Unleash the Power of your Data with Graph Technology

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GM, GraphAware ANZ

GraphAware® + neo4j

PFIZER

Readiness for billions of vaccinations was an unprecedented supply chain and logistics challenge for Pfizer.

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ACROSS INDUSTRIES

At the heart of every enterprise challenge is an explosion of data complexity

CSX
Transport operations

CBA
IT Network Analytics

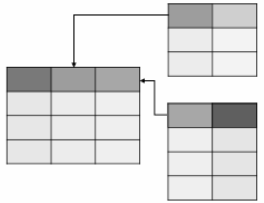
DXC
Workforce Analytics

CONNECTION COMPLEXITY

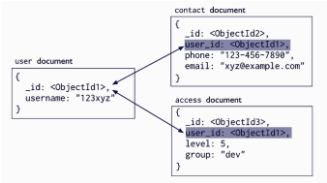
How will the enterprise navigate this data explosion at scale?

Legacy systems can't keep up

"Relational" Databases
don't handle relationships well



NoSQL Databases
don't handle relationships at all



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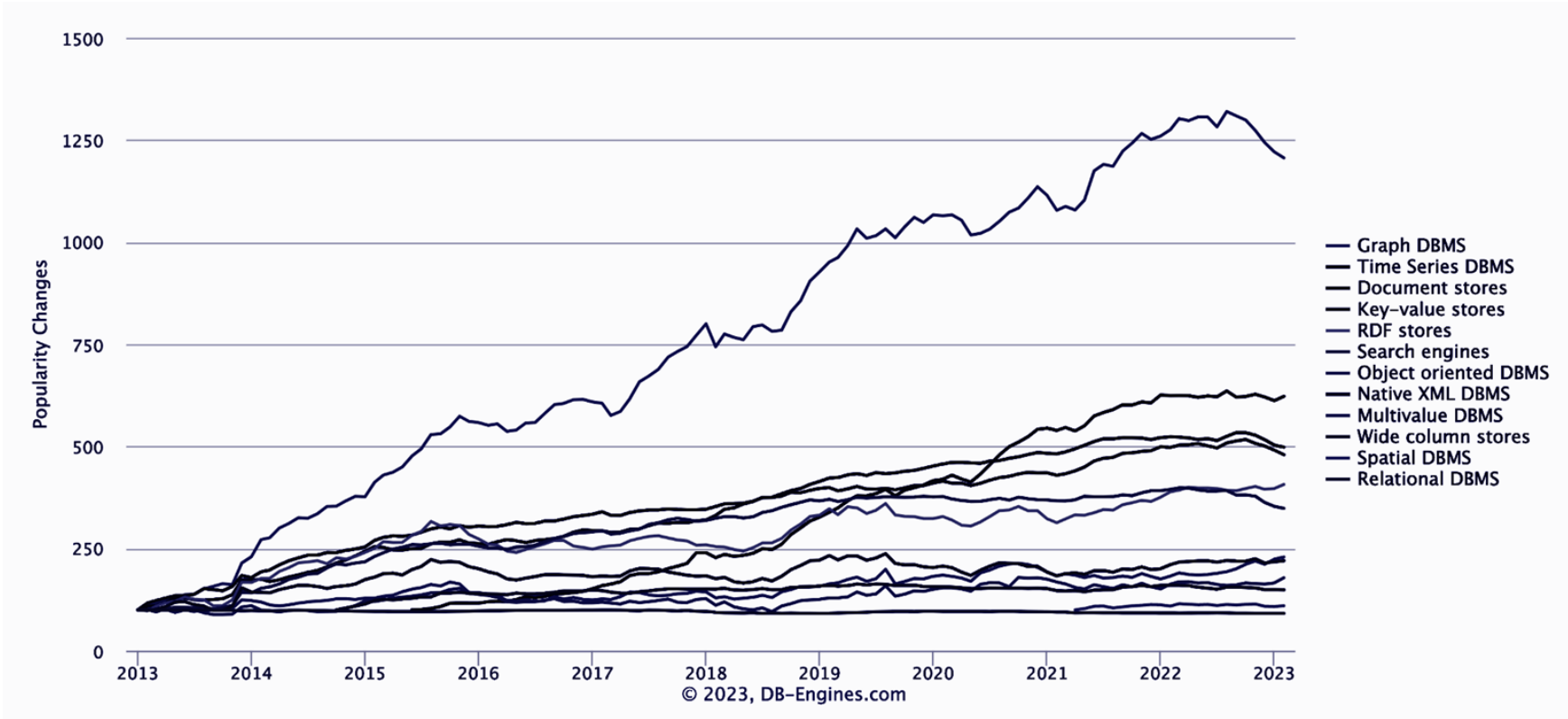
THE FASTEST GROWING DATABASE CATEGORY FOR 10 YEARS



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SOLVING DATA COMPLEXITY

Graph powers the next generation of enterprise data applications

PFIZER

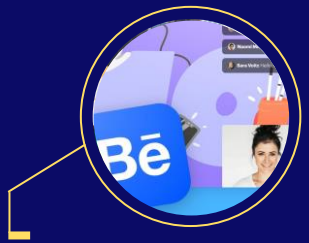
5x improvement in factory production lead time

CSX

A digital twin covering 1,800 daily trains and 50K rail carts

CBA

Real-time IT network observability, from weeks to mins to assign IT assets



Adobe

Reduced data footprint from 50TB to 40GB. Millions saved in AWS fees

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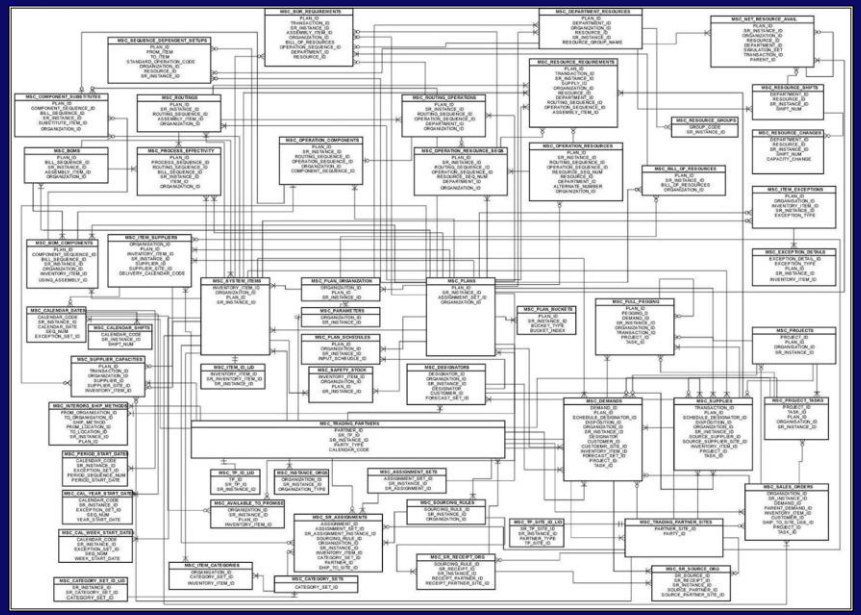
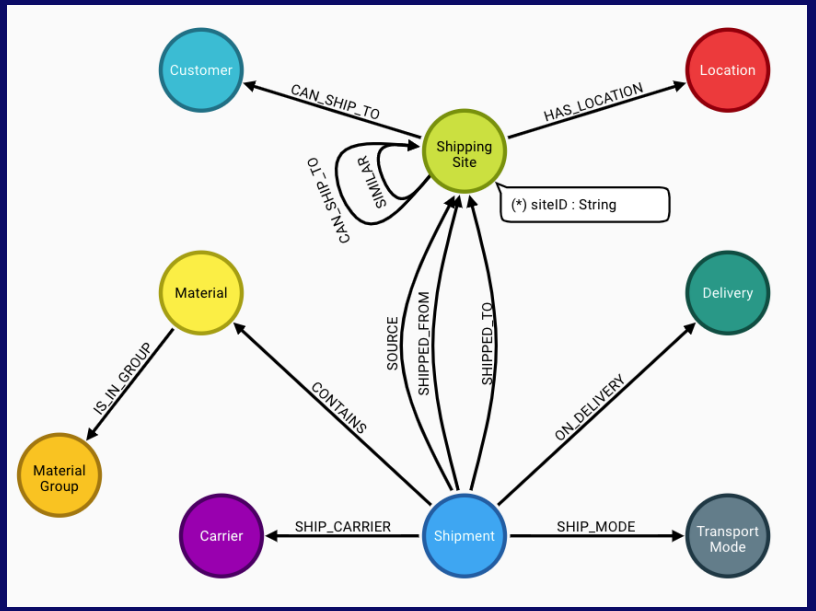
Graphs have low complexity





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The Modern Data Store Landscape

Operational Data Stores

System of record for all applications

Analytical Data Stores

Historical data for predictions and reports

Connected Data Explosion

ISV

Cloud Platforms

Priority for leaders

"By 2025, graph technologies will be used in 80% of data and analytics innovations, up from 10% in 2021…"

Gartner

Jim Hare et al., Understanding When Graph Analytics Are Best for Your Business Use Case, 10 Apr 2022.

Dan Newland

Experienced graph data engineer and general manager for GraphAware ANZ.

Deloitte.

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Hume & Neo4j

Hume is a mission-critical graph analytics solution that puts the power of **Neo4j** native graph performance in the hands of **intelligence analysts**.

Hume provides a simple to use interface that allows intelligence analysts to **search, visualise and analyse** intelligence graphs.

GraphAware + neo4j

Hume makes Australian communities safer.

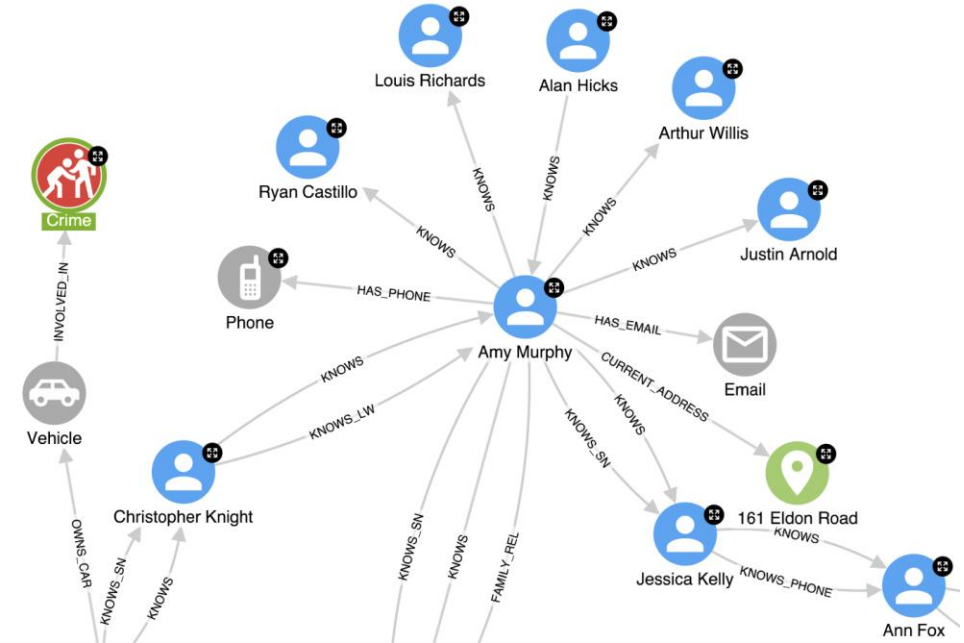
By empowering link analysis, and breaking down information silos

"The centralisation of data from numerous standalone systems allows us to identify links and associations much more efficiently in one place. The system has instantaneously produced results that would have taken a human a significant amount of time to conduct manual analysis, and in some cases identified links that would have unlikely been identified at all."

A Little Bit of History

From the cork board, to the canvas, to the graph

"Link analysis procedures were developed and evaluated to aid law-enforcement agencies integrate collected information and develop hypotheses leading to the prevention and control of organized crime… results confirmed the utility and potential value of these procedures." Harper & Harris, 1975, The Application of Link Analysis to Police Intelligence



Consider the most common intelligence analyses

The questions being asked are **graph based** and are best answered with a graph native platform.

- Show me how person X and person Y are interconnected.
- Show me how this gang is sourcing their funds
- Show me the communication events between two individuals
- Who are the most influential parties within a criminal organisation?

But wait - can't this be done with existing tools?

To some degree, yes, but only if you are willing to accept some **significant limitations.**

- Tabular tools will not be able to efficiently return complex queries
- They will not be able to enable complex pathfinding and graph algorithms needed
- They will be slow and provide a poor use experience
- They will not enable visual graph exploration

The challenges intelligence teams face

1 **Siloed data sources**

There is no central store of data, or curated views that have been put together.

2 **Relational stores for link analysis**

Intelligence analysis requires analysis at depth. This is difficult to do with relational stores.

3 **Siloed analytical tooling**

There is no single tool used by everyone for everything.

4 **Ad-hoc data collection**

LE is unique in that any given case may require unique data to be loaded and analysed.

5 **Manual analysis**

Intelligence becomes a manual process due to lack of connected data and tooling.

6 **Enormous data volumes and variety**

Large volumes and variety of data makes intelligence challenging.

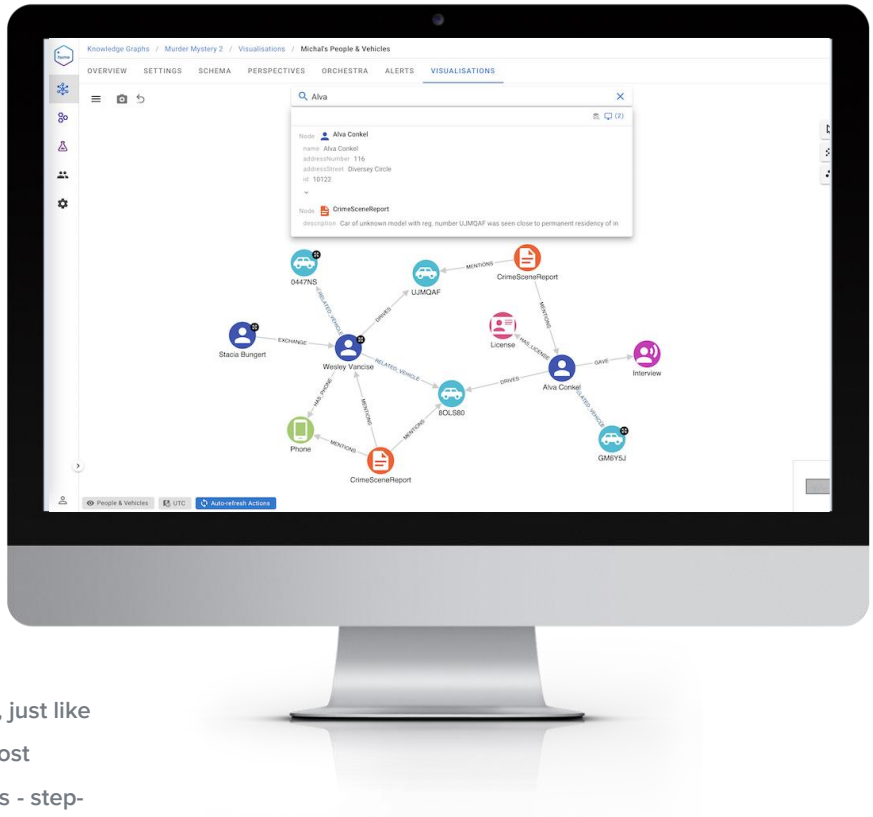
Siloed data

Often analysts search through dozens of data stores to find the information they are looking for.

Often none of these data stores are connected to one another.

A single view of Intelligence

Intelligence holdings are ingested into Neo4j, and made available in Hume. Creating a single view of intelligence for your analysts.



Searchable

Hume automatically makes all ingested data full-text searchable, making it easy to find the right starting points for analysis.

Connected

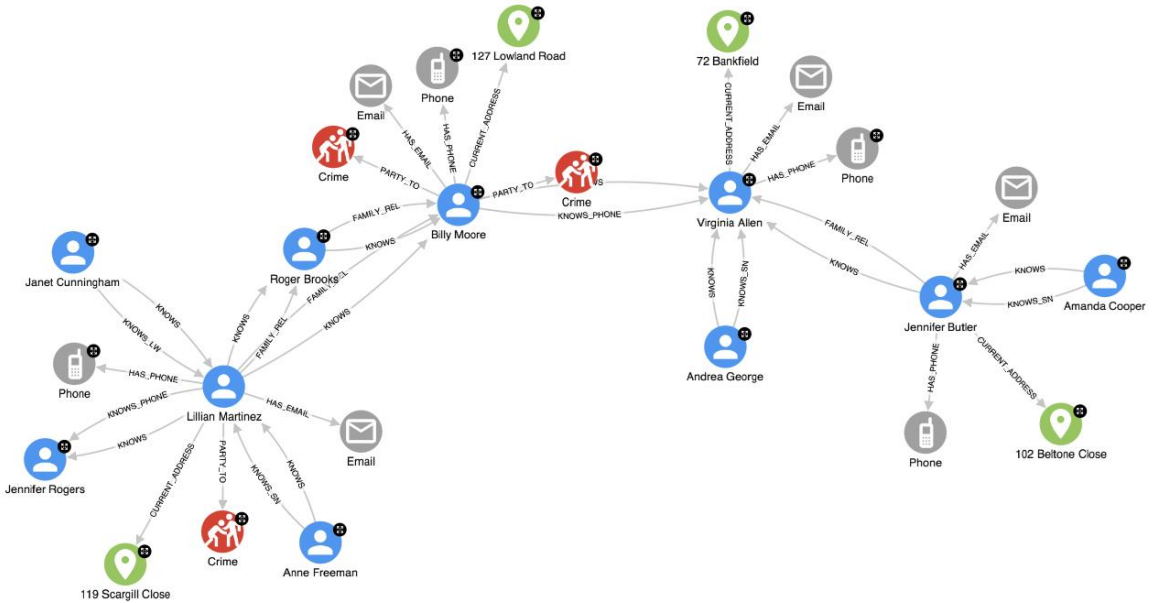
All the data in Hume is connected, just like the real world. This enables the most trivial, yet powerful kind of analysis - step-by-step exploration of the network.

Using tables to analyse criminal networks

In truth, intelligence analysts have been using graphs for decades.

But they have been doing this without graph native tooling.

	First name	Last name	Gender	ZIP	Town
t_1	Alex	Smith	m	55302	Brighton
t_2	John	Kramer	m	55301	Brighton
t_3	Lindsay	Miller	f	55301	Rapid Falls
t_4	Alex	Smith	m	55302	Brighton
t_5	Alex	Miller	f	55301	Brighton



Graph based analysis with a graph data store

Utilising the Neo4j store, Hume is able to quickly and easily analyse criminal networks of interest.

Flexible

Actions can return exportable tables, charts, as well as various graph formats, including a convenient preview of results.

Powerful

Actions inherit the full power of Cypher and Neo4j GDS, plus a lot more. E.g., it's easy to call an external API.

Thank you

To find out more about Neo4j and GraphAware, visit us at **Booth 9**