

ORACLE

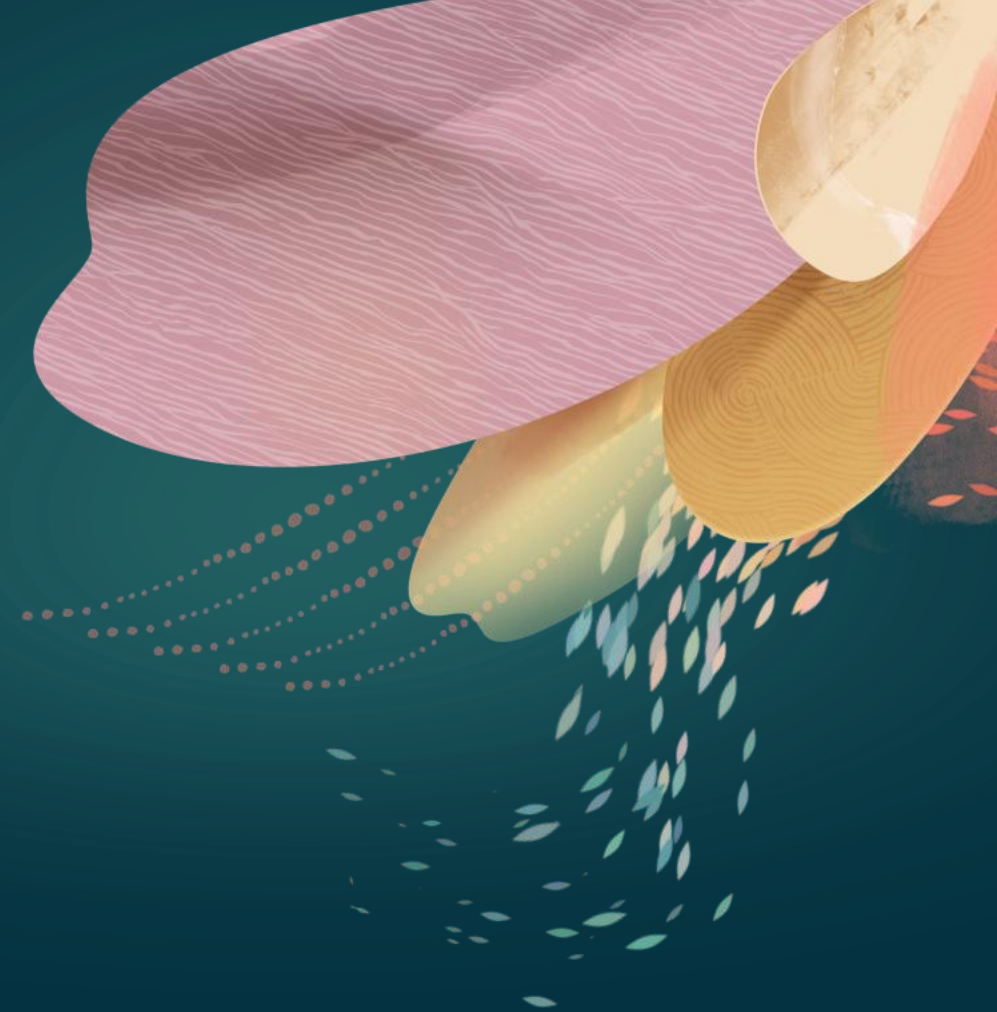
Graphs in the real world

When graph-only isn't an option

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Distinguished Product Manager

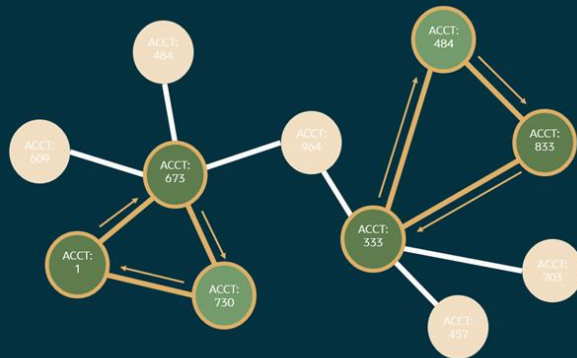
Oracle



Graphs are Powerful: Support in Oracle AI Database

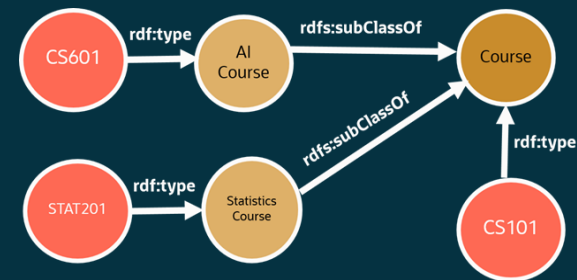
Property Graph (SQL/PGQ standard)

- Flexible model to capture how entities are connected
- Find patterns, anomalies, important nodes, etc. for new insights in data



RDF Graph (W3C standard) (commonly used for Knowledge Graphs)

- Standard rules to represent complex relationships in data
- Precise representation of experts' knowledge (**ontologies**)
- Infer new concepts from existing facts



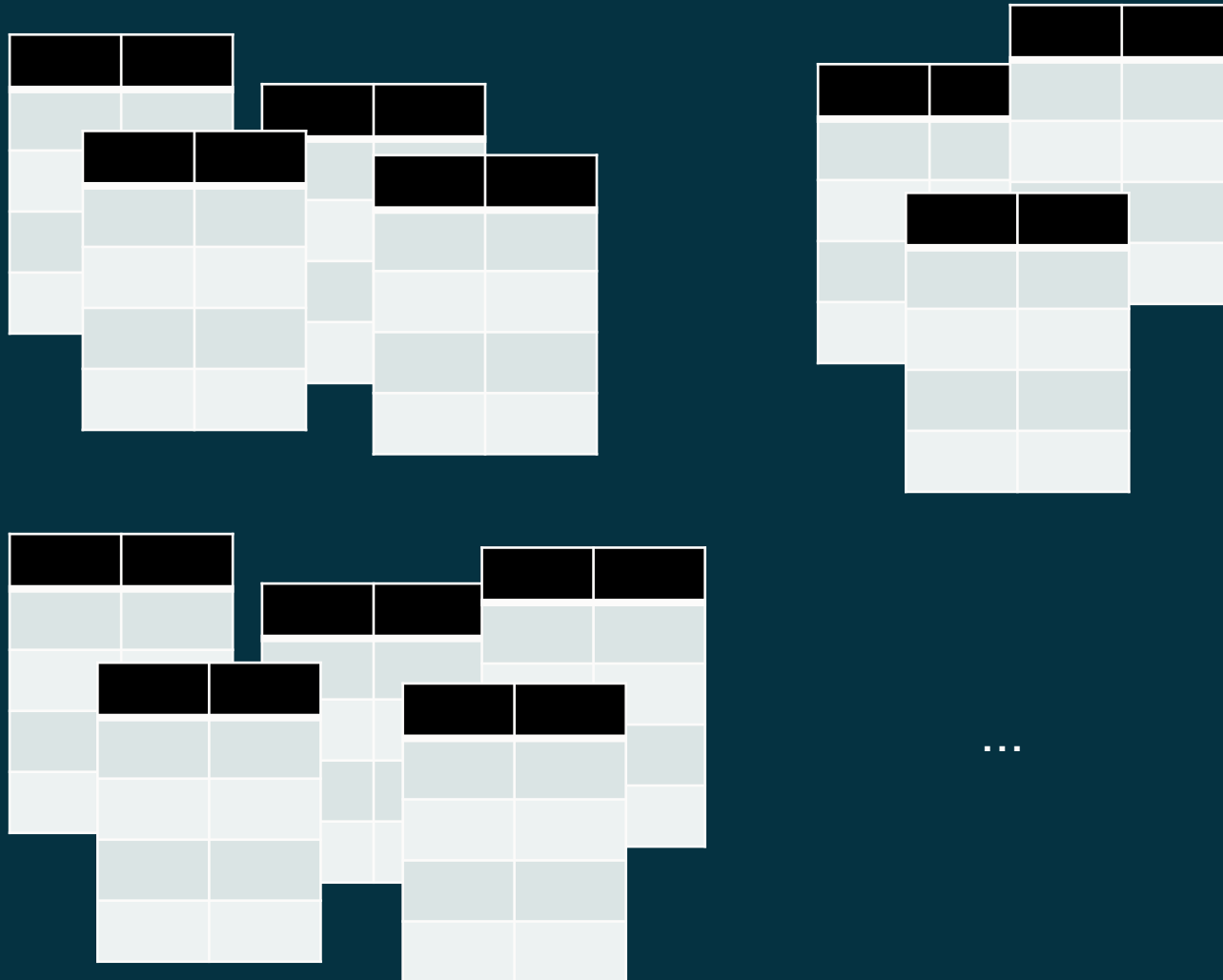
- Alice takes course CS601
 - Course 601 is classified as an AI Course
- => **Alice takes AICourse**

Enterprise Data



- Relational tables
- Vectors
- Graphs
- Location (latitude, longitude)
- JSON documents

Example 1: A Very Large Telecom Company

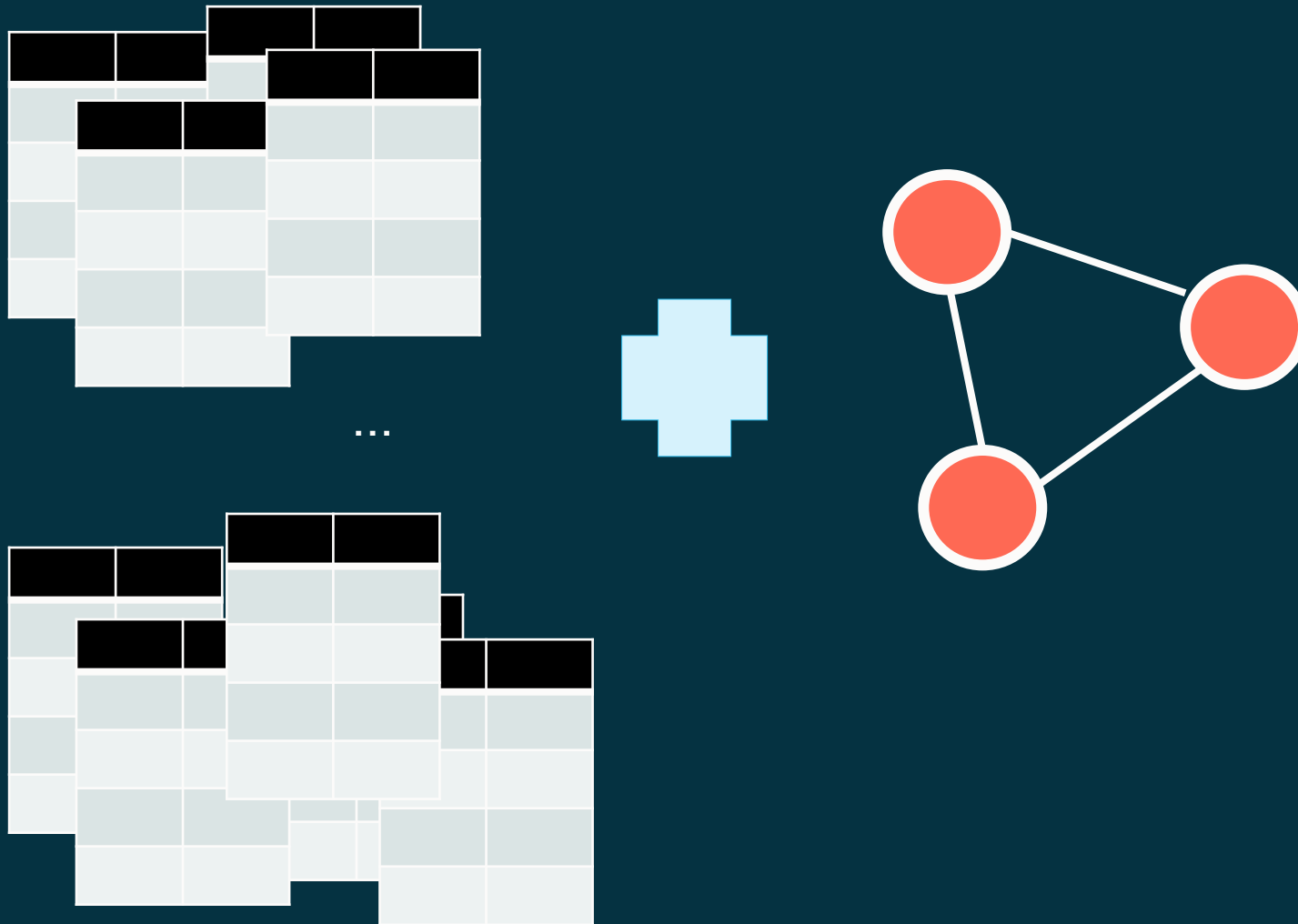


Problem Build an AI agent driven chatbot

Challenges

- Agent hallucinated on picking the right database, right table, right column
- Data distributed across 50 databases
- **600 million** customers (a lot of data!)

Example 1: A Very Large Telecom Company

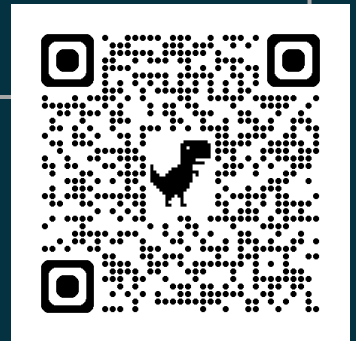
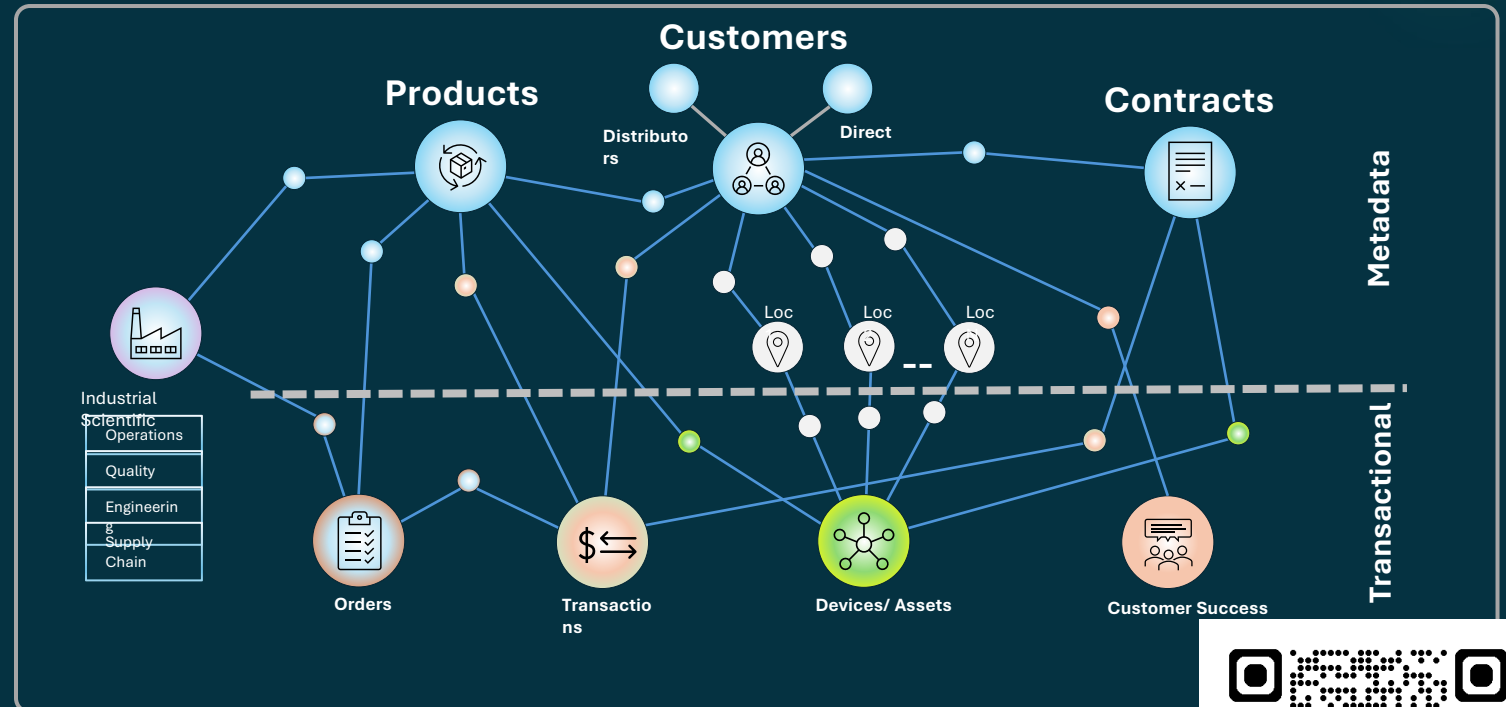


Solution

- Create a knowledge graph *layer* on their relational data
- This ontology *view* describes data and relationships between tables
- LLM converts natural language query to SPARQL, which executes on the ontology to find the *correct* database tables

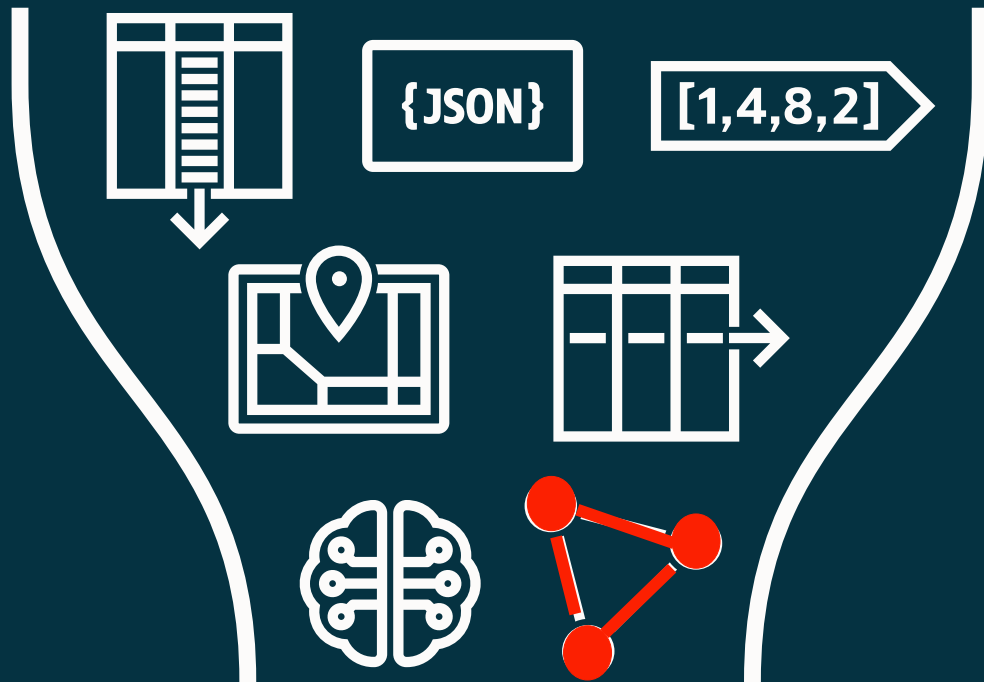
Example 2: Ensure Data Integrity – Find and Fix Missing Values

- Data inconsistencies across multiple databases that contain customer information
 - Lost revenue and frustrated customers
- Innovative use of graphs to connect data instances across systems
- Improved governance, workflows, data discovery, and lineage
- **TCO:** Use Autonomous AI Database for a fraction (< 5%) cost of traditional enterprise data intelligence platforms

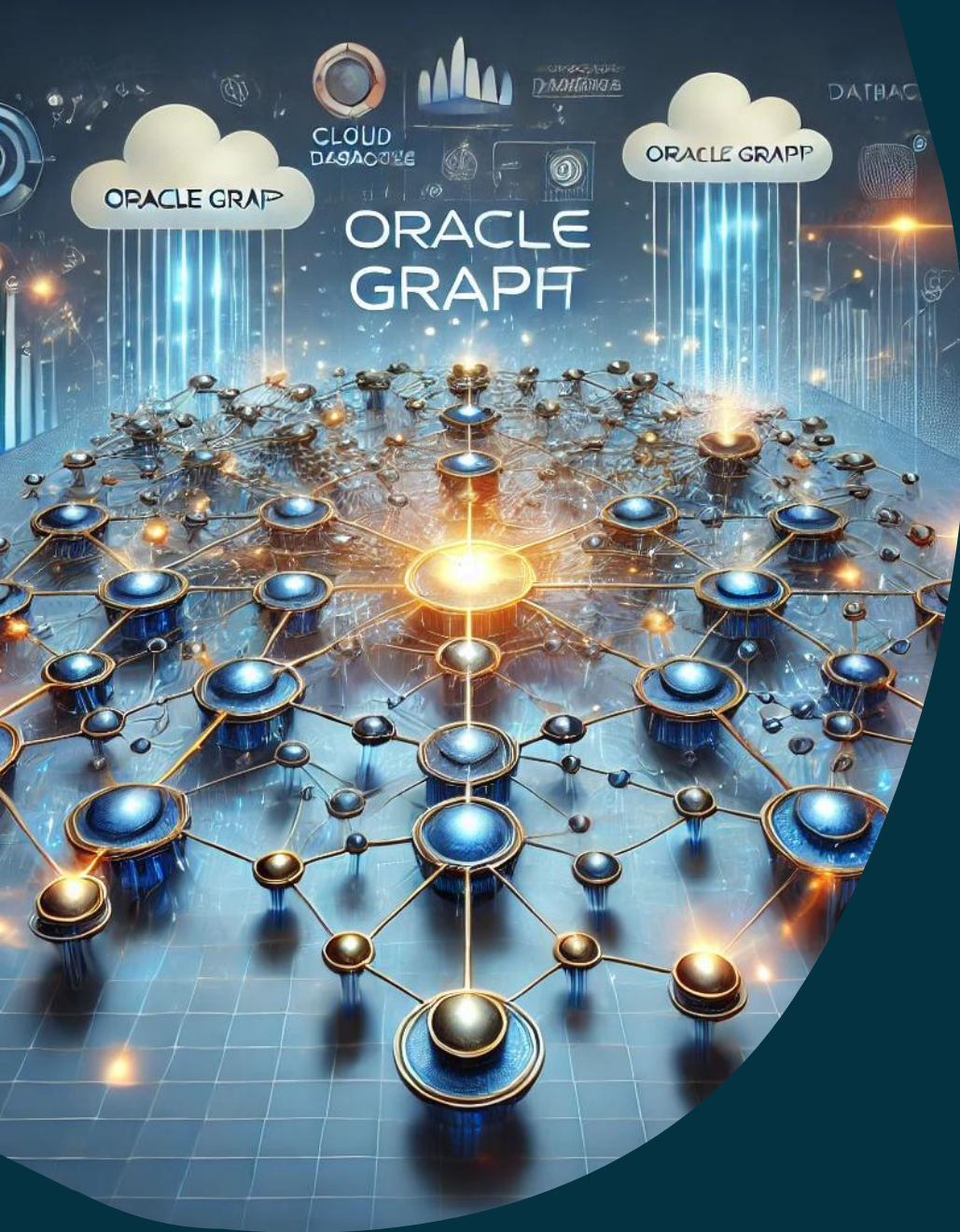


Techcast recording link

Graphs are More Powerful when they Co-exist with Existing Data



- Relational tables
- Vectors
- Graphs
- Location (latitude, longitude)
- JSON documents



Key Takeaways

1

Graphs are a native feature in Oracle Database

2

Property graphs analyze connections in data

3

RDF knowledge graphs help provide context to AI

4

They co-exist with traditional storage models for enterprise data

Resources



oracle.com/database/graph/



oracle.com/livelabs search for 'graph'



YouTube search for 'oracle spatial and graph'



blogs.oracle.com/database/category/db-graph



medium.com/tag/oracle-graph/latest

