



Get Your Data AI-Ready

**Knowledge Graphs & GraphRAG for GenAI
Success**

Michael Down | Global Head of Financial Services

AI Evolution & Going to Production

Generative models

Agents

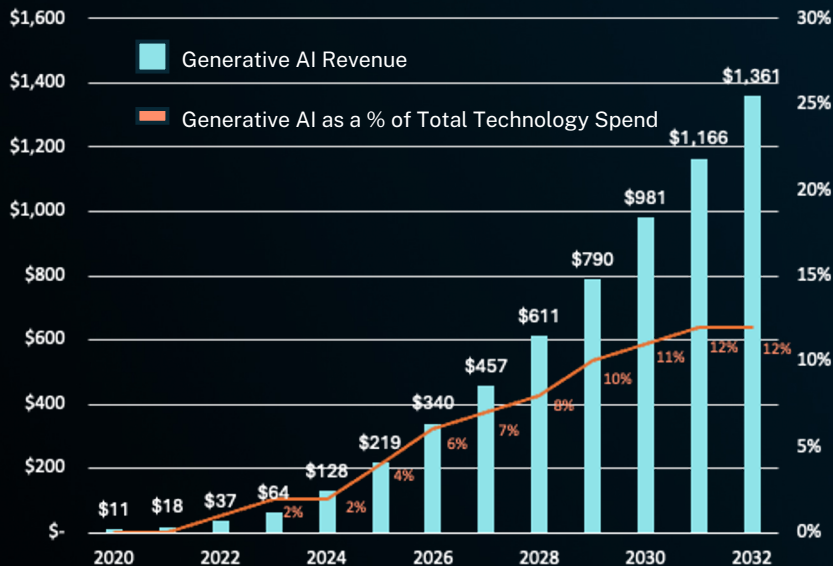
GraphRAG

Knowledge Graph

Graphs are the next step – a central data component for the AI stack

Trust | Performance | Extensibility

Generative AI races toward \$1.3 trillion in revenue by 2032



Bloomberg Intelligence

However, **71%** of organizations are stuck piloting GenAI projects

2024 IBM CEO Survey

It's a data management issue!

85% of IT leaders
cite data quality
as their top AI
challenge

KPMG AI Quarterly Pulse Survey 2025
100 senior executives from \$1B+ revenue companies

Data Organization

AI needs data organized in ways it can effectively access

Lack of Standardization

AI requires high-quality harmonized data to be reliable

Scale of Query Diversity

AI demands rapidly accelerated question-to-query execution

What makes data AI-ready?

Contextual

Data exposes
entities and
relationship
understanding

*Enables AI to grasp
meaning and access data
across sources*

Flexible

Adapts to new
patterns, structures
and access logic

*Supports diverse query
types and evolving data
needs*

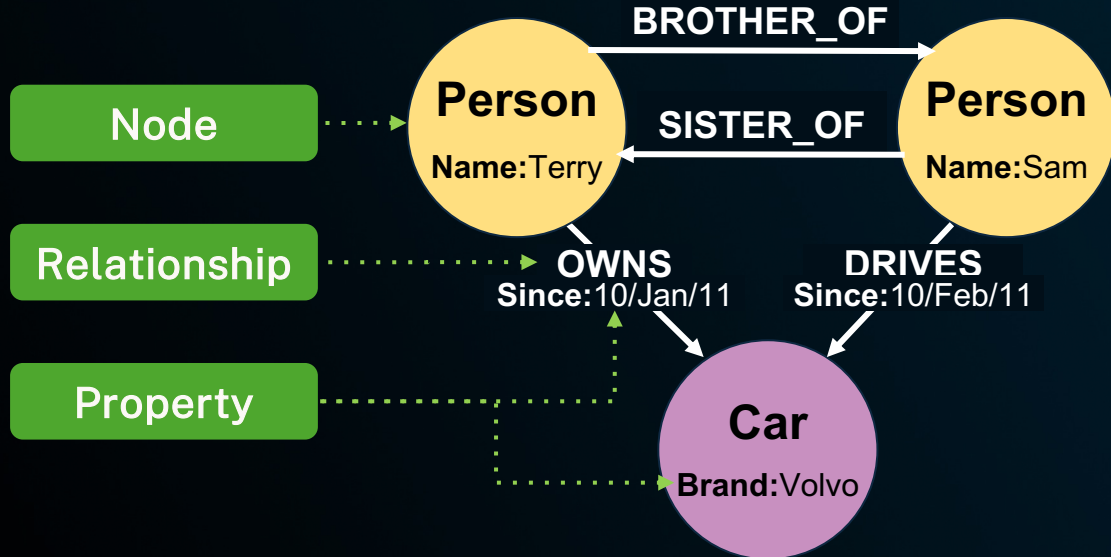
Standardized

Consistent,
governed
data foundation

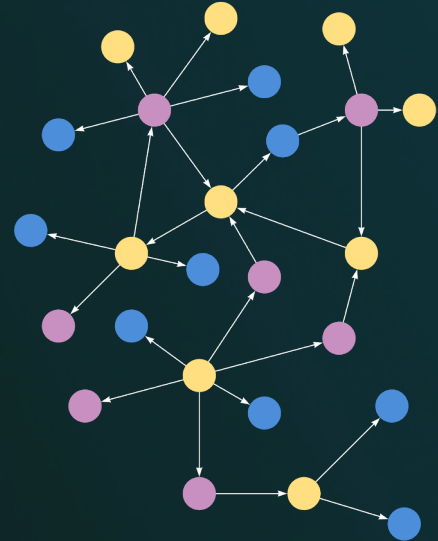
*Maintains consistent
understanding at scale*

Knowledge graphs = design pattern organize & access to interrelated data

Property Graph Data Model

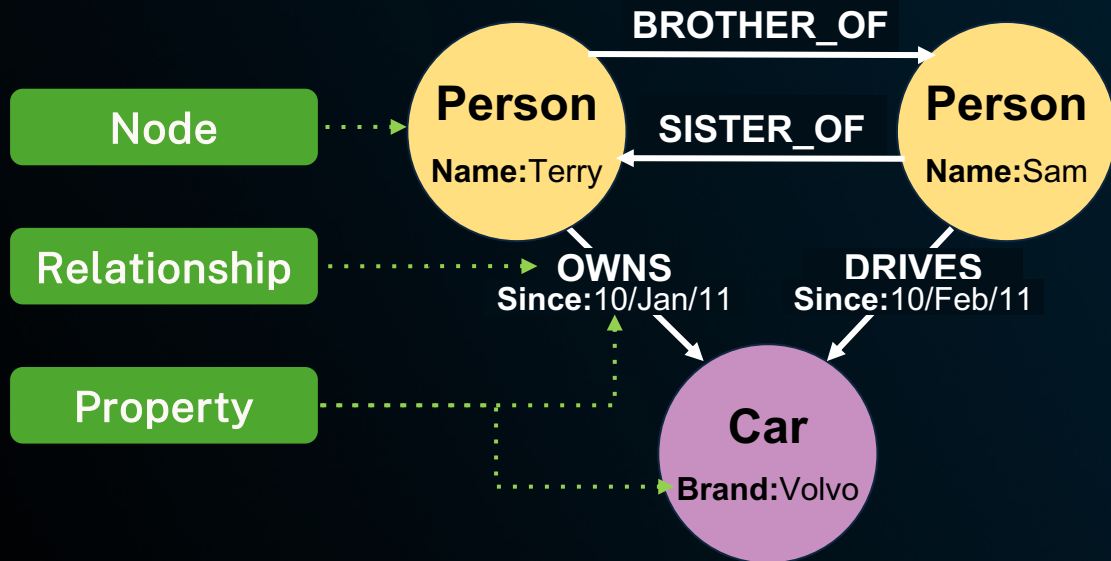


Connected Data

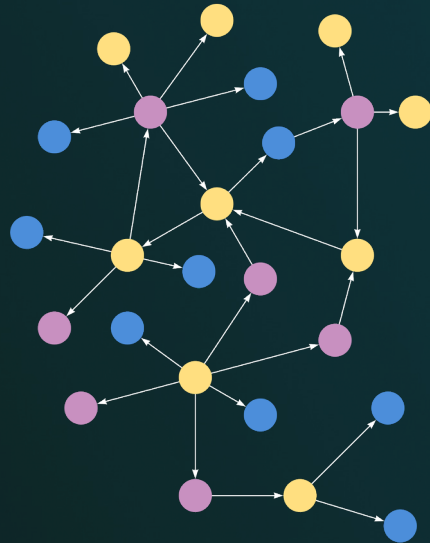


Knowledge graphs = AI-ready data

Property Graph Data Model



Connected Data



Knowledge graphs

= AI-ready data

Contextu al

Relationships are
treated as primary
data structures

*Entities and their
connections are built into
the data model*

Flexible

Schema grows &
adapts to meet
evolving business
needs

*Evolve your model while
queries keep running*

Standardize d

Expressive data
model provides
a common language

*Consistent meaning across
all your data sources*

AI & KG Architecture

GenAI Applications

LLM Orchestration inc. retrievers, tools & agents

Knowledge Graph



mapping unstructured + structured data

LLM Platform

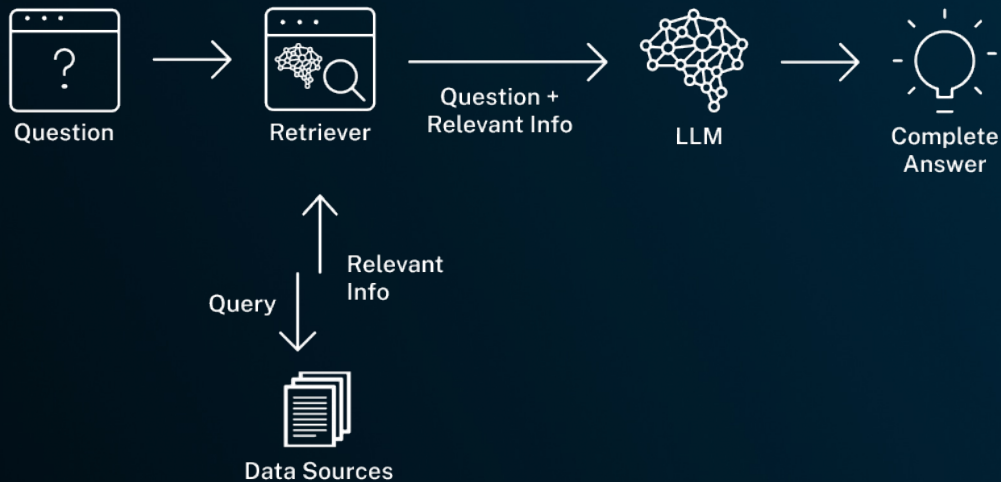


Models & Reasoning Engine

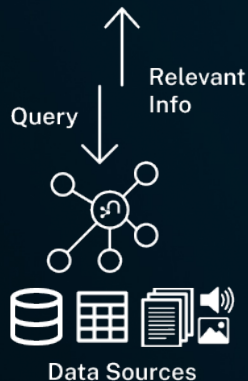
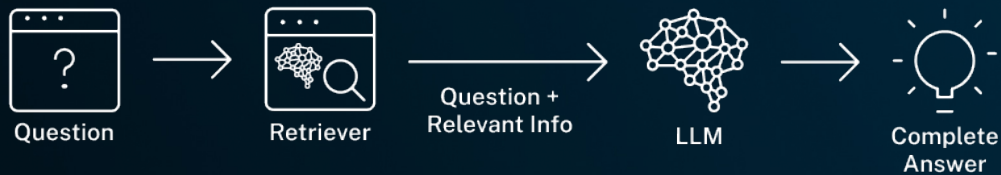
Enterprise Data Platform & External Databases



Ordinary RAG



GraphRAG: RAG with graph



Retrieval Patterns



Community summaries & graph enrichments



Graph enhanced vector search



Dynamic graph query generation



+ more: graph vectors, parent-child retrievers, etc.

GraphRAG: Higher Accuracy

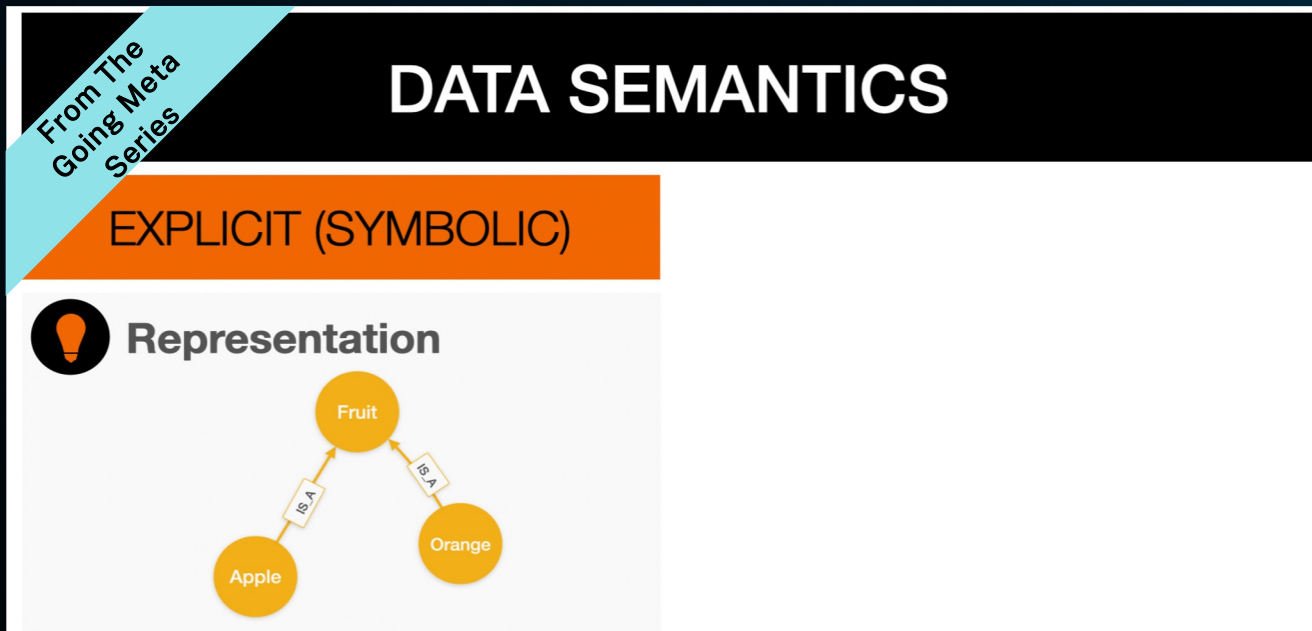
GraphRAG delivers up to **3x higher accuracy** than traditional RAG, with better multi-hop reasoning for context- rich AI applications.

	GraphRAG Performance	RAG Performance
Lettria Analysis ¹	81.67%	57.50%
Writer Knowledge Graph ² (RobustQA Benchmark)	86.31%	32.74%–75.89%
RAG vs. GraphRAG: Multi-hop Question Answering ³	77%	66%
GenUI Experiments (MultiHop-RAG Dataset) ⁴	Successfully answered complex, multi-step queries	Struggled integrating data from multiple sources

1) <https://writer.com/engineering/rag-benchmark/> 2) <https://www.lettria.com/blogpost/vectorrag-vs-graphrag-a-convincing-comparison>
3) <https://arxiv.org/abs/2502.11371> 4) <https://www.genui.com/resources/graphrag-vs-traditional-rag-solving-multi-hop-reasoning-in-llms>

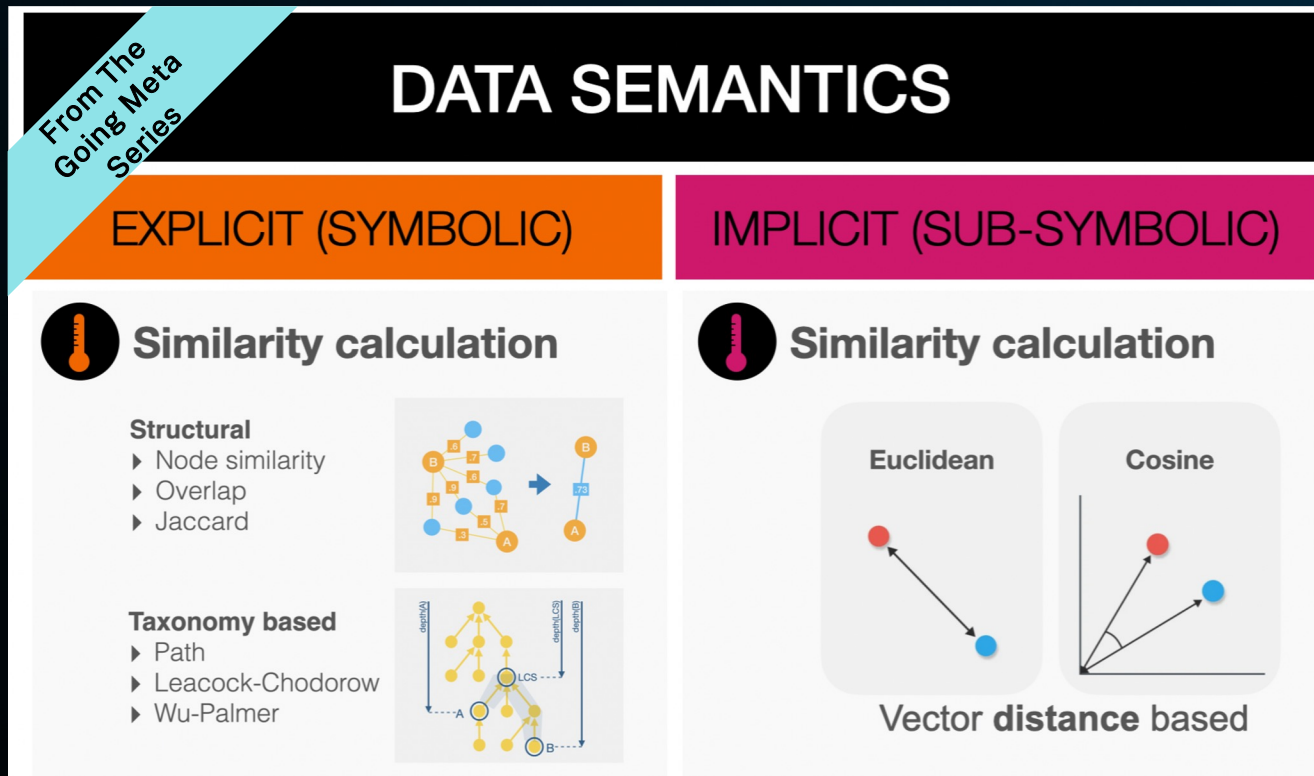
GraphRAG: Explainability & Governance

Natural language description: “Apples & oranges are both fruits”



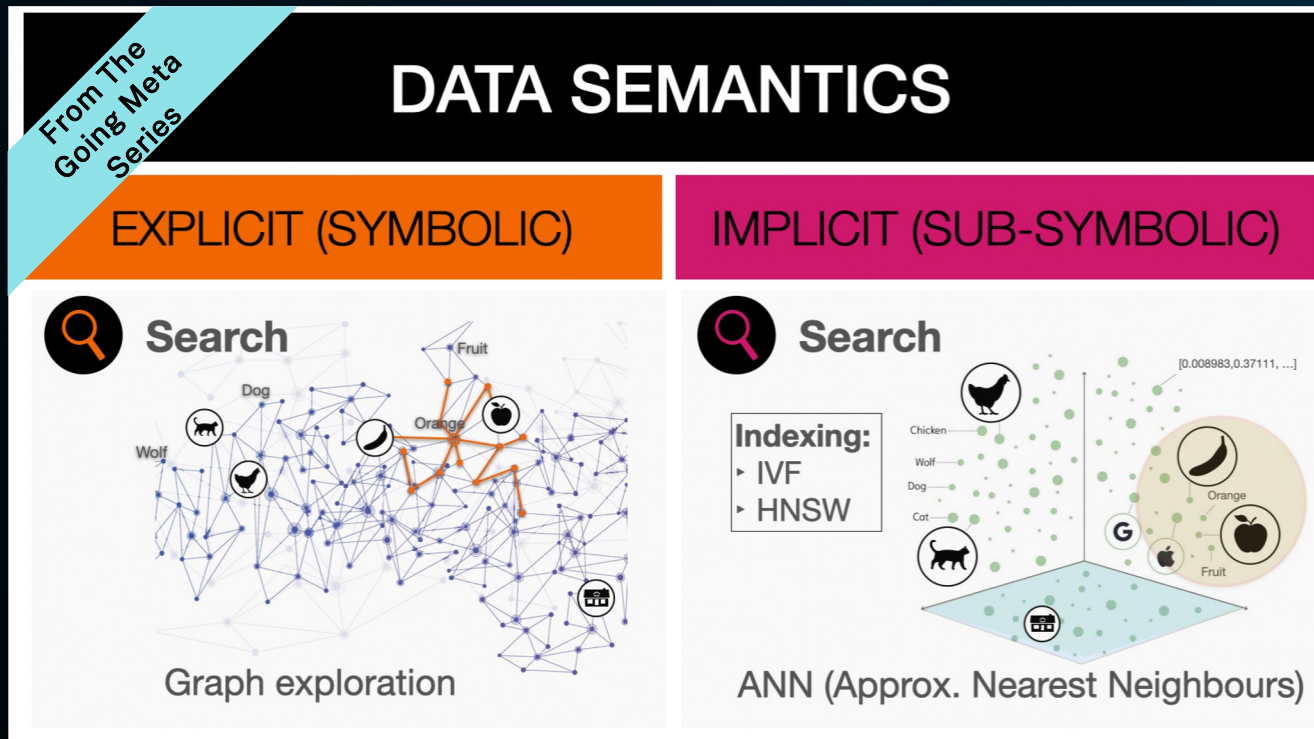
GraphRAG: Explainability & Governance

Natural language description: “Apples & oranges are both fruits”



GraphRAG: Explainability & Governance

Natural language description: “Apples & oranges are both fruits”





What does this
look like in
practice?

Gaming Giant Transforms Analytics with GraphRAG

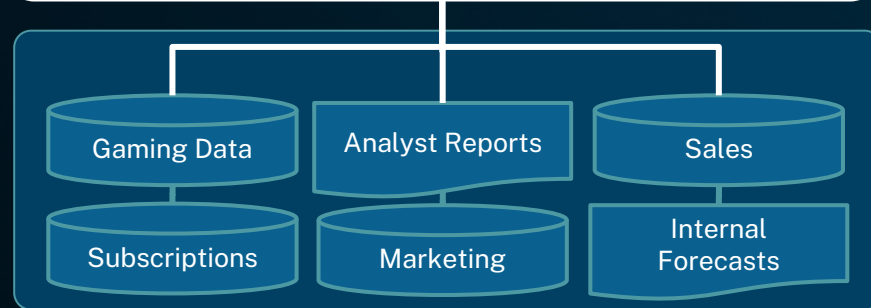
When millions in revenue hang in the balance - knowledge graph powered agents prove invaluable

10x faster	92%	150+
Time-to-insight reduction	Reduction in analyst time on routine requests	Business users daily

AI Agents



- **Maps structured & unstructured data** from multiple sources
- **Semantic context centralized & controlled in the data layer** - Unmappable with traditional databases
- **Speed, scale, traceability & most importantly trust & confidence** in enterprise AI responses

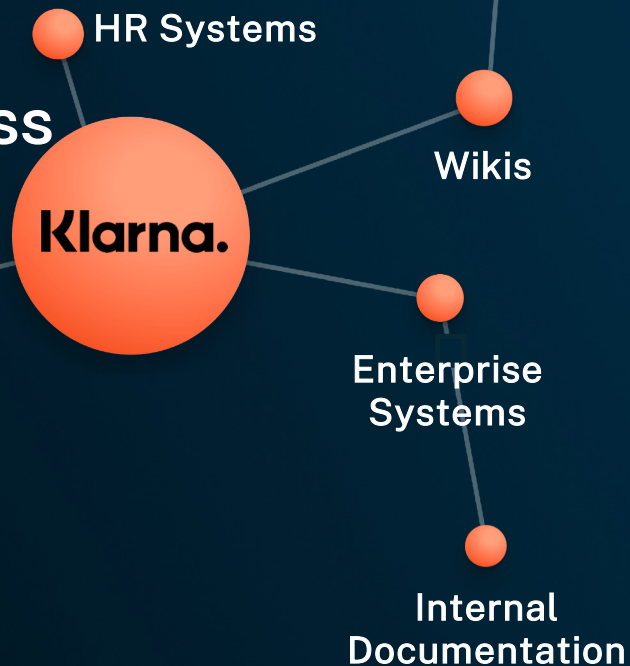


Klarna transforms knowledge access with GraphRAG



FROM SEARCHING TO KNOWING

Klarna transforms knowledge access
with GraphRAG



250K Employee questions
answered in first year

2,000 Daily queries processed

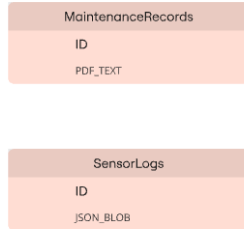
85% Employee adoption



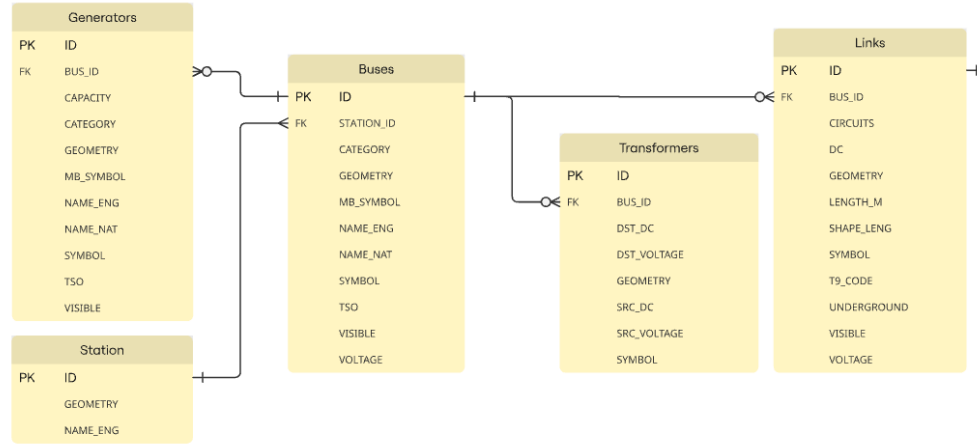
Demo

Network Data

Unstructured PDF & JSON

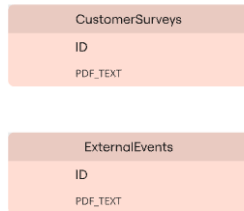


Structured (SQL)

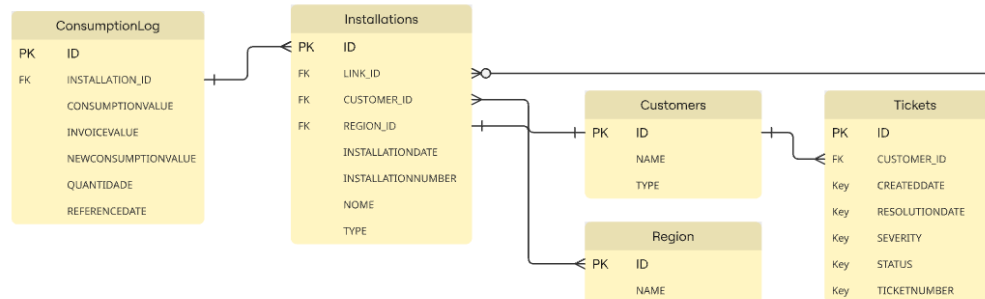


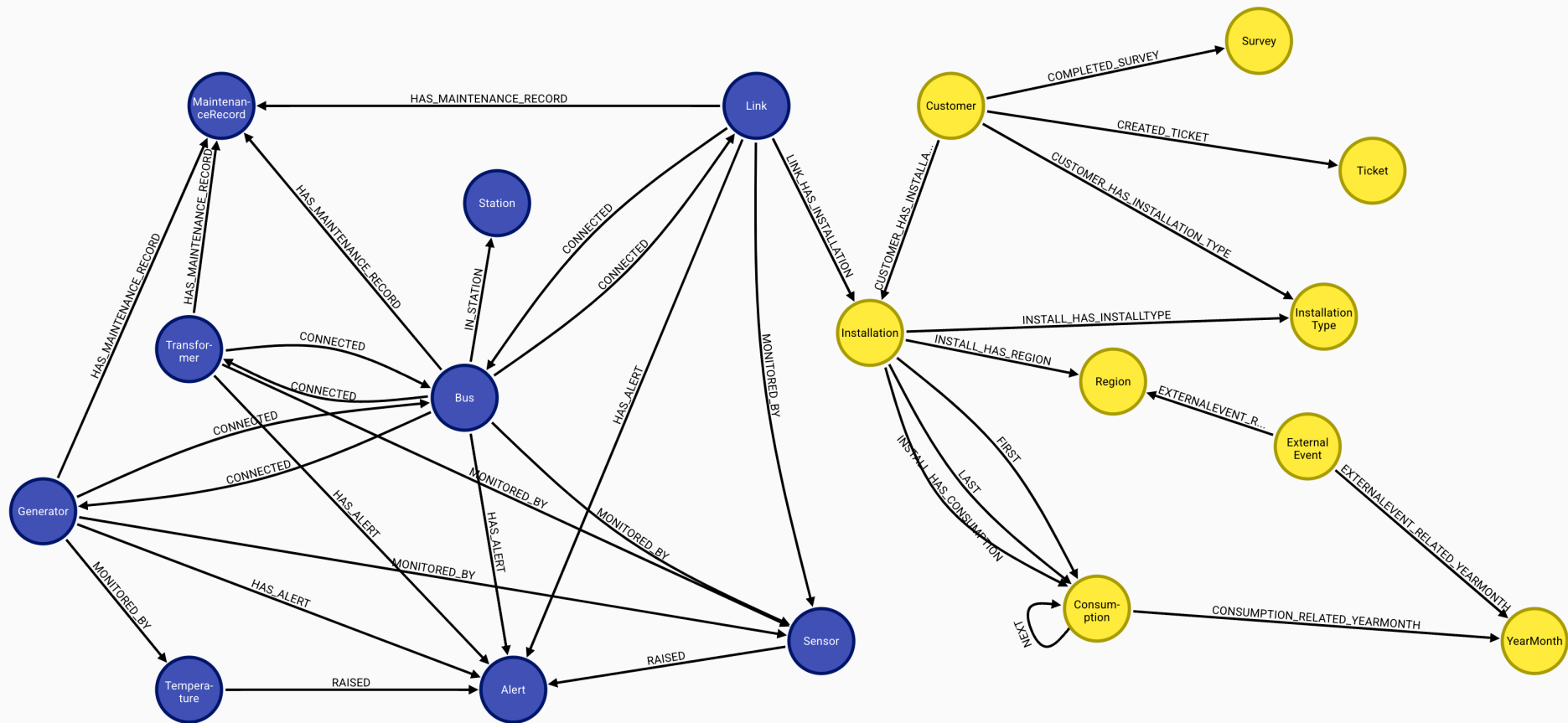
Customer Data

Unstructured PDF



Structured (SQL)





Energy Demo - Cockpit

Energy Network & Assets Network - Impact Analysis Customer 360 Shortest Path between equipments

Connected Installations ⓘ

26

Average NPS Score

50.14

Tickets

219

Tickets per Installation Type

Category	Value
Residential Areas	24.20%
Critical Infra	50.23%
Essential Services	25.57%

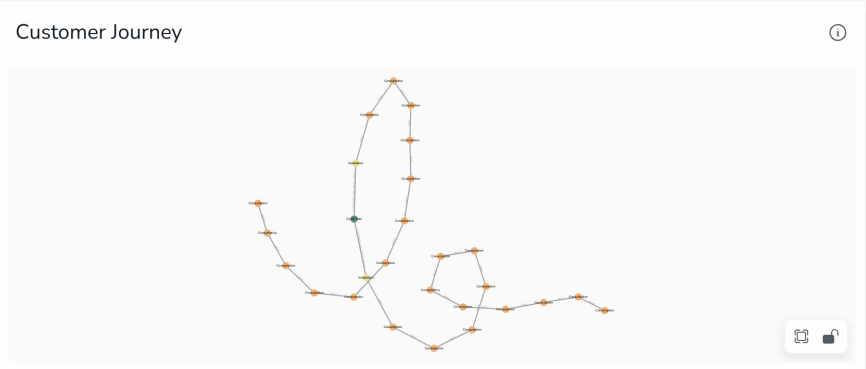
Category: typeInstall Value: countTks

Evolution Tickets

Category	Value
date	tktsCount

Ranking Customer NPS

Customer	Type	NPS	TotalSurveys	TotalTickets	AvgConsumption
VISTA SCHOOL FOR GIRLS	School	62.5	20	84	1,325
LEAR LAKE CHARTER SCHOOL	School	60	20	84	1,325
BLOSSOM VALLEY HOSPITAL	Hospital	57	50	180	3,075
ING HARBOR GENERAL HOSP	Hospital	55	70	120	2,750
CURTIS DIAZ	Individual	55	40	216	1,205.21





Neo Agents

➕ ADD AGENT

Chat

Explore Predefined Agents



Agents Created By You



ACME Energy Service Assets

Analyst Local



Analytics for Oil & Gas Infrastructure
& Customers



Hey there! NeoConverse uses generative AI to help you communicate with neo4j database using natural language. If you encounter any inaccurate responses, please report them using the report icon. Let's start chatting!

How can i help you today ?



Text



Chart

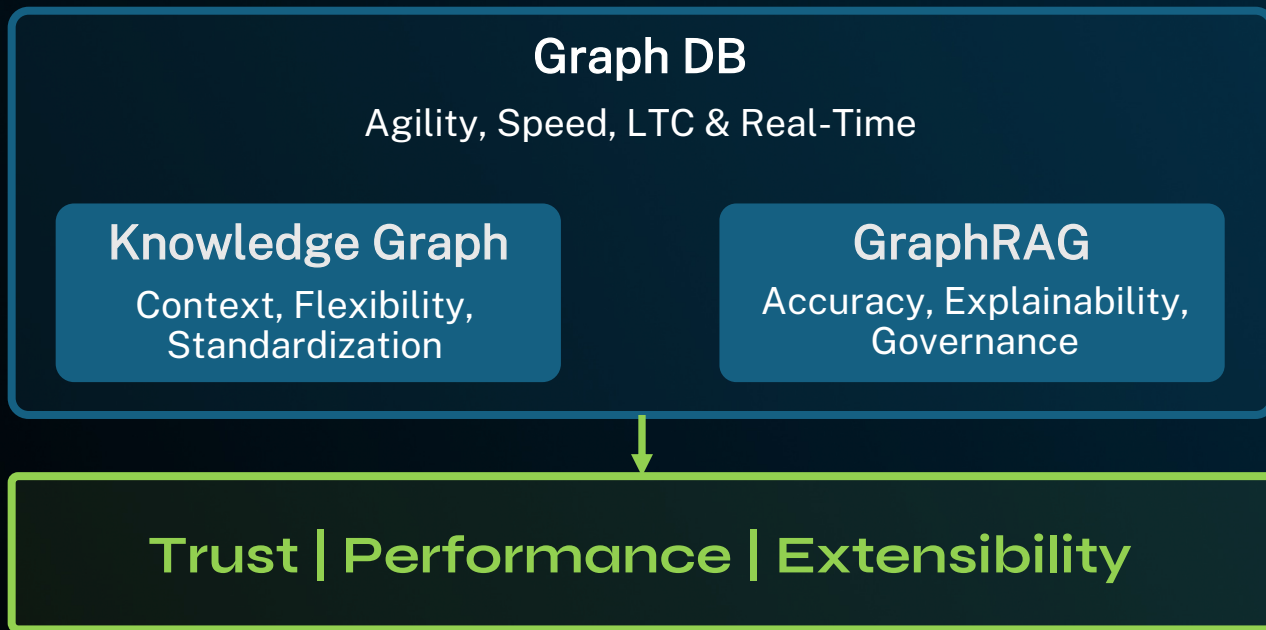


Graph



AI Evolution & Going to Production

Graphs are the **next step** - a **central data component** for the AI stack



Resources

- **Code for Example:** neo4j.com/developer/genai-ecosystem/energy-agent
- **Learning & Building Resources:** neo4j.com/generativeai/#resources



Thank you!

Michael Down | Global Head of Financial Services