Innovating with Big Data and Data Science on Oracle Cloud Infrastructure

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AI is Becoming Part of Our Day to Day Lives…

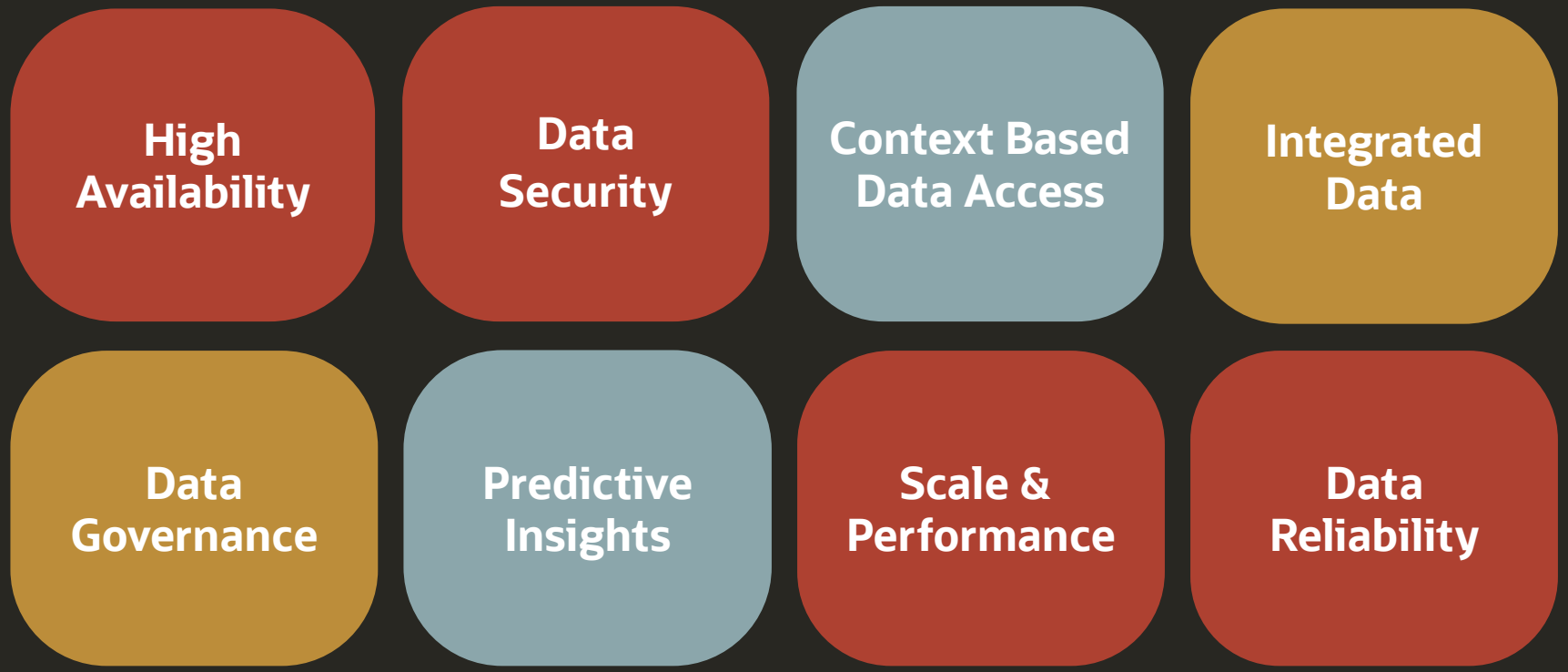
…But Not Always So Compellingly

„After a few days of getting their bikes back in the water was only comfortable and comfortable”

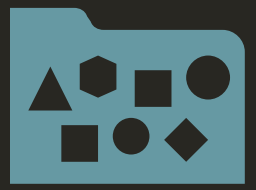
Paul the Octopus

85% Success Rate Predicting International Soccer From 2008-2010

Architectural tenets of a data driven organization



AI Requirements – 1,2,3...



1. Capturing and Managing Large Volumes of Data

2. Building, Training Machine Learning Models

3. Operationalizing Models Into Analytics and Applications

1. Acquiring the Right Data

Data Ingestion	Data Transformation	Data Management	Data Security	Data Governance

End to End Data Management

Unifying all data into one data fabric

On-prem

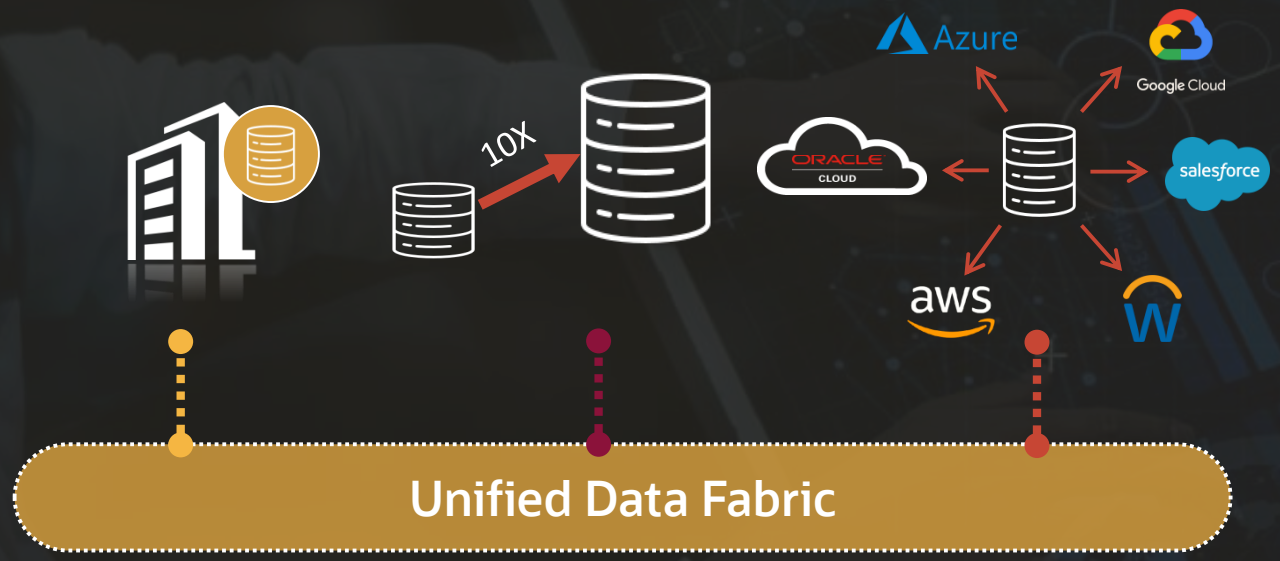
Any Data, Any Format

Any application, any database/ data store

ORACLE CLOUD

Data Movement	Data Management	Data Governance
Database Migration	Autonomous Database	Data Catalog
Data Integration	Big Data Service	Data Quality
Streaming	Oracle Object Storage	Identity Access Manager
Golden Gate	Cloud SQL	
	Data Flow (Spark)	

Unified data fabric for ease of management and consistent data access

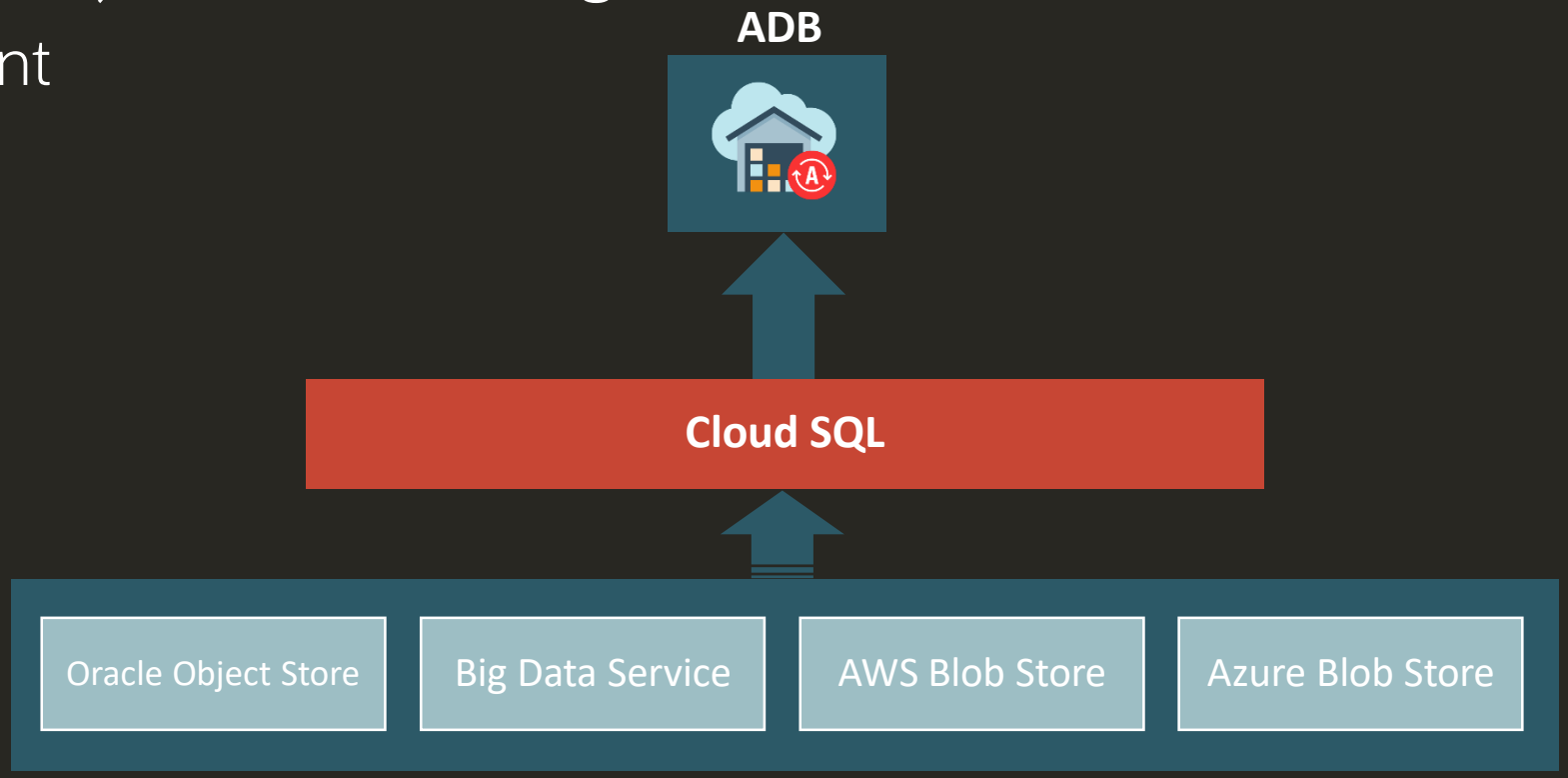


Benefits of Integrated data, applications, and platforms

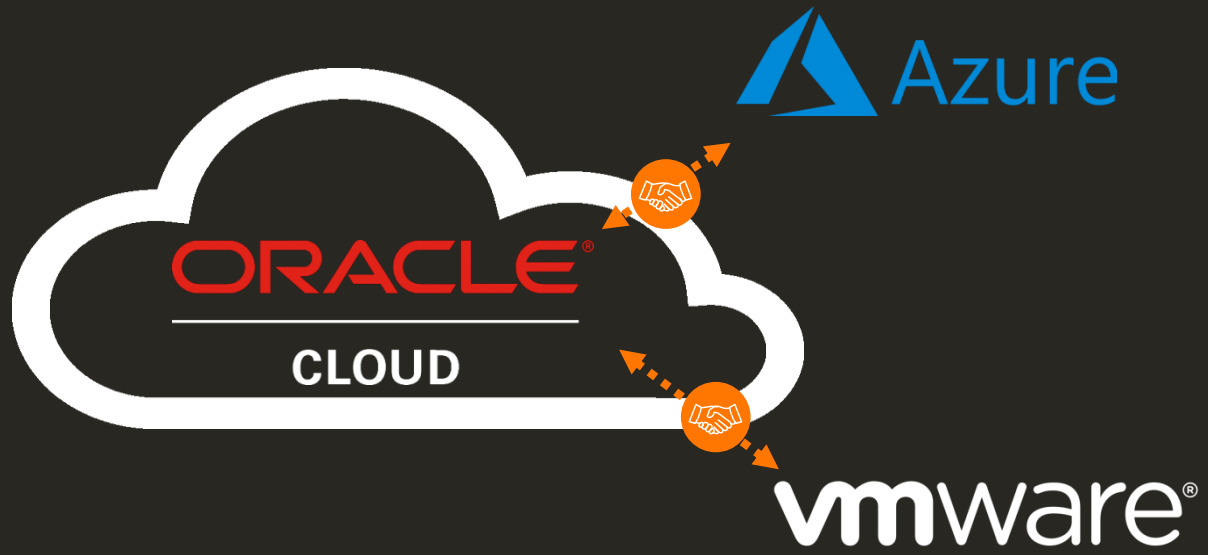
- Process the data where the data is
- Reduce transformation of data
- Centralize data management
- Reduce multiple copies of data
- Real time data access and insights

Oracle Cloud SQL

- Available Soon New name for Big Data SQL
- Scale out queries against Object Stores and Big Data Service
- Automatic and transparent
- Pay for what you use



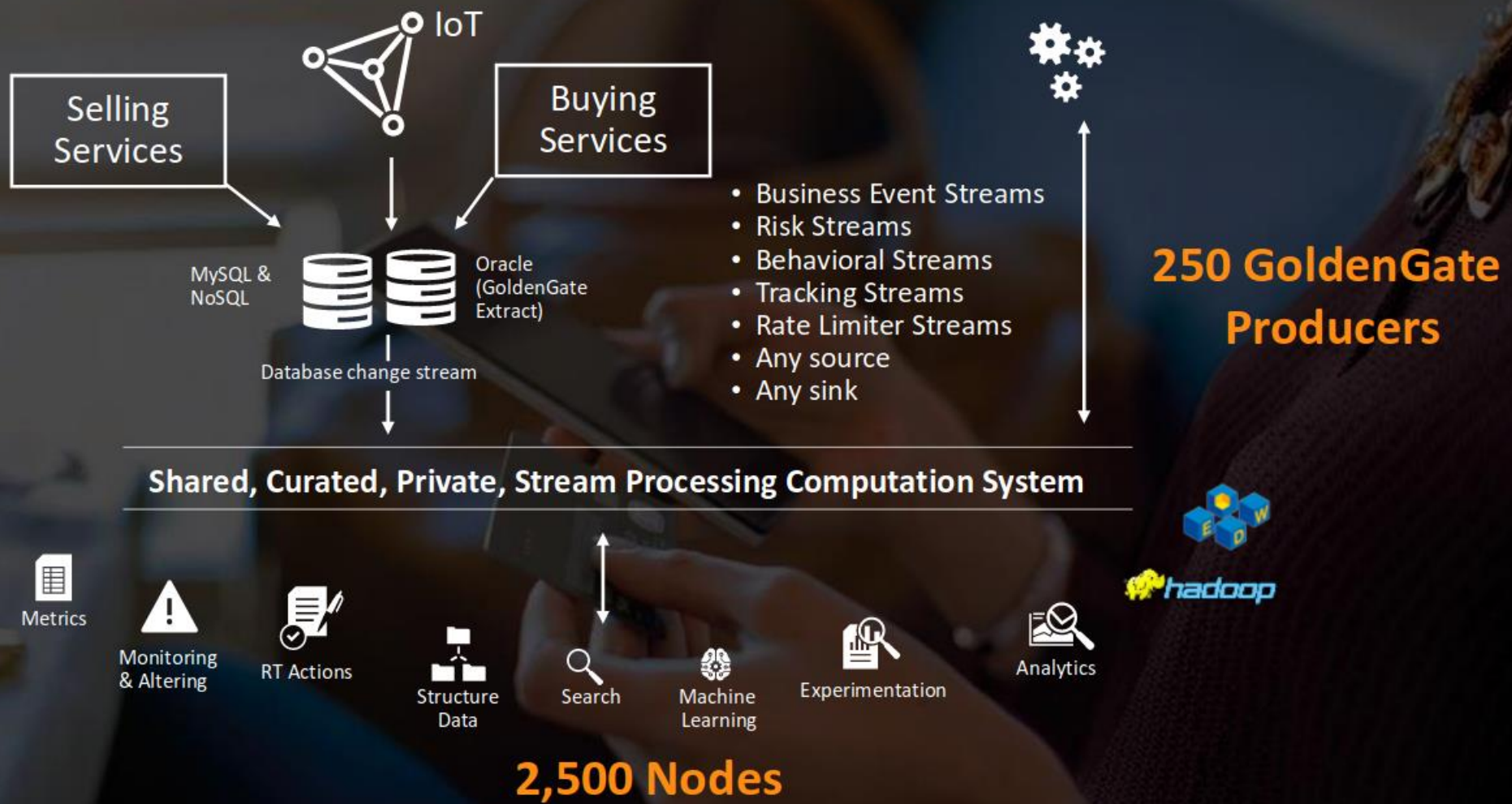
Supporting your multi cloud vision with no lock-ins

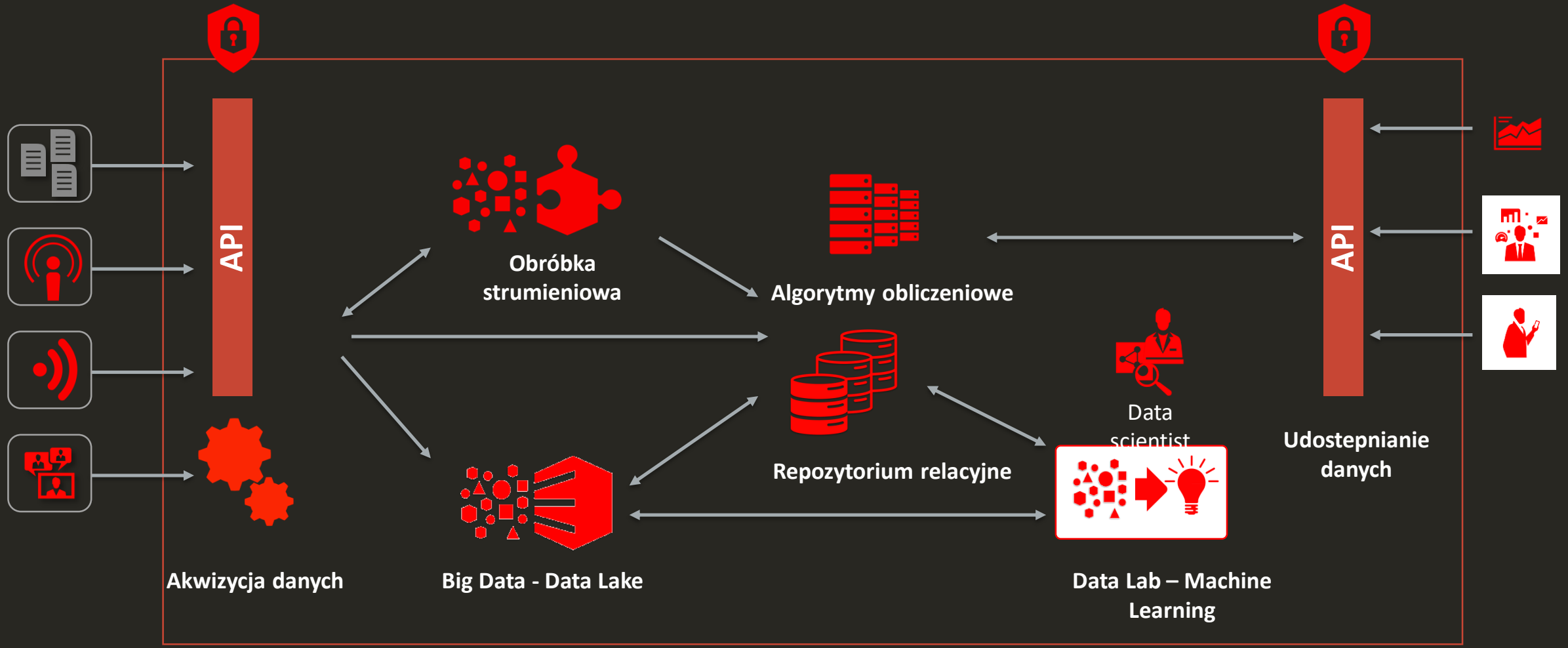


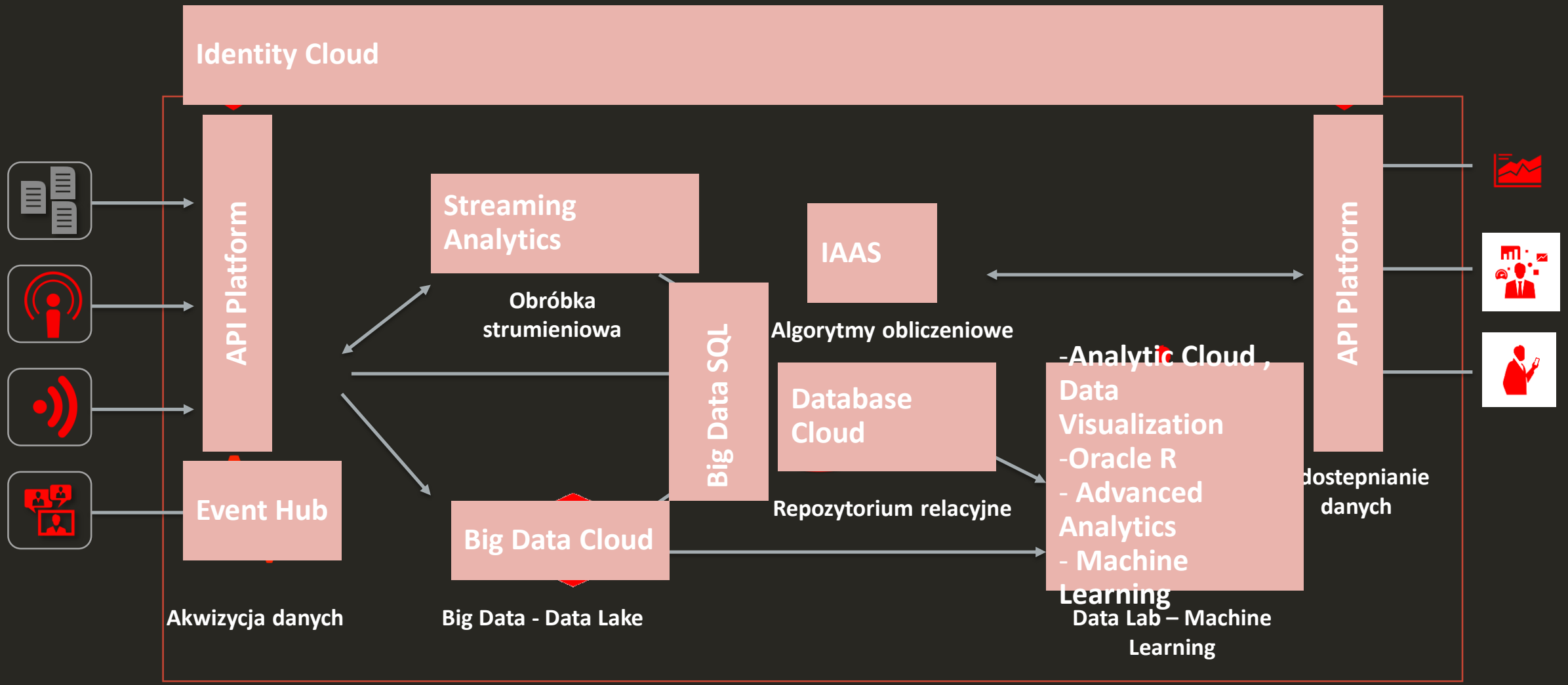
- Partnership with Microsoft, vmware
- APIs to establish secure connection with other cloud storage
- No charge for egress fee for ADB or for any OCI services
- Easy to migrate workloads across clouds
- Cloud SQL to query across cloud services

Modern Data Integration Example

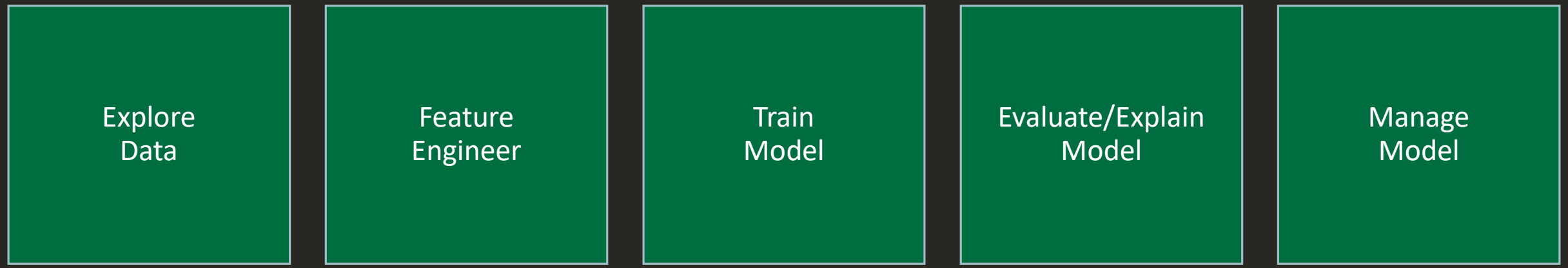
eBay's Real-time streaming data platform built with Oracle GoldenGate, Kafka, Flink and Kubernetes driving fraud detection and recommendations




API
Obróbka strumieniowa
Algorytmy obliczeniowe
API
Repozytorium relacyjne
Data scientist
Udostepnianie danych
Akwizycja danych
Big Data - Data Lake
Data Lab – Machine Learning

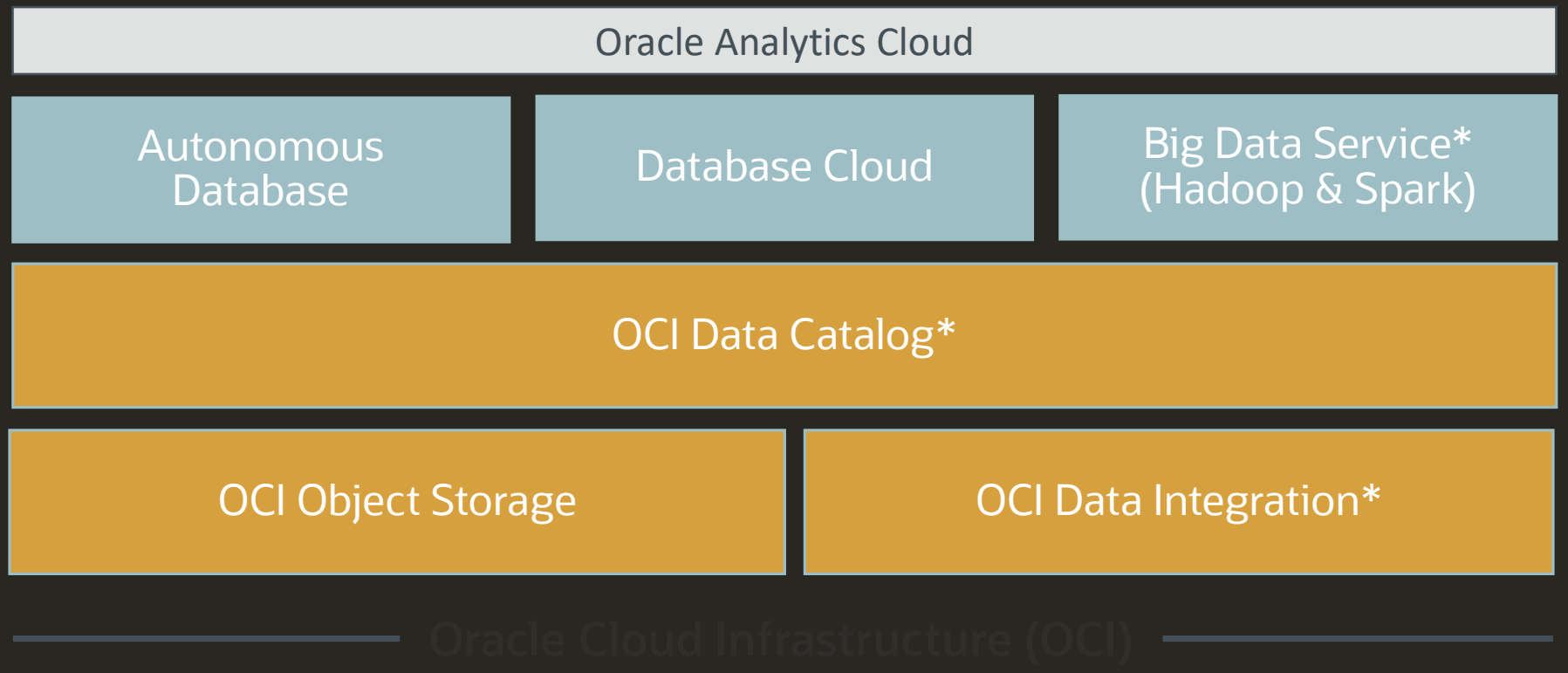

Identity Cloud
API Platform
Streaming Analytics
Obróbka strumieniowa
Big Data SQL
IAAS
Algorytmy obliczeniowe
Database Cloud
Repozytorium relacyjne
-Analytic Cloud , Data Visualization -Oracle R - Advanced Analytics - Machine Learning
Data Lab – Machine Learning
API Platform
dostepnianie danych
Event Hub
Akwizycja danych
Big Data Cloud
Big Data - Data Lake

2. Creating the Right Model



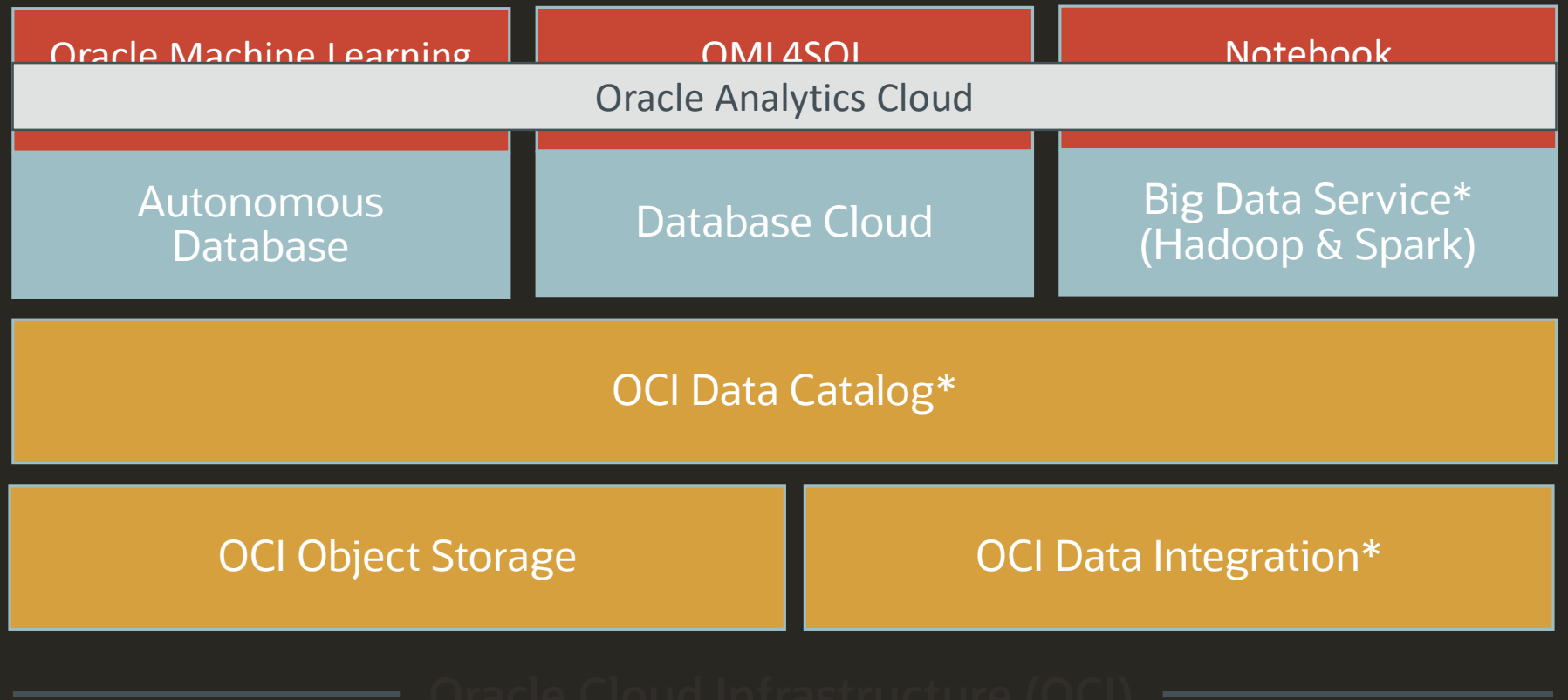
End to End Machine Learning

Oracle Cloud Data Management

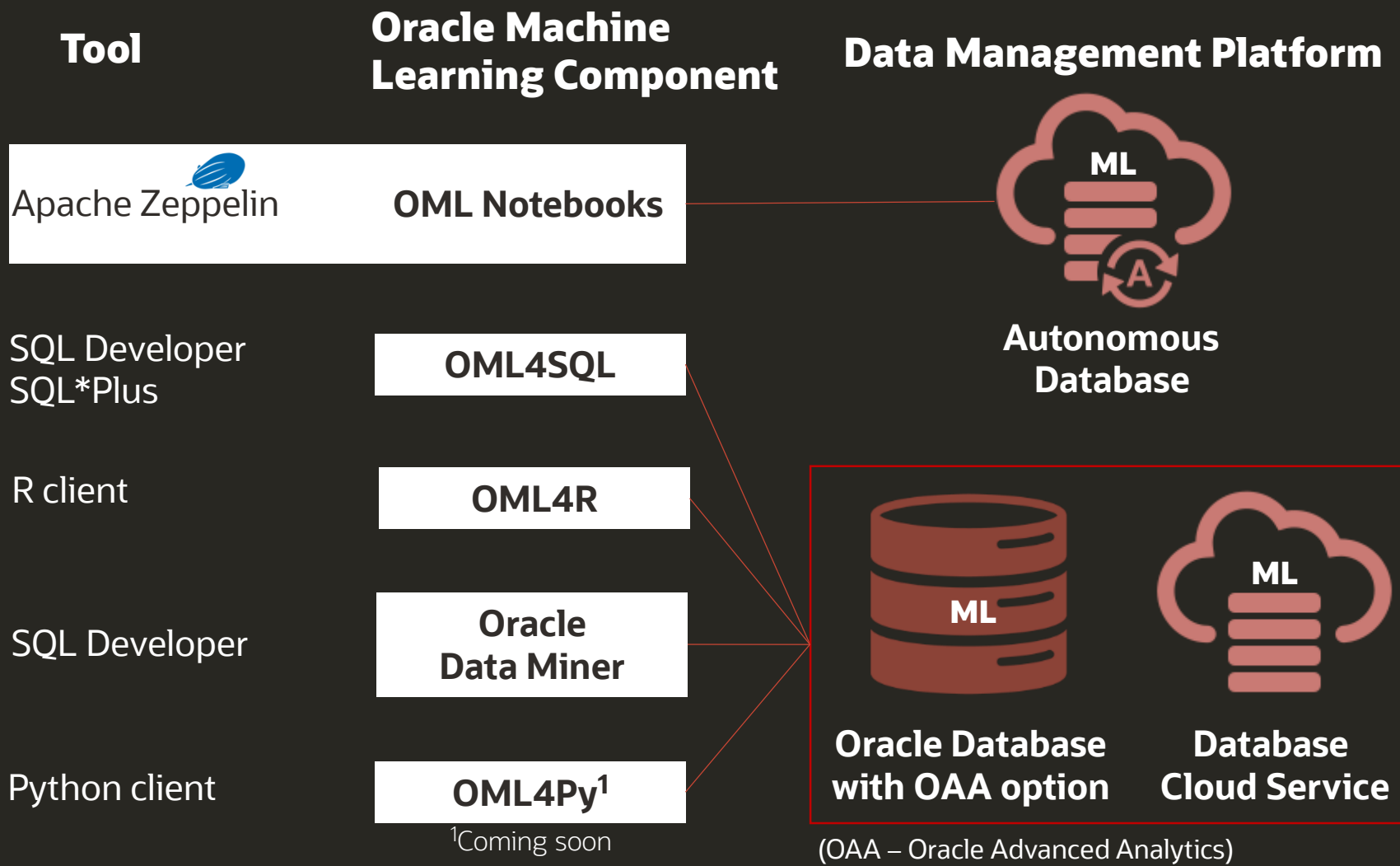


*coming soon

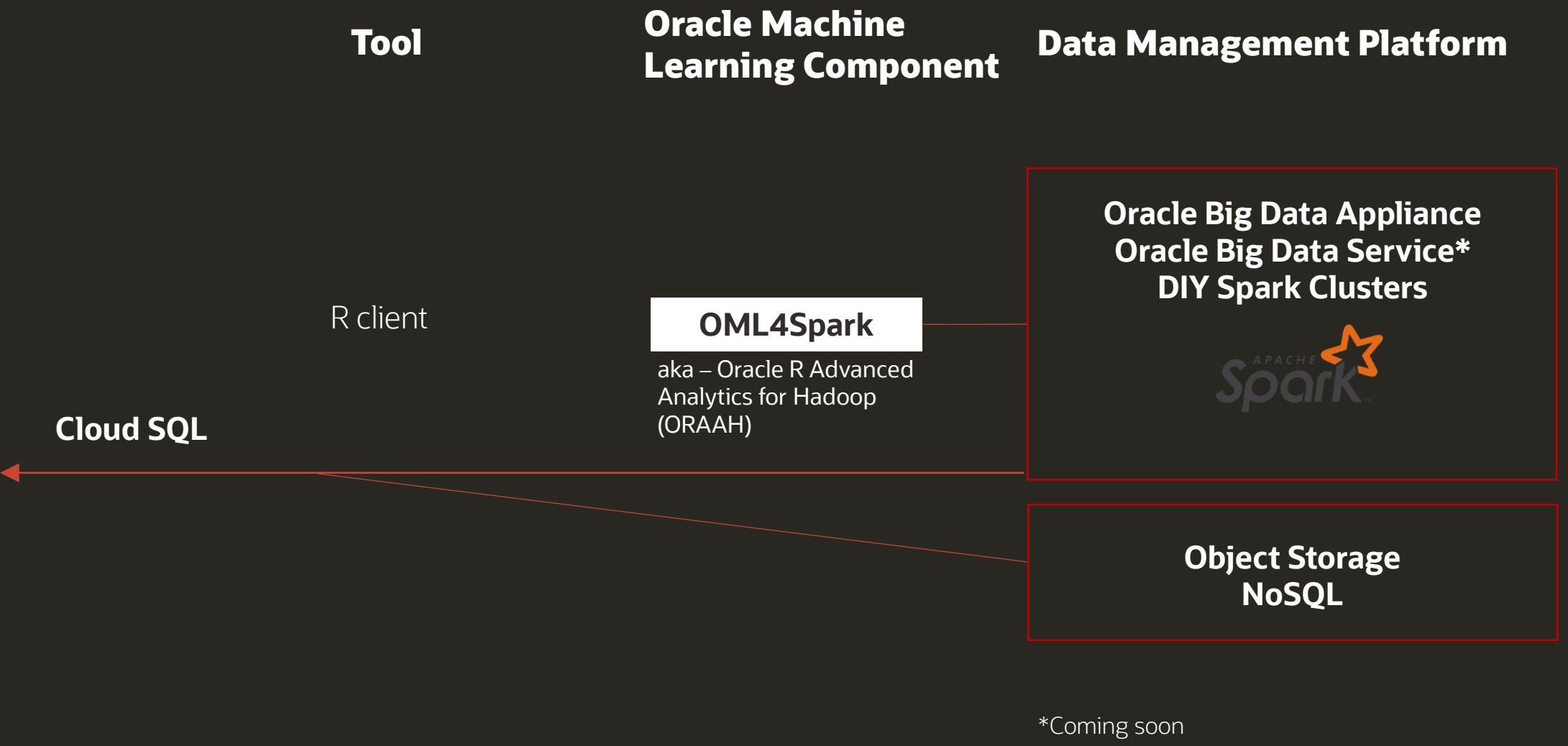
ML in Data Management



ML in Databases



ML in Data Lakes



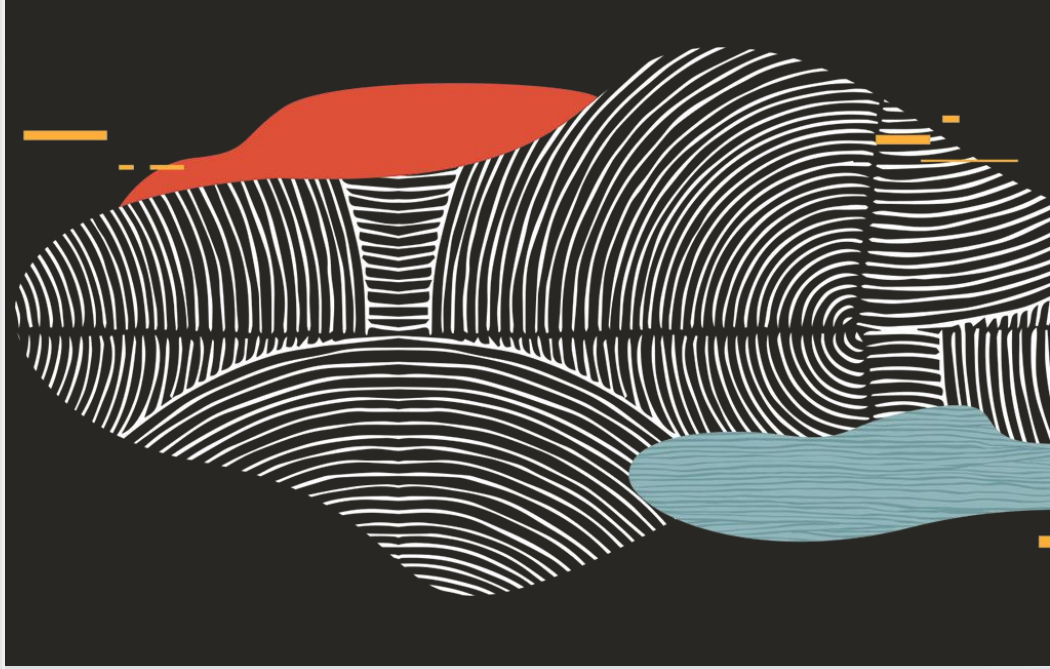
*Coming soon

Customer Behavior Analytics with ML

Provide a **better and seamless experience** for their 1.7M customers

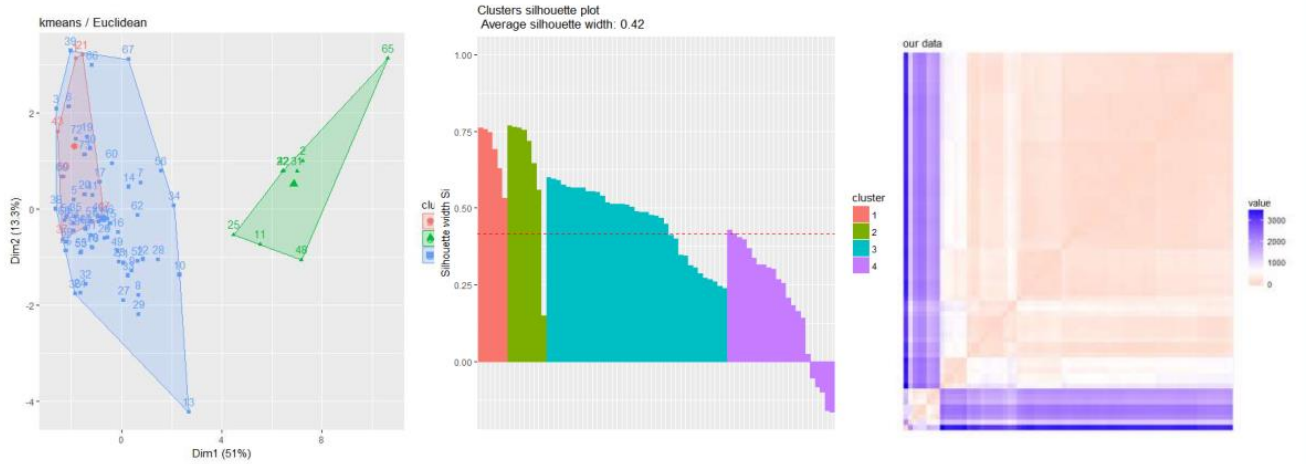
Easily monitor the **world's longest** interconnected power grid

A **Hadoop Augmented Data Warehouse** architecture provides **improved call center flow** to boost customer loyalty

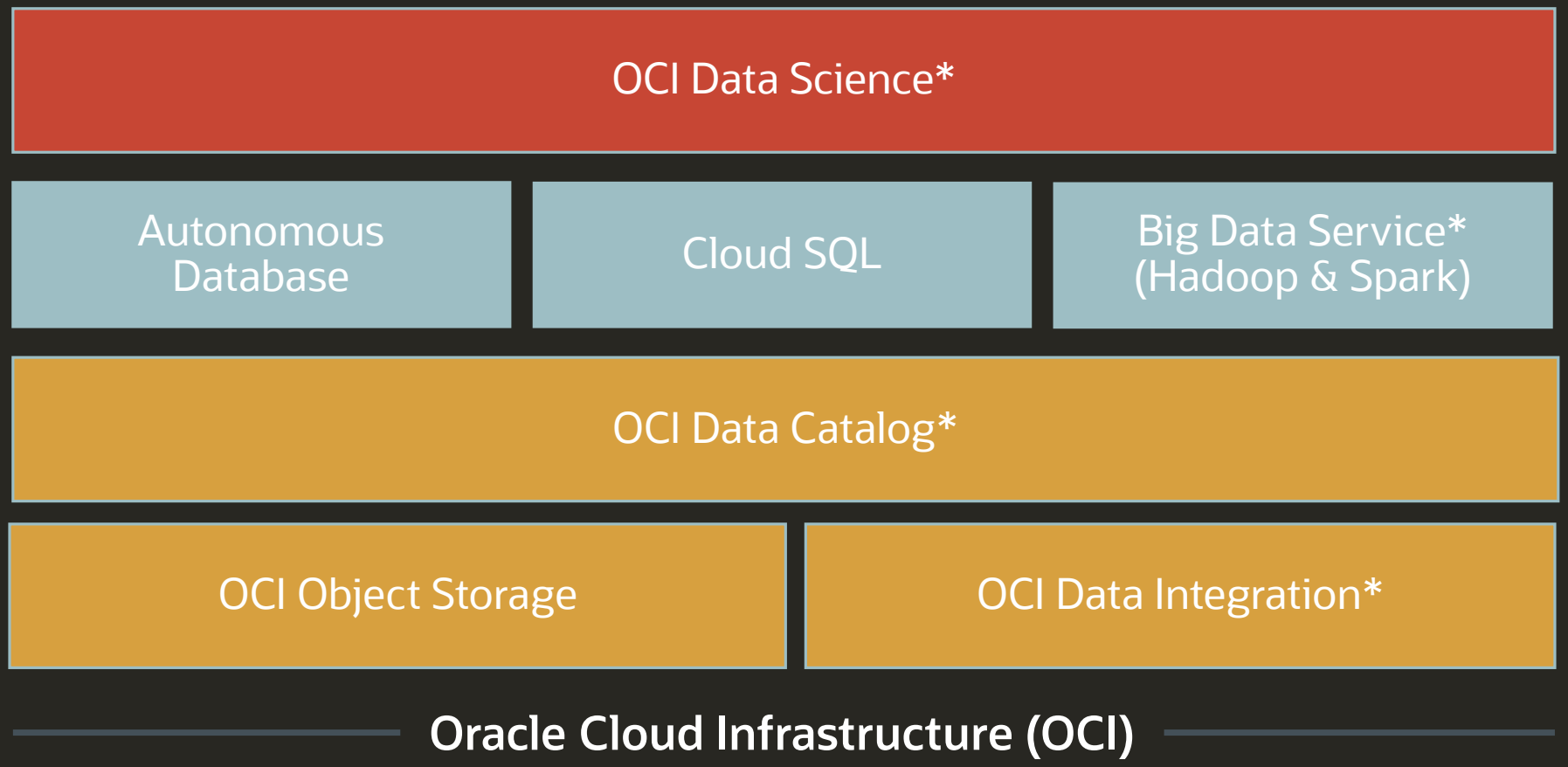


Oracle R + Big Data SQL

```
> km1<-eclust(PPE_METERS, "kmeans", hc_metric="euclidean",k=3)
> fviz_cluster(km1, main="kmeans / Euclidean")
```

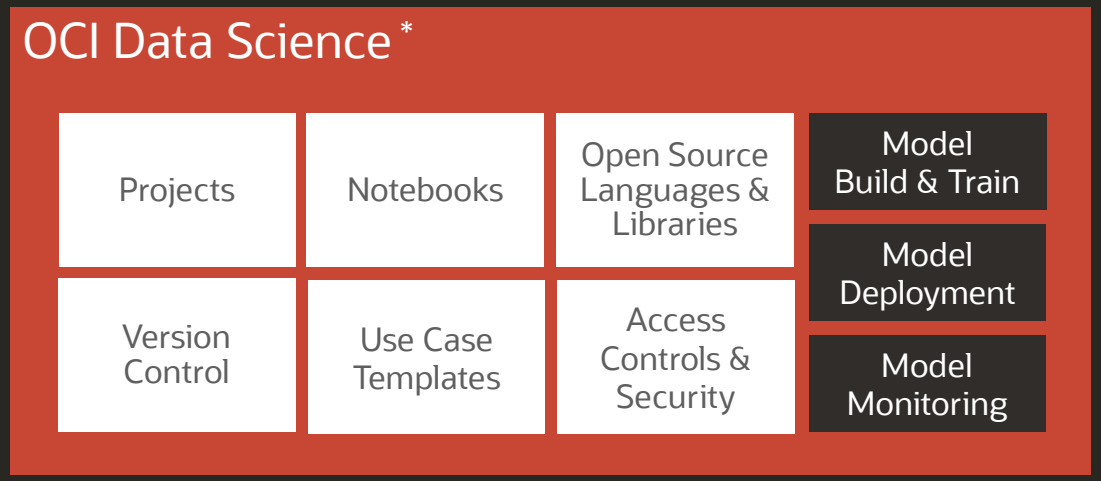


Enable Data Science Teams



*coming soon

OCI Data Science
Building, Training, & Deploying AI/ML



Collaborative

Project driven UI enables teams to easily work together on end-to-end modeling workflows with self-service access to data and resources

Integrated

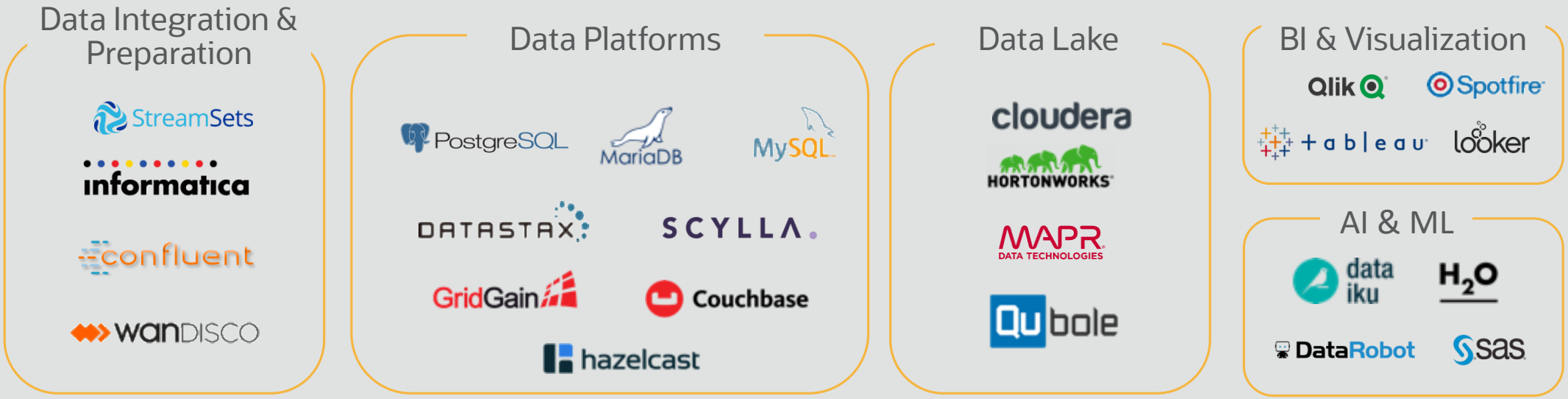
Support for latest open source tools, version control, and tight integration with OCI and Oracle Big Data Platform

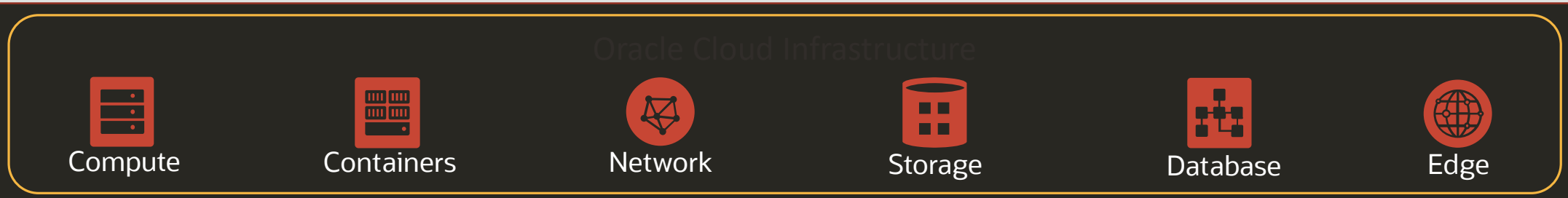
Enterprise-Grade

A fully managed platform built to meet the needs of the modern enterprise

*coming soon

ML on Oracle Cloud Infrastructure

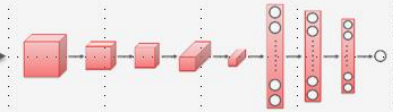




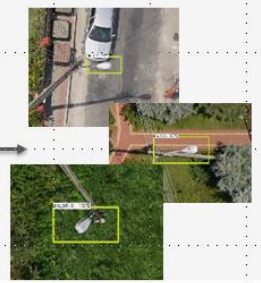
Dane wejściowe z oblotów → **Identyfikacja położenia słupów** → Weryfikacja operatorska → Identyfikacja przebiegu linii → Weryfikacja operatorska → Import do systemu majątkowego

Zdjęcia z oblotów

Trenowanie sieci



Model konwolucyjnej sieci neuronowej wytrenowanej do rozpoznawania słupów niskiego napięcia

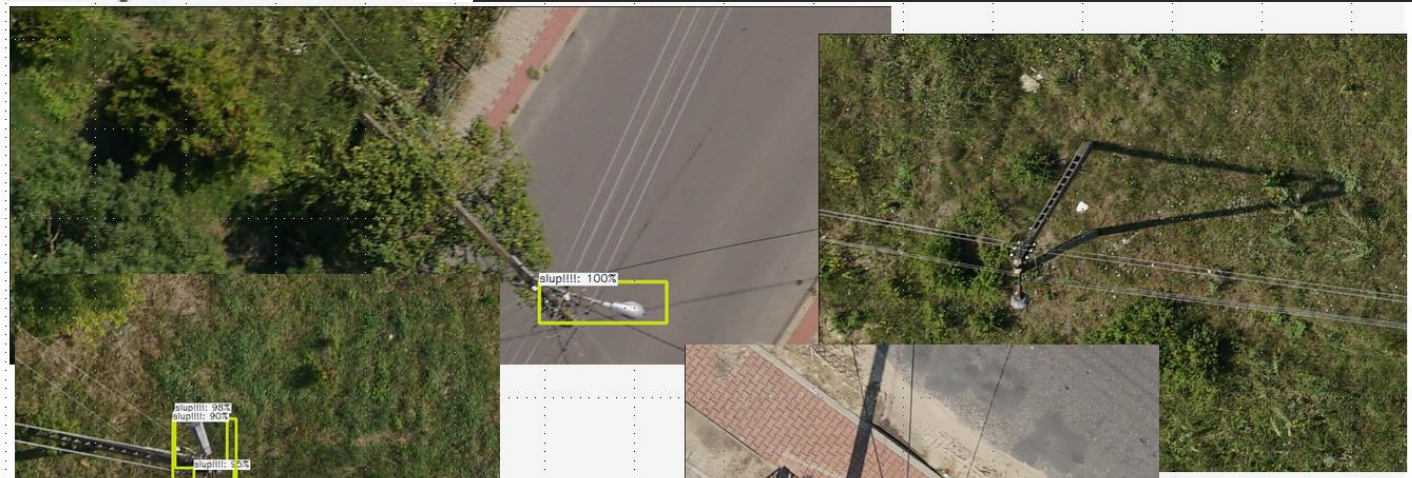


Rozpoznane na zdjęciach miejsca położenia obiektów odpowiedniej klasy, np.: słupów nN z lampami

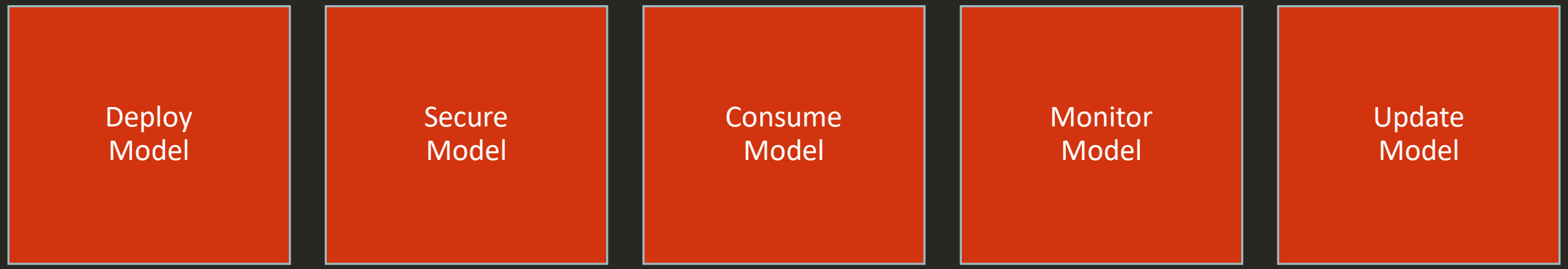
Współrzędne położenia miejsca widzianego na zdjęciu

```
# Cameras (2103)
# PhotoID, X, Y, Z, Omega, Phi, Kappa, r11, r12, r13, r21, r22, r23, r31, r32, r33
DSC02496.JPG   717188.2391953547500000 415189.1790245091500000 273.2349237055115600    0.0449497544020501
DSC02497.JPG   717202.6628693458200000 415201.3780496122700000 272.2827191053095200   24.7856737263462640
DSC02498.JPG   717220.1929358462800000 415208.3982064556300000 272.2584564725290200   12.6682611955395590
```

Algorytm wyznaczania współrzędnych szczytu słupa

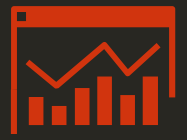


3. Putting The Right Predictions To Work



End to End Model Lifecycle
for Applications and Analytics

Oracle Cloud Deployment



Analytics

APIs

Custom Apps

Mobile

OCI API Gateway

Oracle Functions (Serverless)

Oracle Cloud Infrastructure

Oracle's integrated data platform, for all your data needs

Application Development

APEX

Visual Builder Cloud Service

Funcions API Gateway, Kubernetes

Source

Oracle Apps

ISV Apps

Custom Apps

Events – IoT
Social - Logs

Data Movement

Oracle GoldenGate

Database Migration

Oracle Data Integrator

Data Streaming

Data Virtualization

Cloud SQL

Data Governance

Data Catalog

Data Quality

Data Management

ATP

ADW

Object Storage

ExaCS

DBCS

Data Flow

NoSQL

MySQL

Big Data Service

Analytics

OAC

Analytics for Fusion Apps

Oracle Analytics Server

Data Science & ML

Oracle ML

Data Science Service

Consume

Business Users

Analysts

Data Scientists

Developers

Oracle Cloud Infrastructure: Built for Artificial Intelligence and High Performance Compute Workloads

Oracle's commitment to open source today

Active Participation in Open Source Communities

dockercon

KubeCon

Java EE

eclipse

CLOUD NATIVE COMPUTING FOUNDATION

OpenJDK

OPEN CONTAINER INITIATIVE

THE LINUX FOUNDATION

Open Source Software (OSS) based OCI Cloud Services

HYPERLEDGER FABRIC

TensorFlow

hadoop

kafka

cassandra

MySQL

docker

APACHE Spark

Keras

Standards based Technology Stacks for Multi-cloud

Built on **Unforked** Supported Open Source Software

- No lock-in
- Portability for on-premises and 3rd party clouds

Oracle software as Docker images https://container-registry.oracle.com

Products as Dockerfiles https://github.com/oracle

Innovation and Contributions in Open Source

crashcart smith railcar

GraalVM

Java

Java EE

ORACLE JET

helidon.io

Terraform

ANSIBLE

For OCI Services

Put your data to work with Oracle

Remove data silos
Build a unified data tier

Democratize your data
using AI and ML

Go from
Automated to Autonomous

$0 | **Try Oracle Cloud for free**

Thank You