How Oracle's Converged Database Helps MovieStream Generate More Value From Data
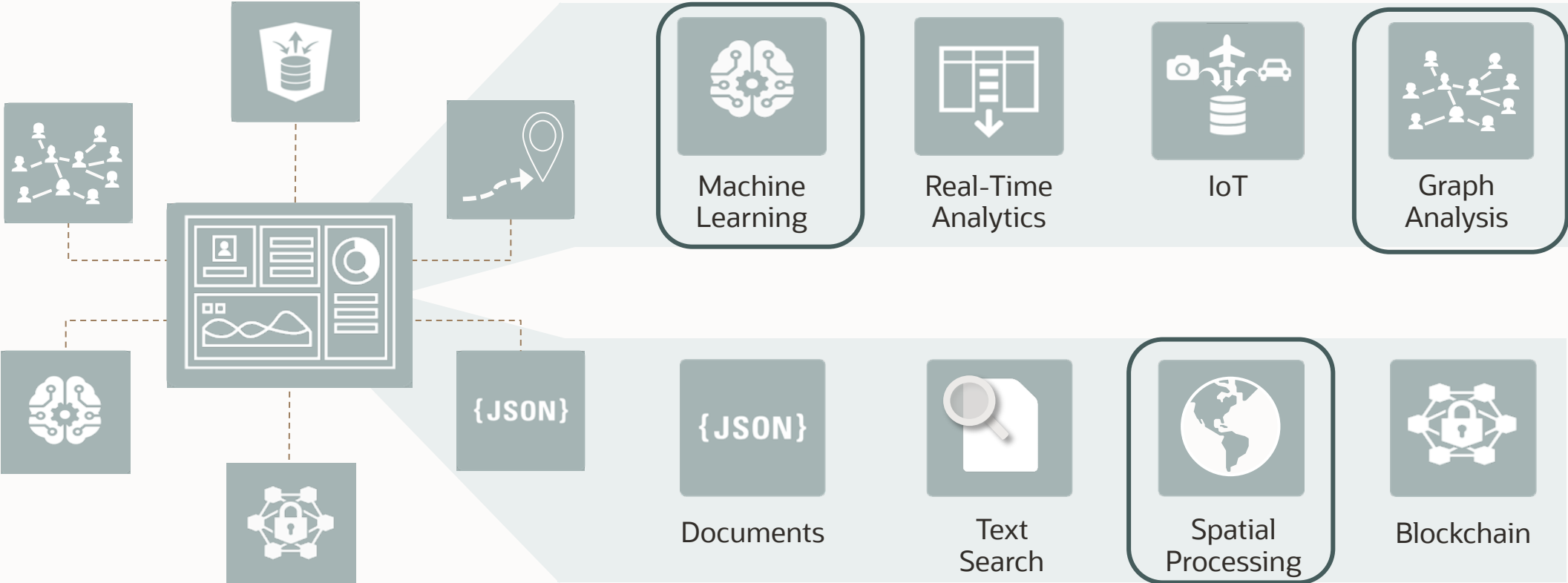
Maria Colgan
Distinguished Product Manager
Mission Critical Database Technologies

To Maintain A Competitive Edge, Companies Need To Become Data-driven

Modern Apps Need To Generate Value From Data in New Ways

Machine Learning

Real-Time Analytics

IoT

Graph Analysis

{JSON}

Documents

Text Search

Spatial Processing

Blockchain

But Surprisingly

**75% of companies
are failing to become data-driven**

Collecting data isn't the problem

Generating value from data is the problem

**New Vantage Partners
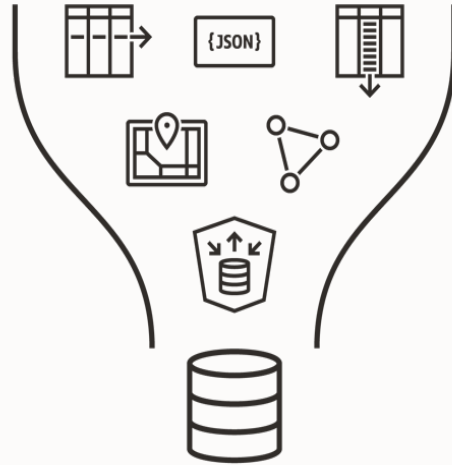Big Data and AI
Executive Survey 2021**

How Can We Help You Become Data-Driven?

Oracle Database
A Converged, Open SQL Database Allows You to Focus on Innovation

Converged Database

Multi-model

Best-of-Breed Relational, JSON, Spatial, Graph, Cube, Text, Blockchain
Cross-model operations enables you to easily create value across all your data
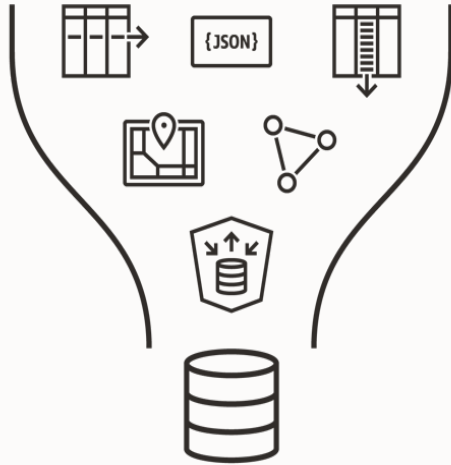
Multi-workload

High Performance Transactions, DW, Analytics, ML, IoT, Streaming, Multitenant
Deep optimizations deliver exceptional price-performance across all workloads

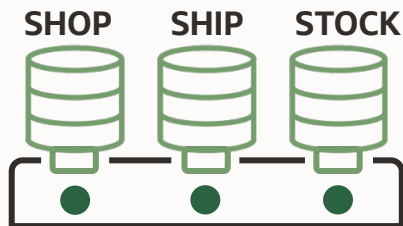## Most productive for developers and analysts

Same SQL and transactions operate on any data and workload
Integrated microservices, events, REST, CI/CD, Low-code

Oracle Database
A Converged, Open SQL Database Allows You to Focus on Innovation

Converged Database

SHOP   SHIP   STOCK

**Database Container
per Service**

Multi-model
Best-of-Breed Relational, JSON, Spatial, Graph, Cube, Text, Blockchain
Cross-model operations enables you to easily create value across all your data

Multi-workload
High Performance Transactions, DW, Analytics, ML, IoT, Streaming, Multitenant
Deep optimizations deliver exceptional price-performance across all workloads

Most productive for developers and analysts
Same SQL and transactions operate on any data and workload
Integrated microservices, events, REST, CI/CD, Low-code

Modularize and containerize by app service
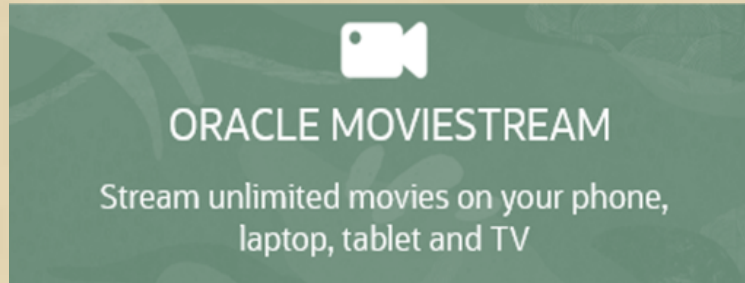Low-level data types and workloads should not dictate your architecture

Demo

Demo

ORACLE MOVIESTREAM

Stream unlimited movies on your phone, laptop, tablet and TV

Relational   Documents   Geospatial

Search   Machine Learning   Graph

Time-Series

**MovieStream** is a fictitious online movie streaming company

Their customer base has expanded rapidly, generating massive volumes of structured, semi-structured and unstructured data

Throughout this section, we will demonstrate how Oracle Database can quickly and easily help **MovieStream** capitalize on this raw data

- To gain better insights into their customers

- Enhance user experiences

- Ultimately improve profitability

Oracle Database Document Store
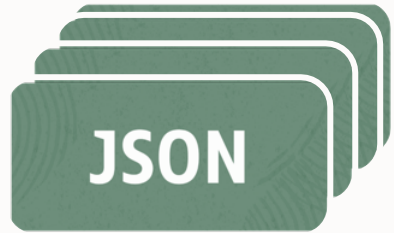
Oracle makes it simple to use JSON and XML documents

Freely mix JSON and non-JSON data types

Native Data Guide allows you to quickly determine what data you have

Transparent scale-out with Full ACID transactions

Index any JSON element for fast OLTP

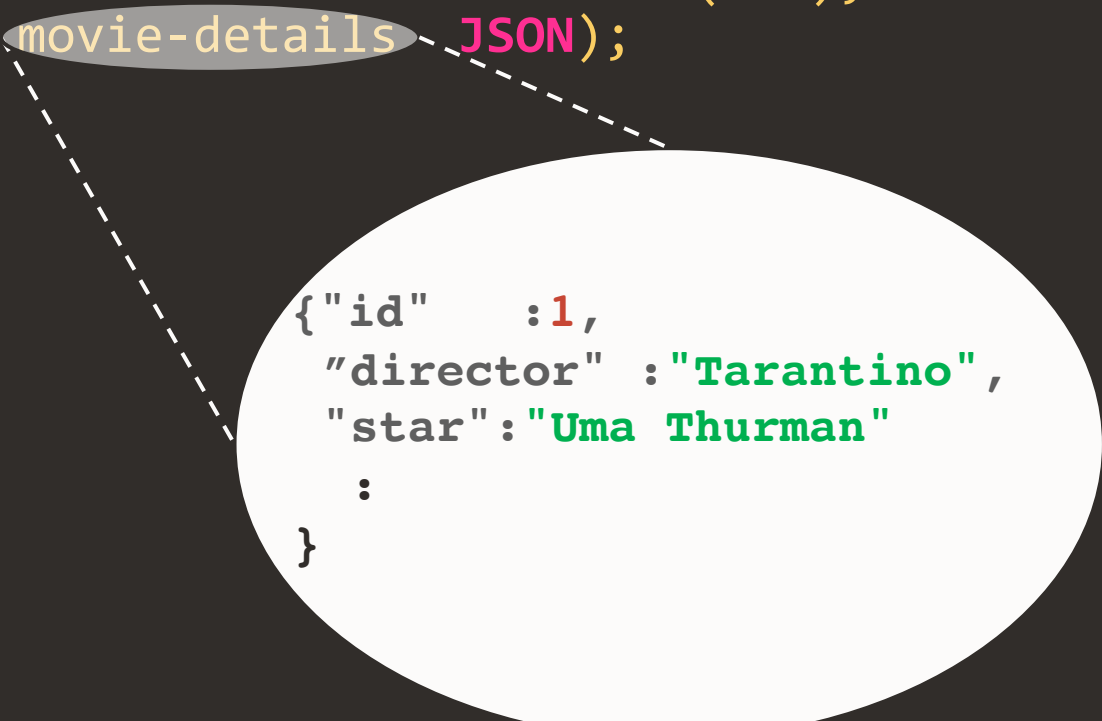Declarative Parallel SQL analytics on all formats

Run complex joins across multiple JSON documents and collections

No need for custom application code to accomplish basic data management tasks

Native SQL Support for JSON

```
-- 1. Create a movies table
-- where movie details are stored as JSON

CREATE TABLE movies(
    title         VARCHAR2(255),
    movie-details  JSON);
```

{"id"   :1,
 "director" :"Tarantino",
 "star":"Uma Thurman"
  :
}

```
-- 2. Use simple dot notation to access
-- elements within the JSON docs

SELECT m.title Title
        m.moive-details.director  Direct,
        m.moive-details.Star      Star
FROM    movies m;
```

```
TITLE         DIRECT         Star
----------    ---------      ---------
Kill Bill     Tarantino      Uma Thurman
```

Data Driven Apps Create Value using Text Search

Oracle makes it simple for Apps to index, search and analyze text

Search text using keyword search, context queries, pattern matching, etc.

- Search websites, catalogs, documents, LOBs

Perform linguistic analysis on documents to easily classify them

- Classify customer feedback as positive, negative, or neutral using sentiment analysis

Search JSON or XML documents using the structure of the document to restrict the search

- Find all movie where the comment field contains "awful" and "disappointing"

Native Support to Index and Search JSON Documents

```sql
-- 1. Create a text index on the JSON column of the movies table

CREATE SEARCH INDEX movie_search_ind ON movies(reviews) FOR JSON;



--2. Search for movies with "awful" and "disappointing" in the comments field

SELECT title, reviews.comment comments
FROM   movies
WHERE  JSON_TEXTCONTAINS(reviews, '$.comment', 'awful and disappointing');
```
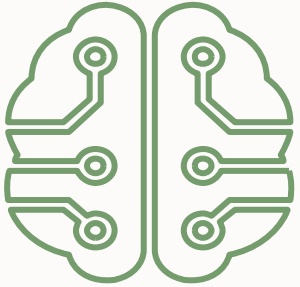
Data Driven Apps Create Value Using **Machine Learning**

Oracle makes it simple to make data-driven predictions
- Use declarative SQL to run Machine Learning directly on business data

Over 30 in-database parallel and scalable ML algorithms
- Real-time recommendations, fraud-detection, customer segmentation, etc.
- Eliminates costly, risky, and slow data movement to separate ML engine

R and Python integration makes it easier for data scientists to use the database as a high-performance compute engine

Previously a priced option, now **FREE** in all Oracle Database Editions

For less experienced users and as a quick start to expert users, Oracle offers AutoML from Python and through a no-code user interface

Using Machine Learning to Predict Customer Behavior

```
-- Build and train ML model to determine which customers may leave the site

DECLARE
    v_setlst DBMS_DATA_MINING.SETTING_LIST;
BEGIN
    v_setlst('ALGO_NAME')  := 'ALGO_SUPPORT_VECTOR_MACHINES';
    V_setlst('PREP_AUTO')  := 'ON';

    DBMS_DATA_MINING.CREATE_MODEL2(
        MODEL_NAME           => 'At_Risk_Customers',
        MINING_FUNCTION      => 'CLASSIFICATION',
        DATA_QUERY           => 'select * from CUSTOMERS',
        SET_LIST             => v_setlst,
        CASE_ID_COLUMN_NAME  => 'CUST_ID',
        TARGET_COLUMN_NAME   => 'TARGET_ID');
END;

-- Apply ML model to sales to predict which customers are likely to buy

SELECT prediction_probability(At_Risk_Customers, 'Yes'
        USING 3500 as bank_funds, 30 as age, 100 as previous_spend)
FROM dual;
```
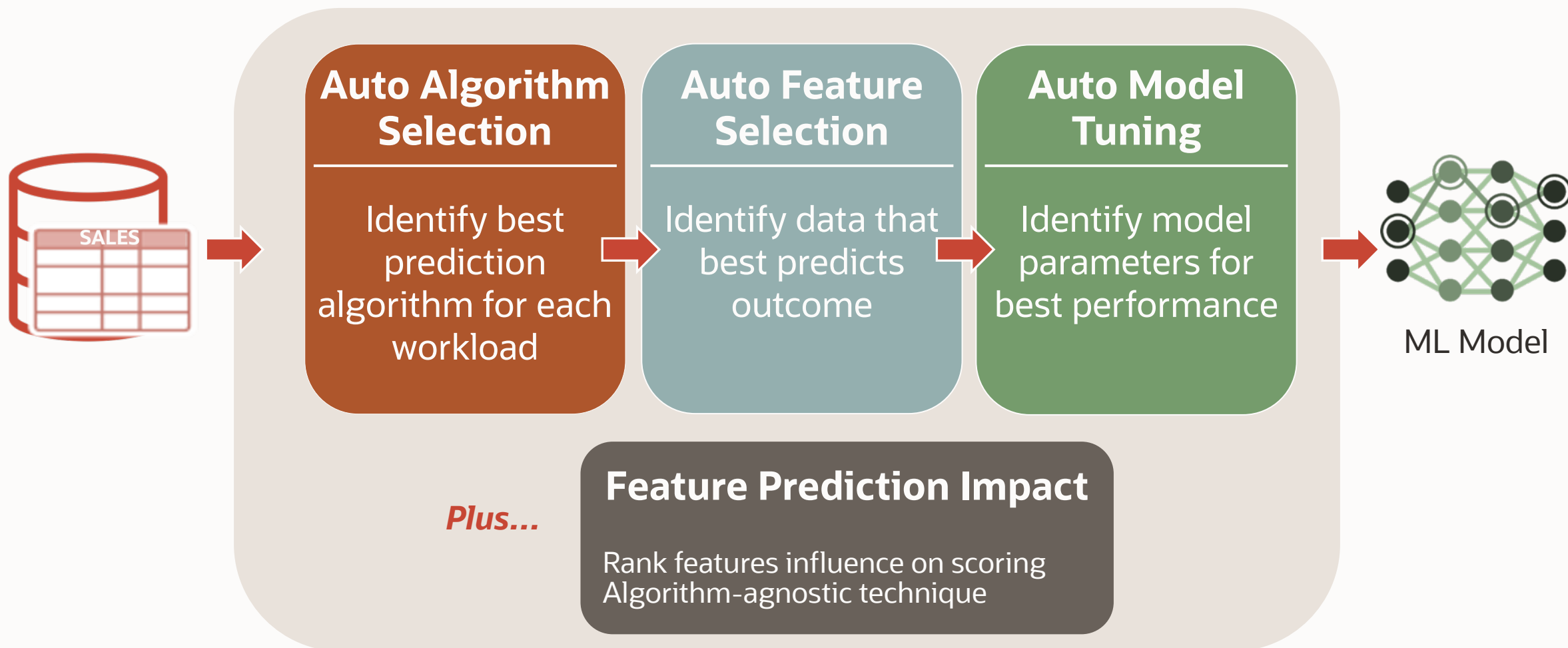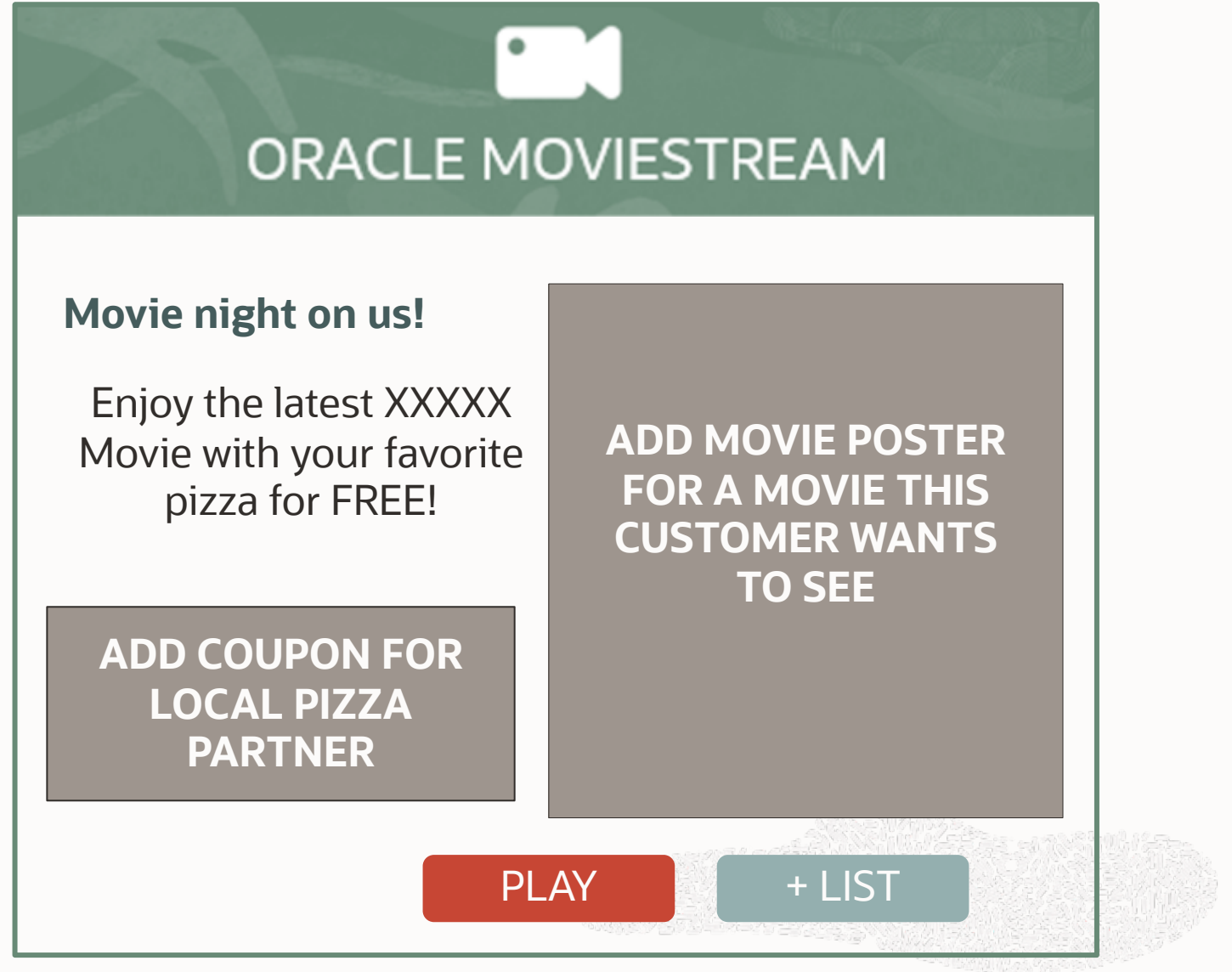
Oracle Database AutoML

Simplify ML modeling and Increase data scientist productivity

SALES

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

Demo

Now we know which customers are at risk, marketing has asked for help to create a campaign to entice these customers to stay on our site

ORACLE MOVIESTREAM

Movie night on us!

Enjoy the latest XXXXX Movie with your favorite pizza for FREE!

ADD COUPON FOR LOCAL PIZZA PARTNER

ADD MOVIE POSTER FOR A MOVIE THIS CUSTOMER WANTS TO SEE

PLAY

+ LIST

Data Driven Apps Create Value using Spatial Data
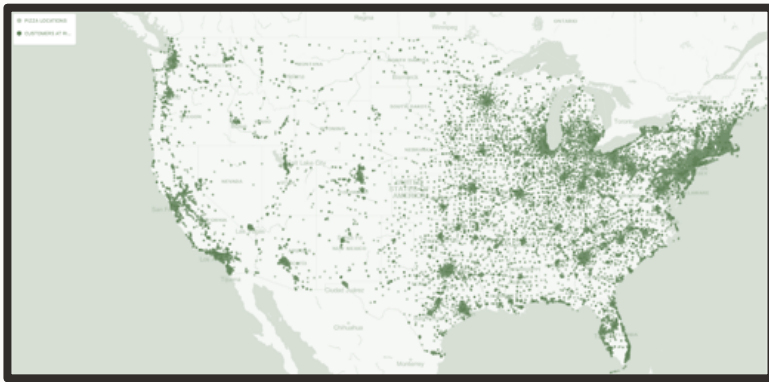
Oracle makes it simple to use location intelligence analytics and mapping services

- Compute distance between places, assets, people
- Analyze transportation, telecom, or utilities networks, sales territories, etc.

100s of in-database spatial operators and functions

- Over 60 spatial topology functions and procedures
- Over 125 Spatial Network functions and procedures

Previously a priced option, now **FREE** in all Oracle Database Editions

Using Oracle Spatial Studio to find Pizza Partner Close to at Risk Customers
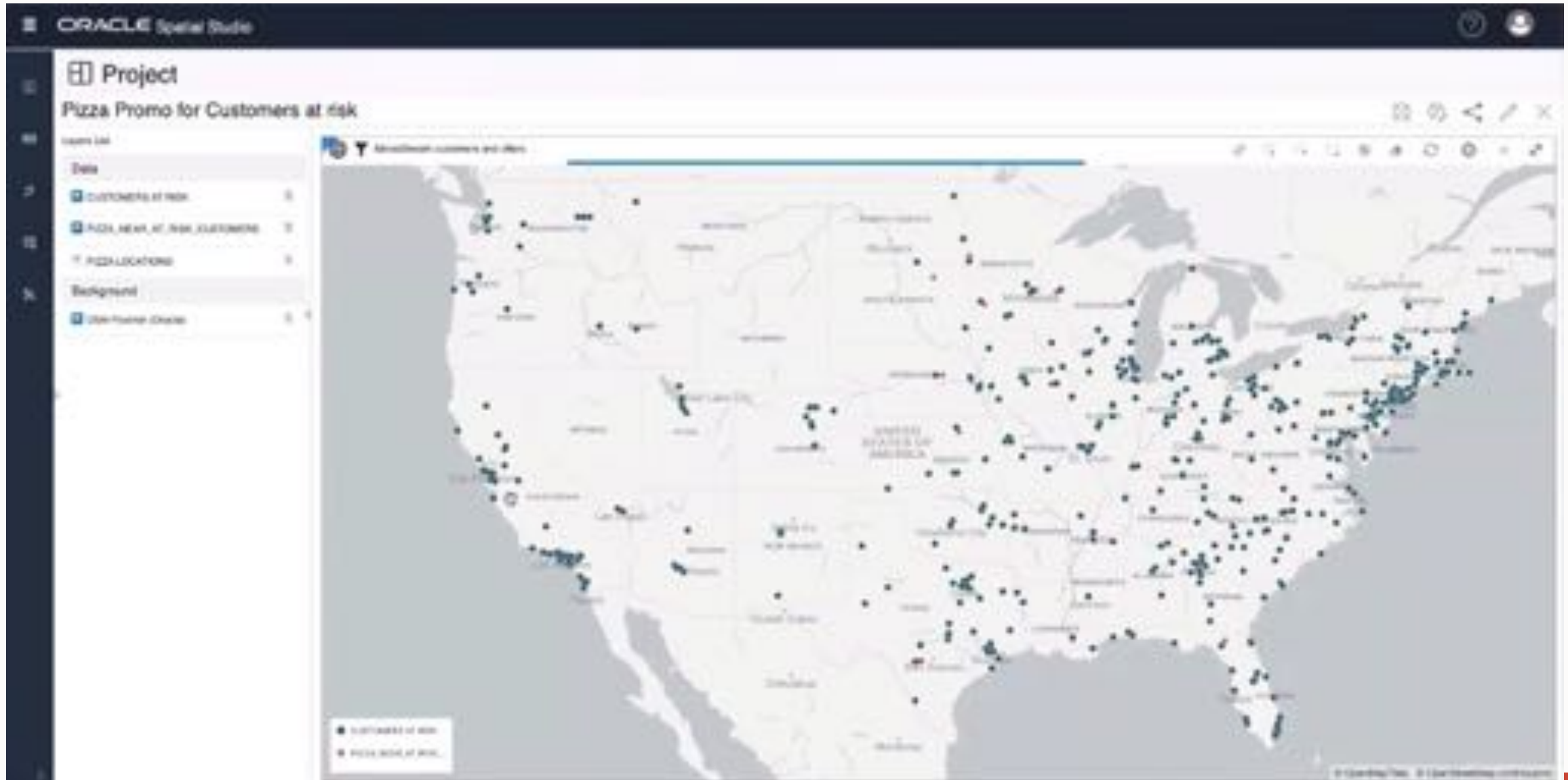
Data Driven Apps Create Value Using Graph Analytics

Oracle makes it simple to use Graph Analytics to discover:
- Influencers, dependencies, communities, ranking, customer 360, etc.

Over 50 in-memory parallel analytic graph functions

- Easy implementation with declarative SQL-like queries

Oracle also provides an Open-Source Graph Query Language (PGQL)

PGQL allows users to specify graph patterns which are matched against vertices and edges in a graph
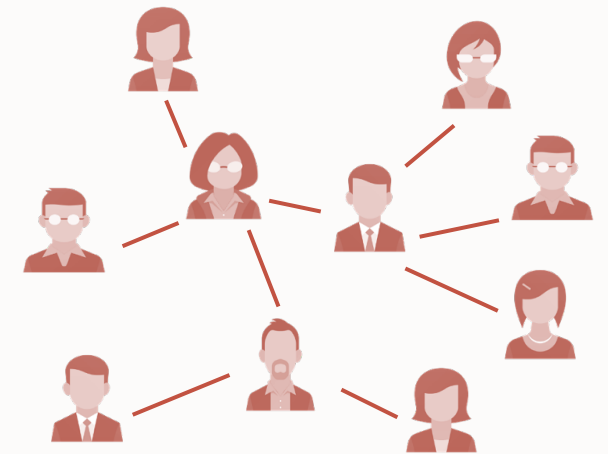
Previously a priced option, now **FREE** in all Oracle Database Editions

Open-Source Graph Query Language - PGQL

PGQL allows you to specify graph patterns which are matched against vertices and edges in a graph

```
-- Find all the movies two customers
   have watched

SELECT c1, e, m, e1, c2
FROM MATCH (c1)-[e]->(m)<-[e1]-(c2) on CUST_MOVIE
WHERE  c1.cust_id= 1246813
AND    C2.cust_id= 1002487
LIMIT 100
```
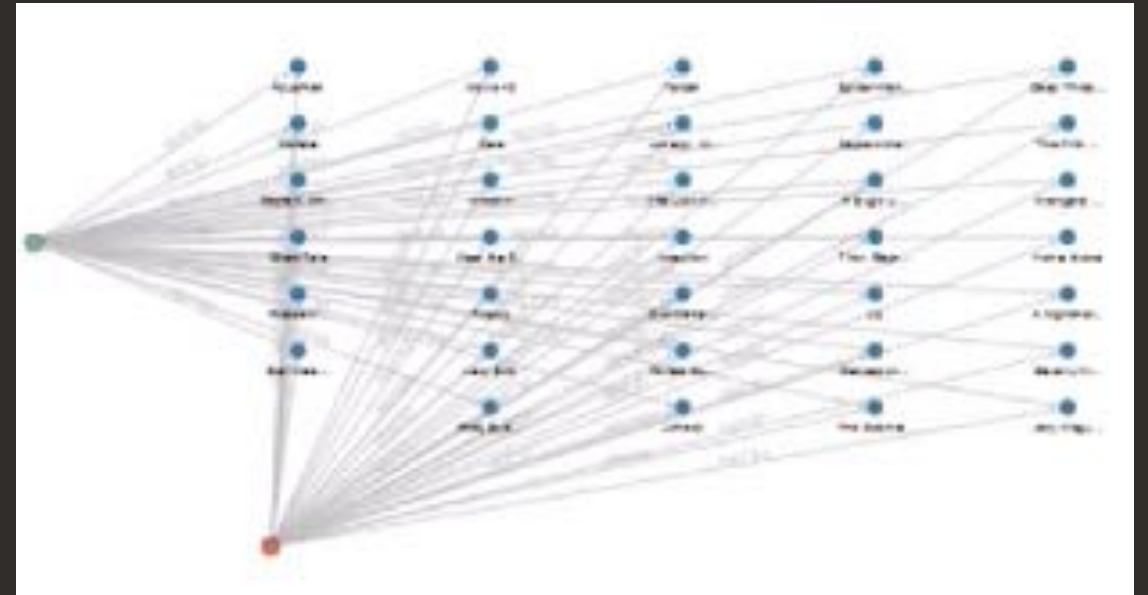
Demo Recap

ORACLE MOVIESTREAM
Stream unlimited movies on your phone,
laptop, tablet and TV

Discovered insights in Multi-Model Data using SQL

Used standard SQL to access multi-models in a single statement

Predicted customer churn using built-in AutoML

Used just one of the over 30 built-in ML algorithms to quickly compile a list of customers to target with a specific campaign

Determined local pizza companies using Proximity Analytics

Determine the nearest pizza company to each at-risk customers

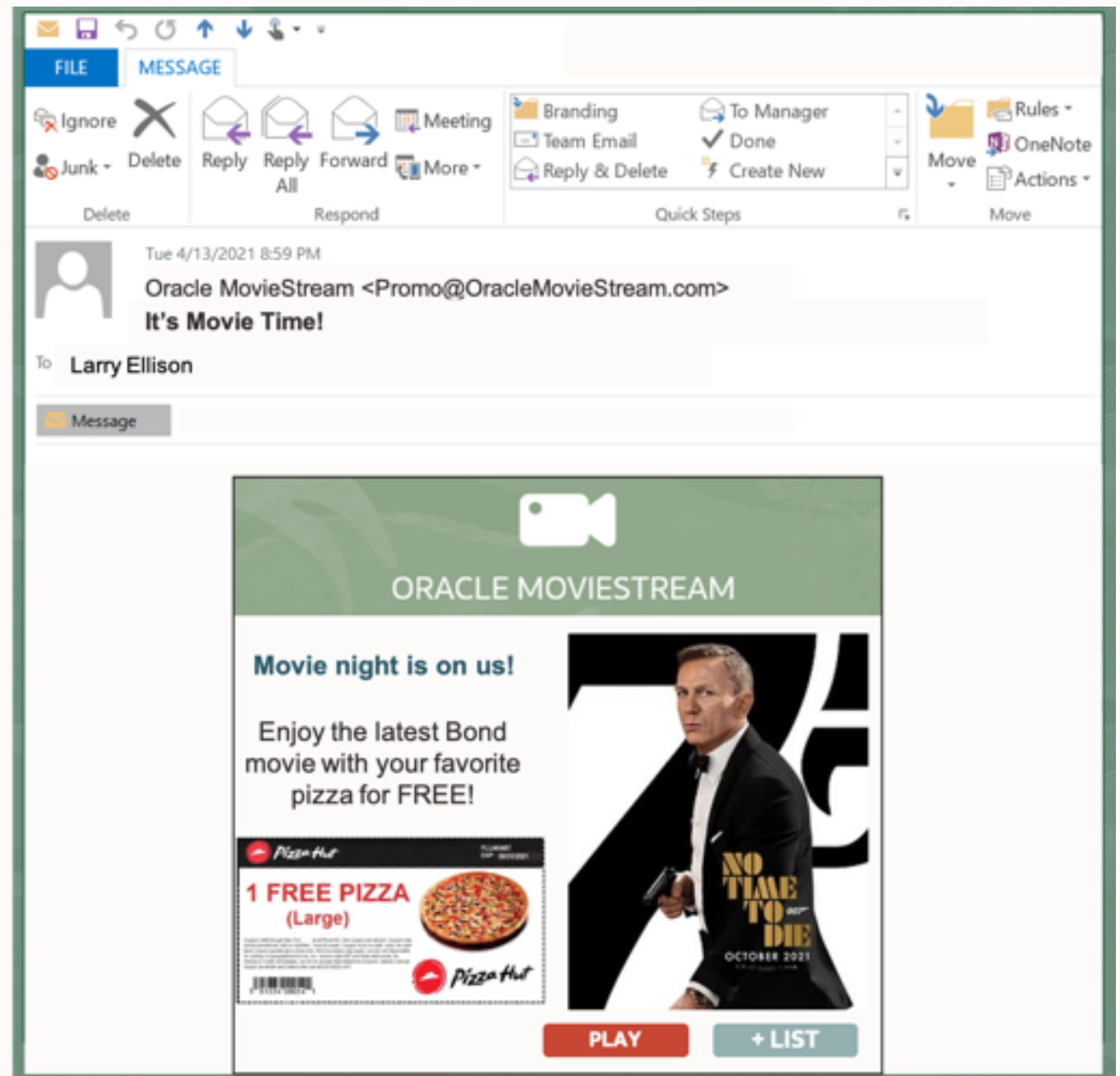**Found best movie recommendation via Graph Analytics**

Made movie recommendations based on whom to follow Graph Analytics
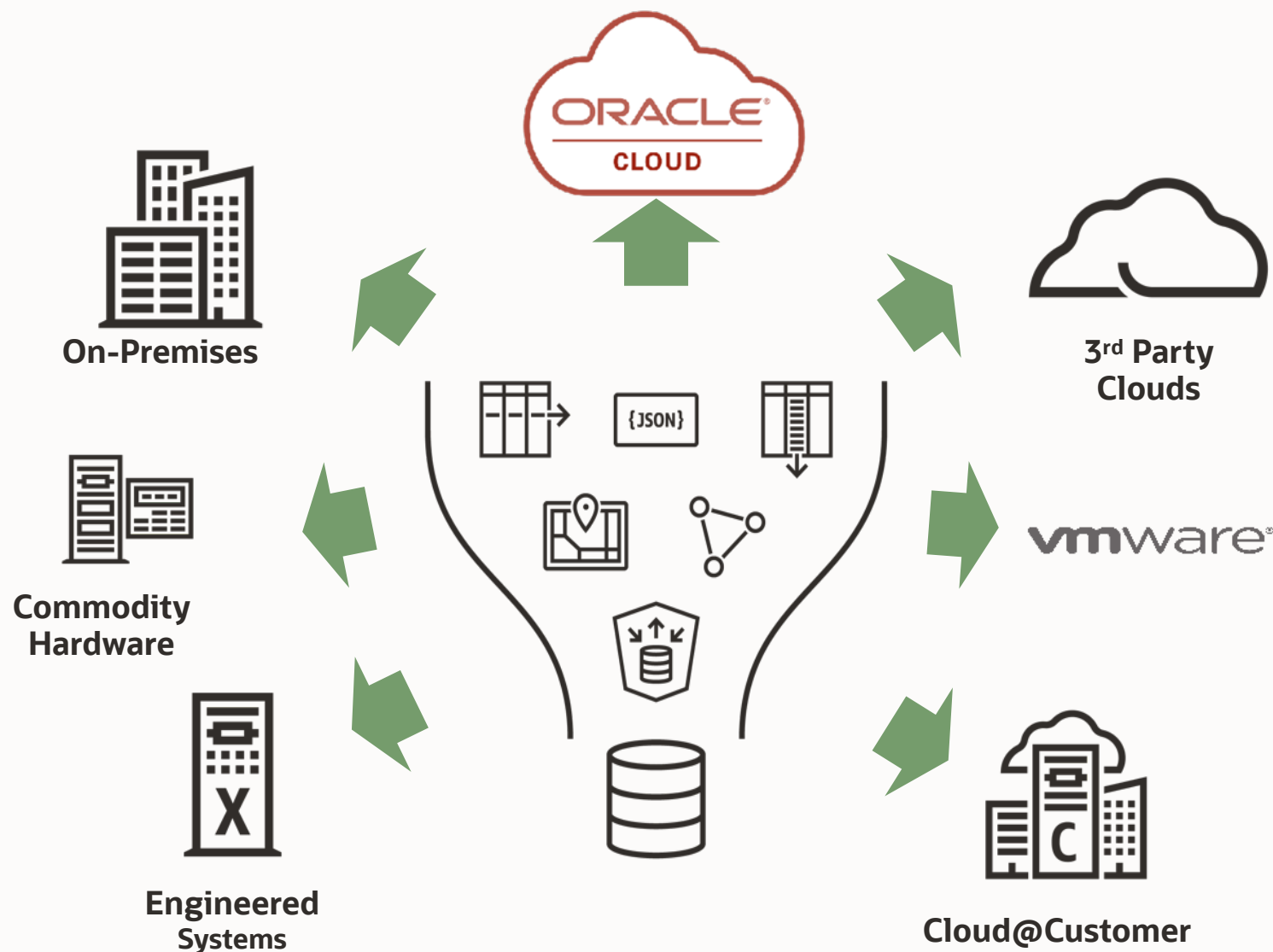
Demo

Outcome

Sent an email to all at-risk customers offering them a free movie and pizza

Oracle's Converged Database Is Available Everywhere

On-Premises

3rd Party Clouds

Commodity Hardware

vmware

Engineered Systems

Cloud@Customer

Summary

1 Oracle makes it simple to build Data Driven Apps by providing **Synergistic Data Technologies** for each modern Development Methodologies

2 One Converged Database for all data types and model engineered so they all work together enables **Cross Data Synergy**

3 One Converged Database **greatly simplifies** Developments and Operations

Next Steps

Try Oracle's converged database for yourself on Oracle LiveLabs
https://apexapps.oracle.com/pls/apex/dbpm/r/livelabs/home

Schedule a deep-dive session on the different technologies
A one-hour deep-dive webinar can be arranged with subject matter experts

Schedule a follow-up meeting
Discuss which projects could benefit from Oracle's converged database and how we can help you get started