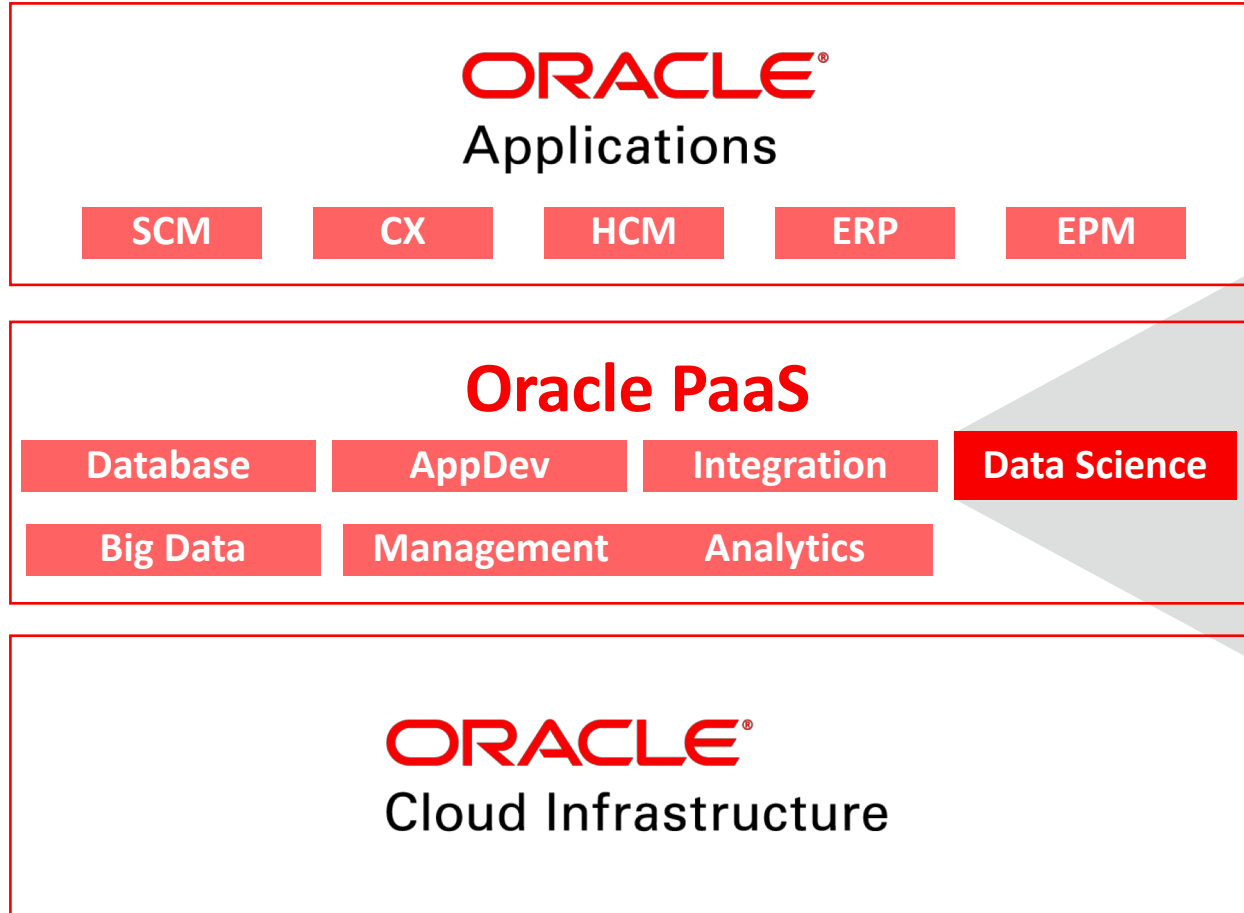


# OracleML: Built-in notebook

- Collaborative UI for data scientists
  - Easy access to shared notebooks, templates, permissions, scheduler, etc.
- Based on Apache Zeppelin
- Roadmap: Common UI for data scientists across multiple services



# Oracle Data Science Cloud Enables an End-to-End Machine Learning Platform and Modern Autonomous PaaS and SaaS

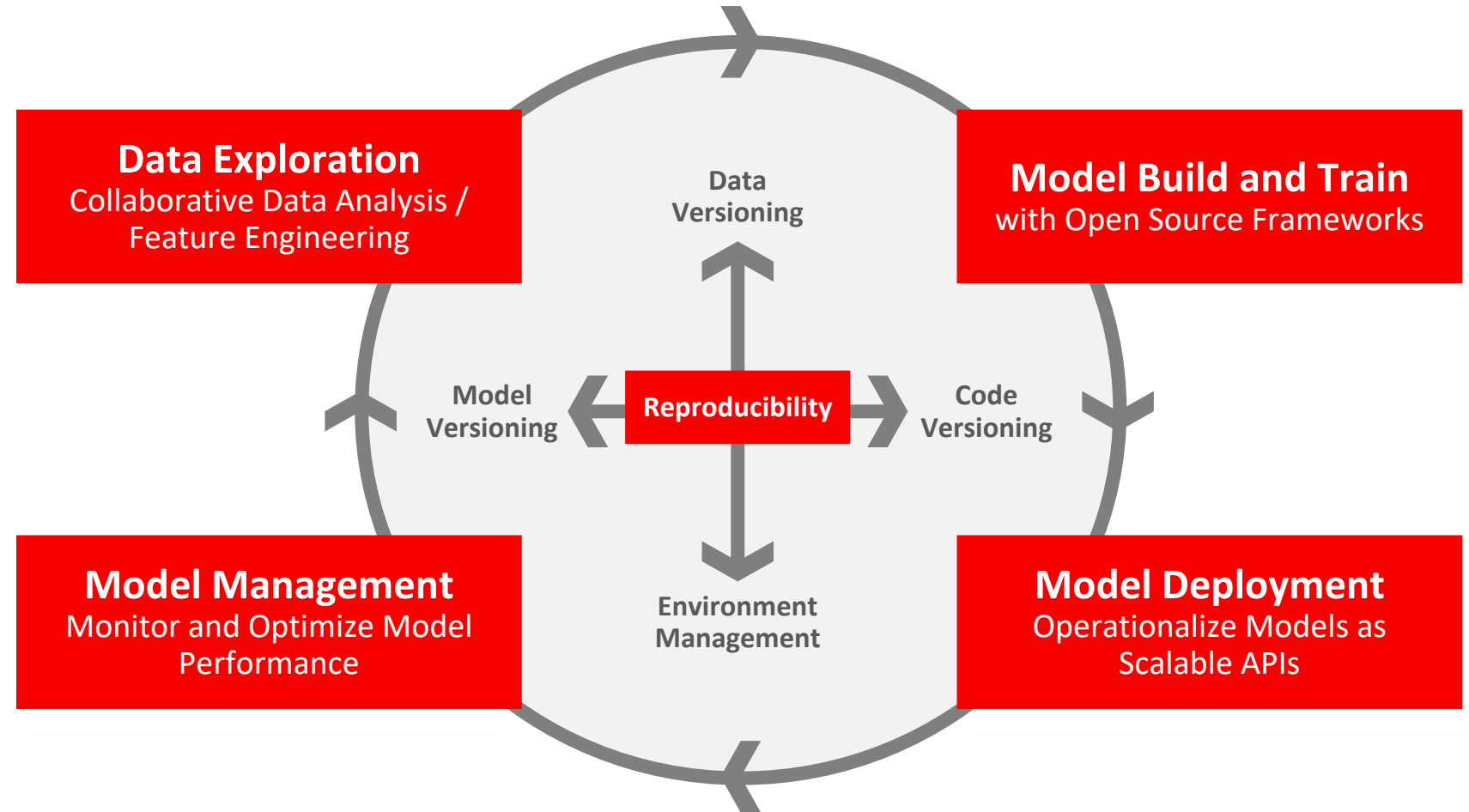


# Oracle Data Science Cloud Workflow



## Collaborators

- Data Scientists
- Business Stakeholders
- App Developers
- IT Admins



# Oracle Data Science Cloud Core Capabilities

End-to-end platform for enterprise data scientists

- **Data science workflow:** Collaboration for enterprise data science teams in projects
- **Model building and training\*:** Python development in Jupyter notebooks
- **Model deployment:** Deploy models as APIs, serve predictions in real-time
- **Version control:** External Git Provider required for files
- **Access to open-source:** Curated sets of packages for data science use cases
- **Access to compute:** Self-service access to spin up containers on OKE Cluster of OCI VMs (CPU only)
- **Access to data:** Oracle Object Store

\* Model training in single Jupyter container with reserved CPU/memory (non-distributed over multiple containers)



# Oracle Autonomous Database Customer Benefits

- Lower Cost

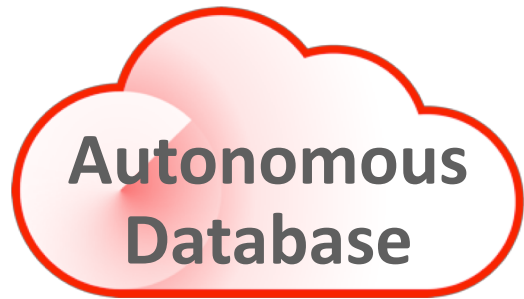
- Reduce admin costs up to 80% with complete automation of operations and tuning
- Reduce runtime costs up to 70% by dynamically adjusting resources, eliminating underutilization
- Deploy new apps in minutes vs months, save tens of thousands of dollars; faster TTI/TTD
- Reduce the cost of downtime, less than 30 minutes per year

- Reduce Risk

- Protection from attacks by automatically applying security updates
- Mitigate breach impact by avoiding reputational damage, associated breach costs & revenue losses

*Foundational Cloud Benefits: Time to market, continuous roadmap enhancements, pace of innovation and scale*

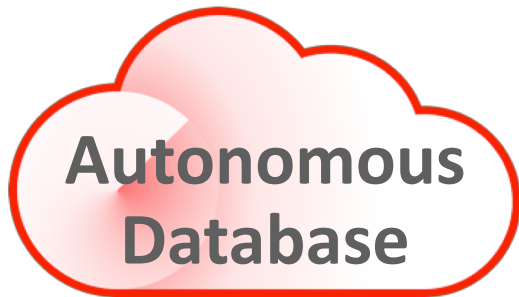
# Oracle Autonomous Database



- World's First **Autonomous Database**
  - Self-Driving
  - Self-Securing
  - Self-Repairing
- **Mission Critical**

# Oracle Data Science Cloud

- World's First **Data Science Workflow**
  - Model Built and Train
  - Model Deployment
  - Model Management
  - Model Exploration





# Integrated Cloud

## Applications & Platform Services

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