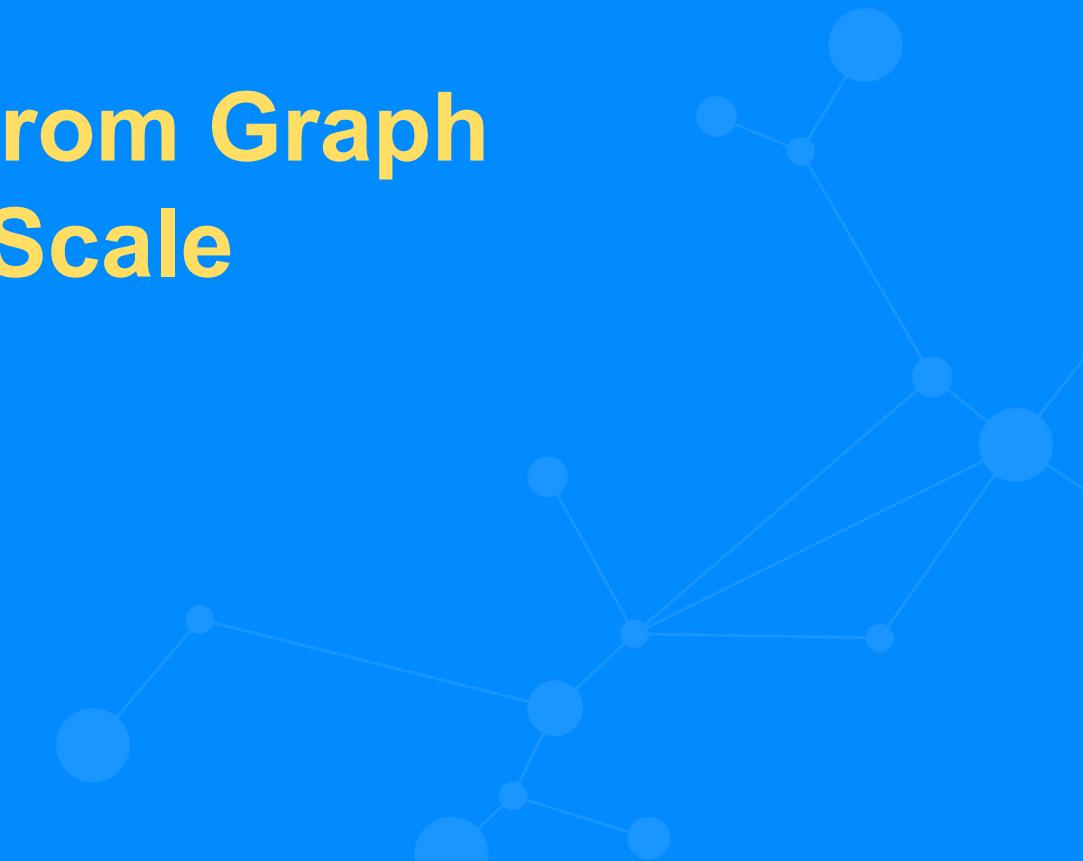


Data Insights From Graph at Unbounded Scale

with Neo4j





Rik Van Bruggen

Vice President, Strategy & Enablement



Ivan Zoratti

Product Management Leader,
Neo4j Graph Database

Supply Chain Madness – My Personal Experience

SHIMANO 105 CS-R7000 CASSETTE 11 SPEED

Artikelnummer: 6105-2609-004-N1809

★★★★★ (54)



Kies je versie

11-28T 11-30T 11-32T **11-34T** 12-25T

Pekijk maattabel

Levertijd onbekend

64.95

Inclusief 21% BTW

Recent besteld door 548 klanten! Bestel ook snel!



ALL CATEGORIES

HOW TO CHOOSE A BIKE BIKES E-BIKES

Home > Cycling > Parts > Drivetrain > Cassettes



SHIMANO



Shop by category

Search for anything

All Categories

EXTRA \$10 OFF \$200+ See all eligible items and terms ▾



New Shimano Ultegra CS R8000 HG800 11 speed Cassette 11-25t/28t/30t/32t/34t

Condition: New

Teeth: 11-34t(HG800)

Quantity: 1 More than 10 available

615 sold / See feedback

Price: US \$159.99

No interest if paid in full in 6 mo on \$99+*

Buy It Now

Add to cart

Add to Watchlist

615 sold

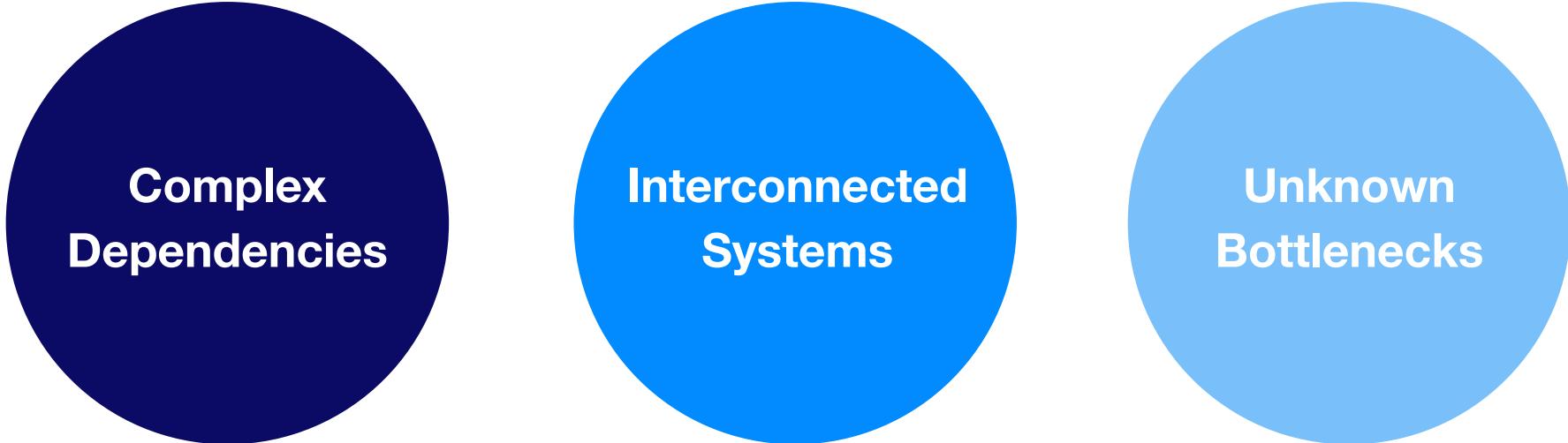
343 watchers

Shipping: US \$19.79 International Priority Shipping to Belgium via Global Shipping Program ⓘ See details

Located in: South El Monte, California, United States

Import: \$34.14 (amount confirmed at checkout) ⓘ charges:

Worldwide Supply Chain Problems



**Complex
Dependencies**

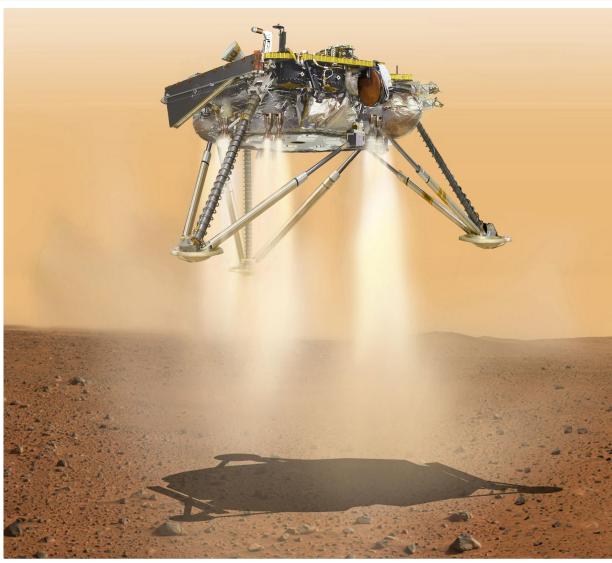
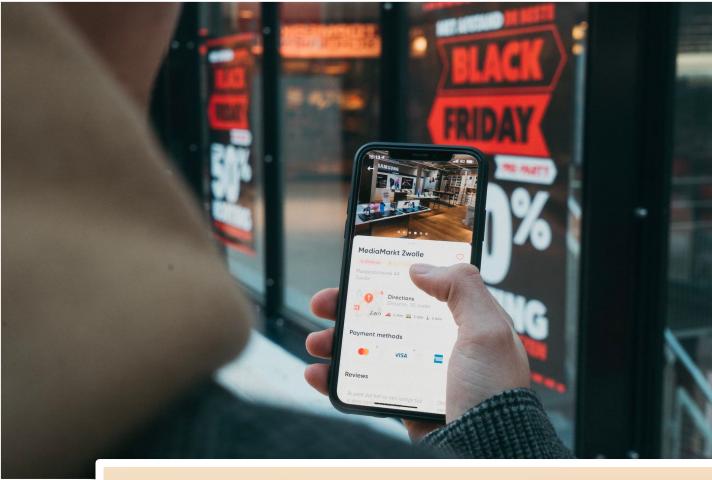
**Interconnected
Systems**

**Unknown
Bottlenecks**



Greener Jeans | The Environmental Impact of a Pair

Levi's studied the lifecycle of a pair of stonewashed 501 jeans as part of its research into sustainable apparel. Here's what it boiled down to:



Initial DoD Distribution Sites

COVID-19 SPECIAL

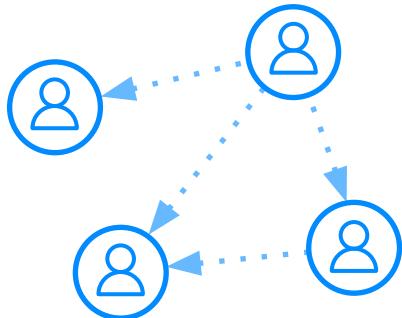
Vaccine distribution challenge

And many other enormous challenges ...

Solved with Deep Data Context, *Powered by Graph Technology*

Graph Technology **Unlocks Deeper Context** hidden in Data Relationships to enable intelligent applications

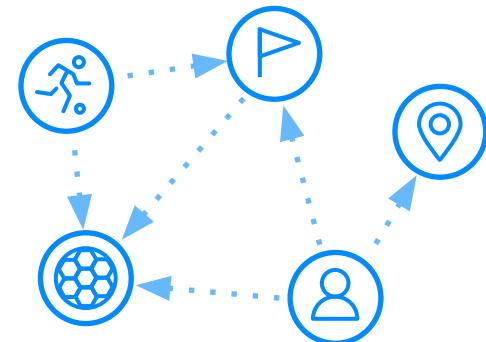
Shifting from data-driven to intelligence-driven



People
Employees, Customers,
Suppliers, Partners, Influencers

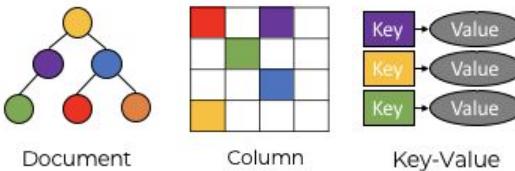
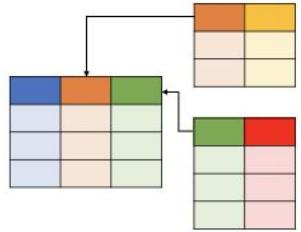


Transactions
Purchases, Payments,
Bookings, eCommerce



Knowledge
Enterprise / Domain content, Risk
Management, Supply Chain

Graph Technology **Unlocks** New Data Possibilities



Relational Databases

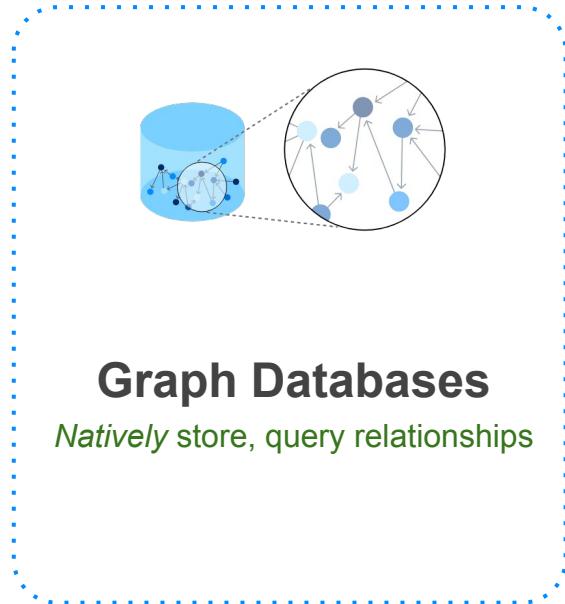
Don't handle relationships well

Other NoSQL Databases

Let the application worry about relationships

Graph Databases

Natively store, query relationships



“We found Neo4j to be literally thousands of times faster than our prior MySQL solution, with queries that require 10-100 times less code. Today, Neo4j provides eBay with functionality that was previously impossible.”

— Volker Pacher, Senior Staff Engineer



Graph Technology Fuels Discovery and Transformation in Every Field



Decision Analysis

Fraud Prevention
Network Analysis
Forecasting



Customer Experience

Customer Journey
Behavior Prediction
Data Disambiguation



Data Unification

Operations Optimization
Customers/Data 360
Compliance



Personalization

Recommendations
Media and Advertising
Personalized Health



Discovery

Drug Discovery
Innovation
Intelligence & Security

“50% of inquiries on the topic of AI involve discussion of the **use of graph technology.**”

“By 2025, **graph technologies will be used in 80% of data and analytics innovations, up from 10% in 2021**, facilitating rapid decision making across the enterprise.”

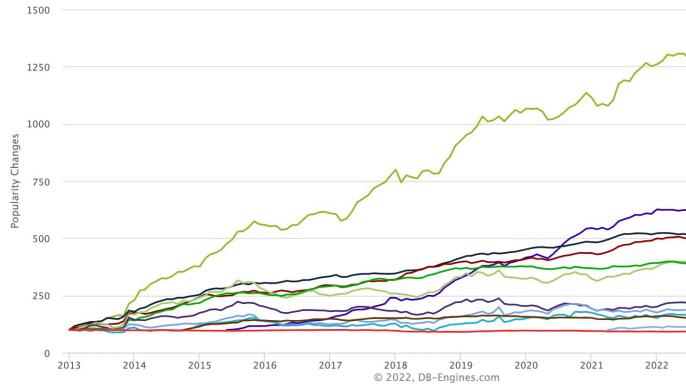
Gartner

Top 10 Tech Trends in Data and Analytics, 16 Feb 2021, Rita Sallam et al.

Graph Databases: Fastest Growing Category

Source: DB-Engines

Complete trend, starting with January 2013



1986

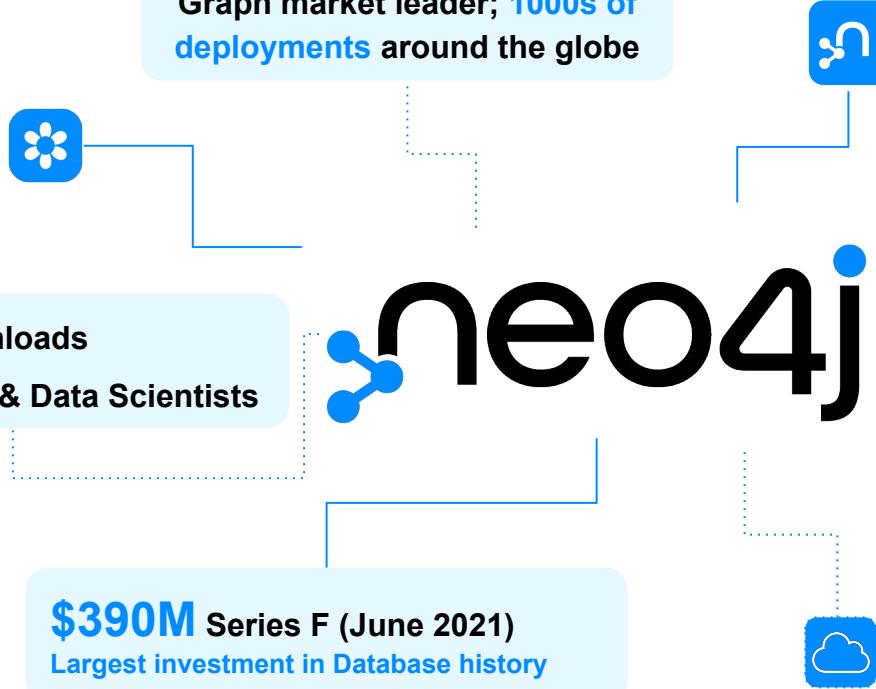
SQL

Now

GQL

The first standardized database language in 40 years.

Neo4j: Helping the World Make Sense of Data



The Leading and Most Trusted Graph Data Platform

7 of the World's Top 10 Retailers



3 of the Top 5 Aircraft Manufacturers



All of North America's Top 20 Banks



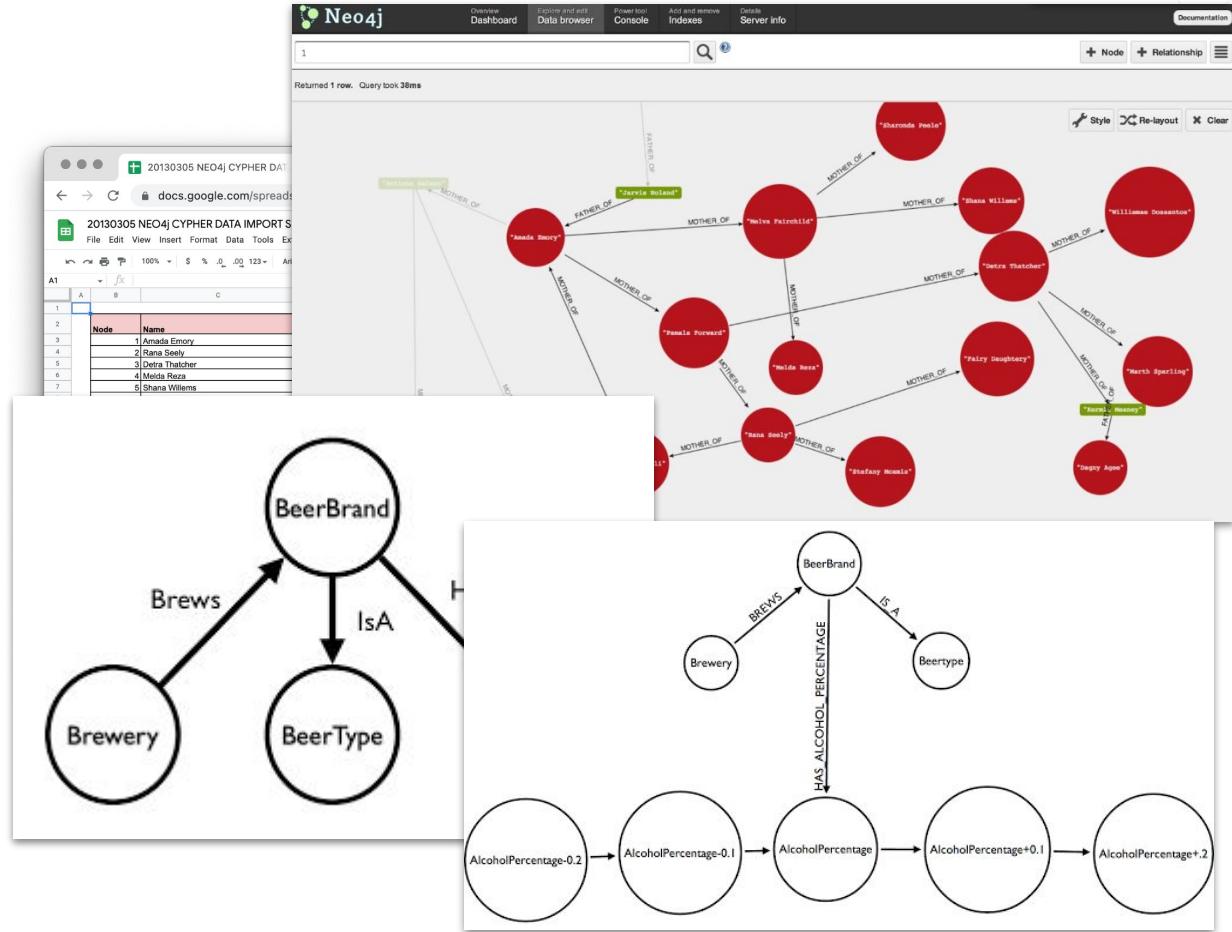
7 of the Top 10 Telcos



WHAT A RIDE

Neo4j has come quite a way since 2012

- Beergraphs!
- Through spreadsheet formulas!
- In-graph indexes!
- Fancy viz!



Neo4j: A Rich History of Graph Innovation



- Pioneered the **Modern Graph Database Category**
- **First Native Graph Database:** Open Source, ACID Transactions, Built for Property Graphs
- Introduced **Cypher Graph Query Language**
- Evolved **Property Graph Model** with Labels, Geospatial & More



- **openCypher:** De Facto Standard Graph Query Language
- **Causal Clustering** w/Read Replicas, Schema, Language Drivers, more...
- **Graph Algorithms** for Data Science
- **Rich User Tooling**, e.g., No-Code Visual Data Exploration
- Active Participant in **ISO GQL Standard**, initiated by Neo4j
- AuraDB: **First Native Graph DB as-a-Service**



- **Graph-RBAC Security**, the First and Most Advanced of Its Kind
- First Native & Fully Integrated **Graph Data Science Offering**
- First **In-Graph Machine Learning** Technology
- **Transactional-Analytic** Hybrid Clusters
- **Neo4j Fabric**, the first Enterprise Architecture to deal with very large and distributed graphs
- **Autonomous Clustering** for low effort, unlimited scale-out

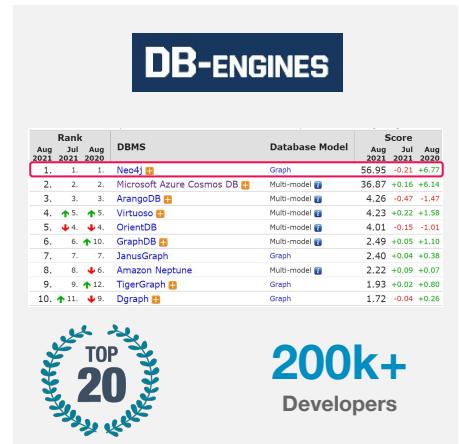


The leading
Graph Data Platform
for Today's Intelligent
Applications

The Forrester Wave™ for Graph Data Platforms, Q4 2020



#1 Most Popular
Graph Database with Developers



Total Economic Impact Study

An objective study of Neo4j's business value with our customers

"It's just like you're building an airplane and you said, 'Oh, I have a great steam engine. Let's try with that first because that's what we use everywhere.' But you need a different thing. So what's the comparison of steam engines versus jet engines for aircraft? There's no real comparison."

Principal architect, Financial Services

Resources

Forrester TEI Study: <https://neo4j.com/whitepapers/forrester-total-economic-impact/>

Forrester Wave – Neo4j is a Leader in Graph:

<https://neo4j.com/whitepapers/forrester-wave-graph-data-platforms/>

417%
Return on Investment

Neo4j pays for itself more than 4x in the span of three years



\$2.2M
Increased Revenue
Improved business results of \$2.2M over three years on average

60%
Faster Time-to-Value
Accelerating business outcomes



\$1.8M
Average Savings
Digital transformation cost savings of over \$1.8M over three years

Neo4j Powering Transformative Solutions Across Industries



Patient Journey Analytics

- Early intervention with 3 yrs of visits, tests & diagnosis, **10s of Billions of records**
- Graph algorithms for **identifying communities & best intervention points**



Pricing & Revenue Mgmt.

- **300M pricing operations per day**
- **10x transaction throughput on half the hardware compared to Oracle**, the database replaced



Personalization, Customer 360

- 14B data points to 163M unique users
- **6-fold increase in web traffic** with recommendations, **16-fold** longer touchpoint, **5-fold** higher visits per profile



Solving a Wide Variety of Use Cases Across All Industries



Real-Time Recommendations

ebay BEST BUY

JCPenney Kroger

NORDSTROM Marriott

adeo



Fraud Detection

淹商银行 CZBANK
 DISCOVER FINANCIAL SERVICES
 WESTERN UNION WU

dun&bradstreet

BMO



Network & IT Operations

AVIVA at&t

SOCIETE GENERALE orange

BT edf

Alcatel-Lucent Alcatel-Lucent



Master Data Management

verizon[✓]

LOCKHEED MARTIN
 Adobe

Citi VOLVO



Risk & Compliance

RBC MERCK

Santander

BASF The Chemical Company

AkerBP



Identity & Access Management

Current COMCAST

AIRBUS J.P.Morgan

CISCO Royal Bank of Scotland

Microsoft



Retail



Telecom



Manufacturing



Financial Services



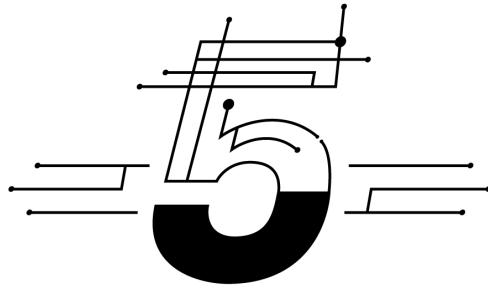
Healthcare



Government



Neo4j Graph Data Platform



Neo4j Graph Data Platform

Native Graph Database

The foundation of the Neo4j platform; delivers enterprise-scale and performance, security, and data integrity for transaction and analytical workloads.

Data Science and Analytics

Explorative tools, rich algorithm library, and Integrated supervised Machine Learning framework.

Application Development Tools & Frameworks

Tooling, APIs, query builder, multi-language support for development, admin, modeling, and rapid prototyping needs.

Discovery & Visualization

Code-free querying, data modeling and exploration tools for data scientists, developers, and analysts.

Graph Query Language Support

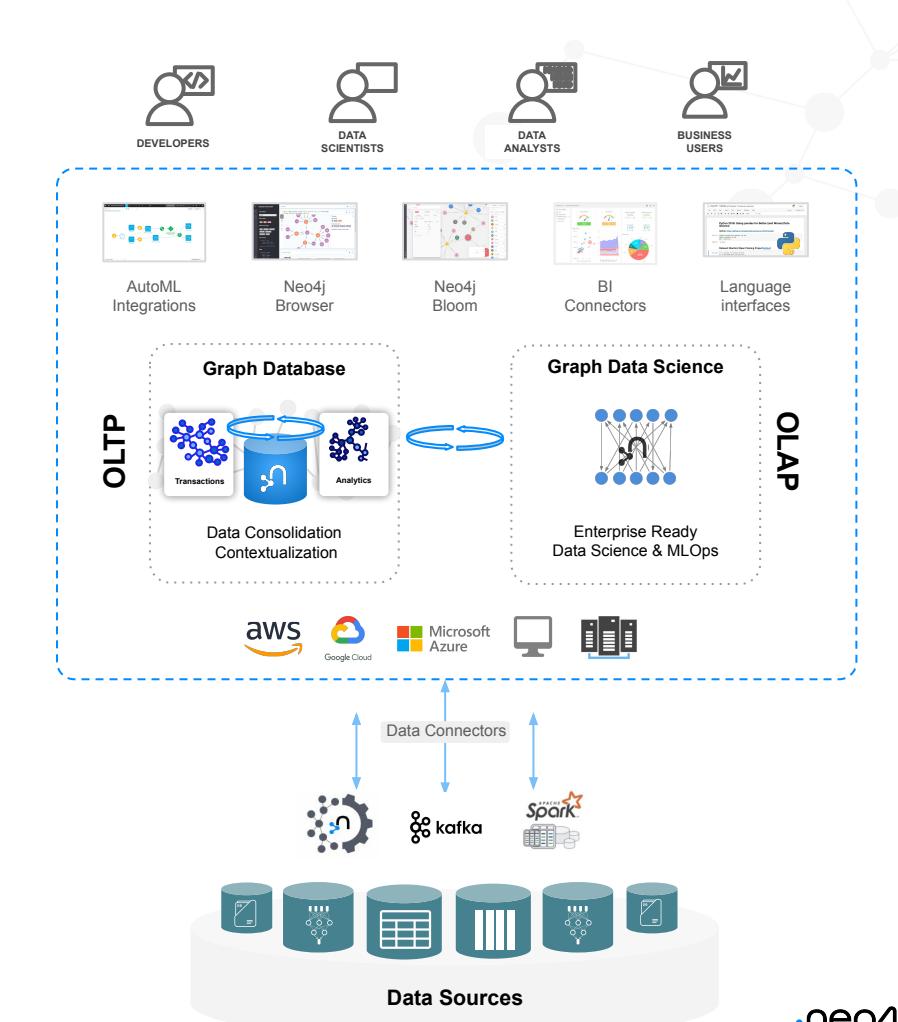
Cypher & openCypher; Ongoing leadership and standards work (GQL) to establish lingua franca for graphs.

Ecosystem & Integrations

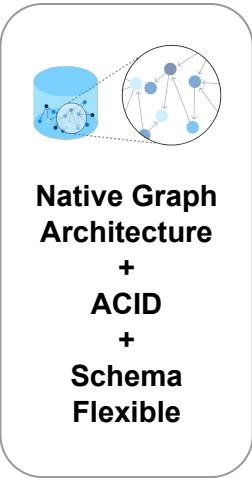
Rich ecosystem of tech and integration partners. Ingestion tools (JDBC, Kafka, Spark, BI Tools, etc.) for bulk and streaming needs.

Runs Anywhere

Deploy as-a-Service (Auradb) or self-hosted within your cloud of choice (AWS, GCP, Azure) via their marketplace, or on-premises.



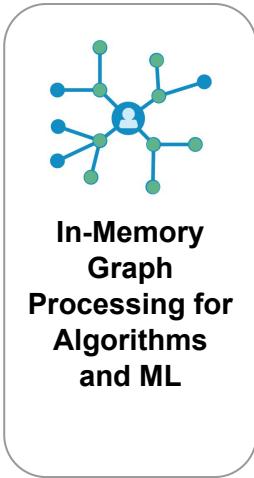
Market Leading Innovation & Capabilities



Native Graph Architecture
+
ACID
+
Schema Flexible



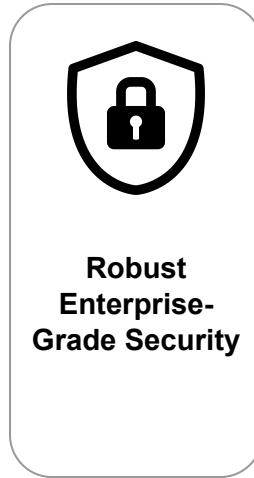
Transactional
+
Analytics Workloads



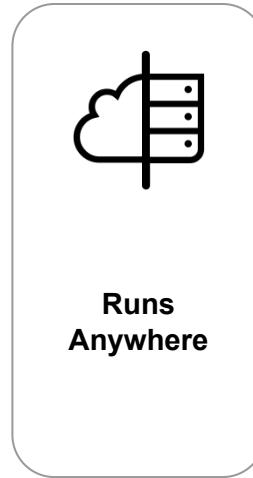
In-Memory Graph Processing for Algorithms and ML



Rich and Powerful Tools and Integrations



Robust Enterprise-Grade Security



Runs Anywhere

Engineering Expertise

>1000 person-years development investment

First Mover Advantage

Maturity, Most enterprise deployments

Largest Graph Community

Growing at 80%+ annually

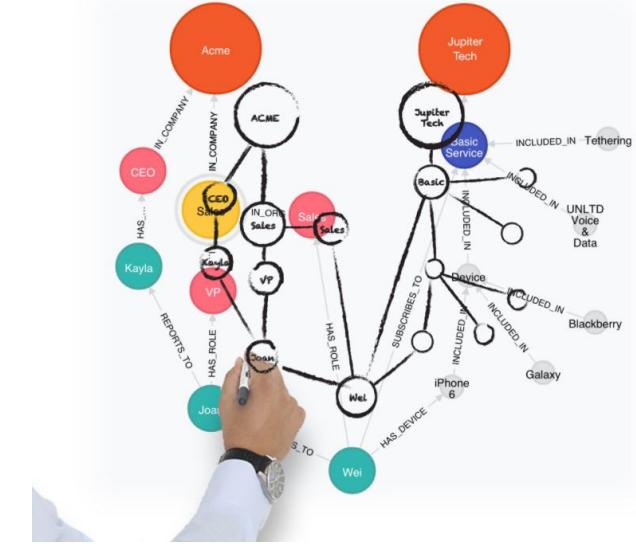
Neo4j Graph Data Platform



**Neo4j Graph
Database**

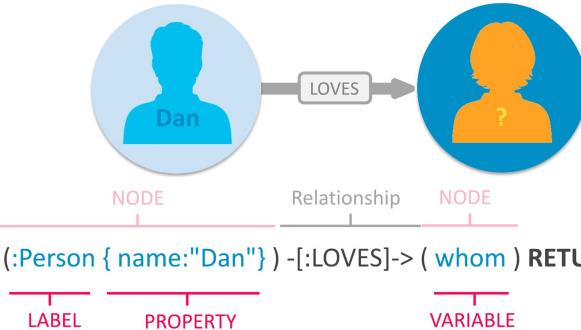
**Neo4j Graph
Data Science**

Flexible and Intuitive Modeling and Queries



Whiteboard Model = Physical Model

Flexible, Schema Optional



Enhanced in Neo4j 5:

- **Disjunction (OR)** ($v:L1|L2$)
 - **Negation (NOT)** ($v:!L1$)
 - **Grouping (AND)** ($v: (L1\&L2) | (L3\&!L4)$)

Cypher Query Language

Easy, Intuitive and Powerful

Powerful Queries, e.g., Variable Length / K-Hop

Examples:

- **Fraud detection.** Return neighbors within k hops of an account with risk score above 123
- **Discussion board.** Return all messages for this topic from people I follow, e.g.,
 - To find good quotes
 - To find and manage flames
- **Supply chain tracking.** Return all transit sites where this package has been through, when error xyz has occurred

In Neo4j 5, 1000x faster than its predecessor.

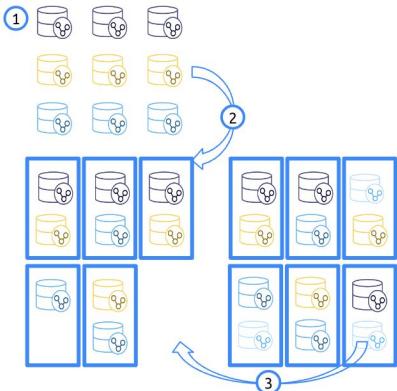


Unbounded Scalability To Harness All Your Data



Autonomous Clustering

Easy, Automated Horizontal Scale-Out

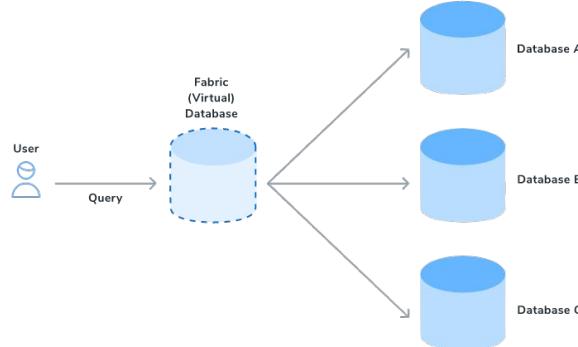


Elastically scale out and in, on demand, for extreme performance, guaranteed availability with consistency

Scale clusters to 100s of machines

Fabric

Federated Queries and Sharded Graphs



Query multiple business graphs

Chain queries for sophisticated real-time analysis

Hybrid cloud queries

Rich Tooling For Rapid Development

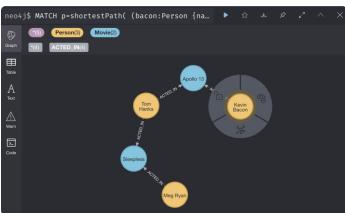


neo4j desktop



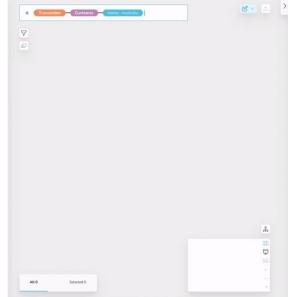
Local database for rapid dev

neo4j browser



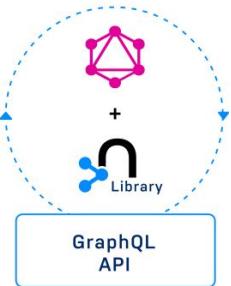
Query editor and results visualizer

neo4j bloom



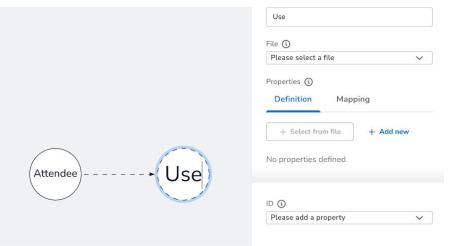
Visualize and explore your data

neo4j graphQL library



API-driven intelligent applications

neo4j data Importer



Code-free data loader

neo4j ops manager



Centralized management



Neo4j is Part of Your Ecosystem

Apache Spark Connector



Data Warehouse Connector



Apache Kafka Connector



Neo4j BI Connector



Apache Arrow Integration



Java



Python



JavaScript



.NET



Go



HTTP

API

Fully-Managed Cloud Database Service



- Real-time Performance at Scale
- Automatic Upgrades, Patches, Backups
- Scale on Demand, No Downtime
- High Availability
- Multi Cloud, Any Region
- Enterprise-grade Security
- Simple Capacity-Based Pricing

FREE

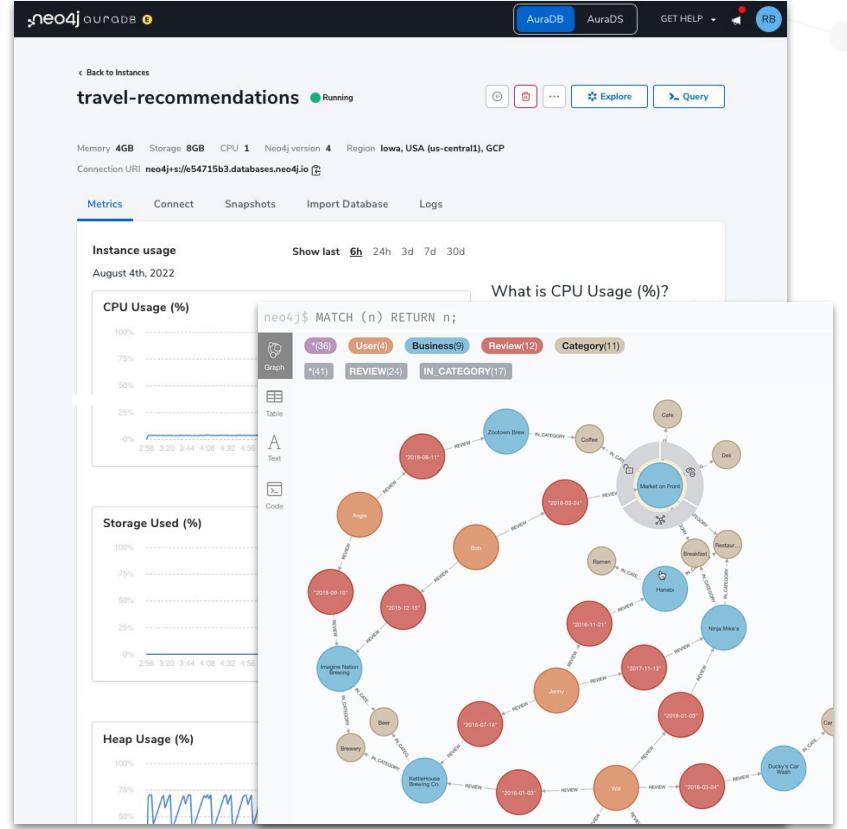
PROFESSIONAL

ENTERPRISE



Microsoft Azure

Early Access



Enterprise Grade Security and Compliance



Encryption
At-Rest,
In-Transit,
& Intra Cluster



Single
Sign-On



Dedicated
VPC



Granular Access
Controls -
Role-Based &
Schema-Based



Secure
Development
Practices

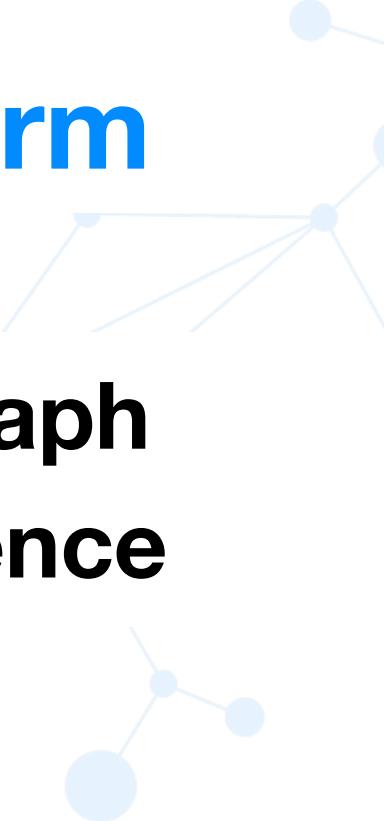


Neo4j Graph Data Platform

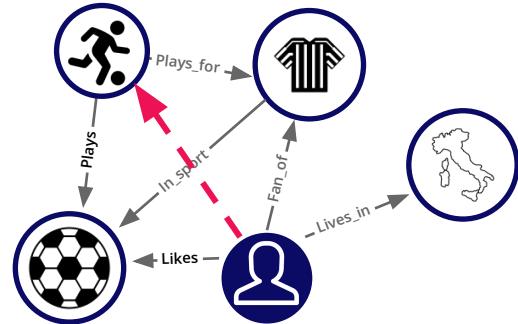
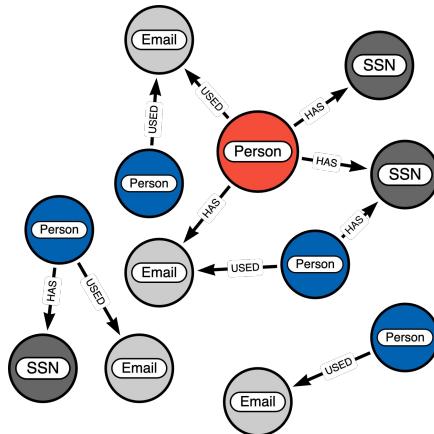
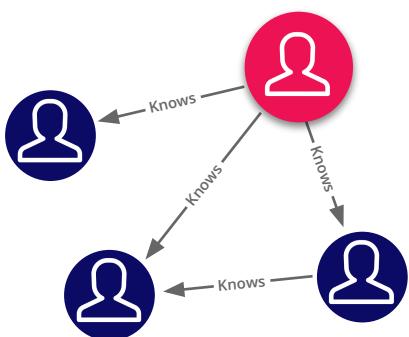


Neo4j Graph
Database

Neo4j Graph
Data Science



Graph Data Science Helps Make Sense of Your Data Relationships



What's *Important*?

What's *Unusual*?

What's **Next?**

Explore the hidden patterns and features in your data

Learn More



[What's New in Neo4j 5:](#)

neo4j.com/product/neo4j-graph-database/whats-new-neo4j-5/

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Thank You!
Let's take some
questions.

