Case Study

Digitate

Digitate, a TCS Venture, Selects Neo4j to Power Its Flagship AI Product

INDUSTRY
Enterprise Product Development

USE CASE
Artificial Intelligence & Analytics

GOAL
Develop an AI product that optimizes complex business operations

CHALLENGE
Core data store needed extraordinary capacity and speed

SOLUTION
Neo4j now at heart of the award-winning ignio system

RESULTS
- Digitate's entire understanding of each customer based on Neo4j
- The success of ignio "impossible to achieve" with any other solution

Digitate's ignio AI platform enables companies to optimize their critical business and IT operations. Only Neo4j offered the storage capacity, processing and query speeds required to deliver ignio's award-winning performance.

The Organization

Digitate is a strategic business unit within TCS, the leading global provider of IT services, digital and business solutions. Headquartered in India, TCS operates in 46 countries, has over 400,000 employees and is itself part of the multinational Tata Group. Digitate was launched in 2015 specifically to develop innovative, enterprise-level products. Its 450 staff are based in India, the U.S., UK, Europe and Australia.

The Challenge

Digitate's flagship product, ignio, is an AI (artificial intelligence) system that enables organizations to optimize their most complex business areas – like IT data centers, batch manufacturing, and operations run by SAP or similar ERP tools.

What all these areas have in common is they involve lots of regular and predictable processes, yet nothing that always remains the same. Many functions can change, not work or run differently from the last instance. ignio enables companies to address this problem by automating the processes, then intelligently analyzing how they will perform in the future in order to maximize their efficiency.

The challenge for Digitate was to find the right core technology to sit at the heart of ignio. It needed a database that could capture and analyze every element of the customer's business operation – like the mass of servers and apps that make up a data center – and the complex inter-relationships between them. For smaller customers, this meant a data store with perhaps 250,000 nodes and 1 million relationships, and for large customers millions of nodes and multiple millions of relationships.

In particular, the database needed to be able to collect and model masses of past production data, in order to predict and prevent problems. As Digitate's Head of Product Engineering, Harish Iyer, said, "The more historical data you have, the better your predictions can become. Using historical data and current data, for example, you can identify what alerts and incidents can be ignored, for now, attended to later or what needs attention right now."

But Digitate's existing PostgreSQL relational database was struggling with this wide range of demands. Iyer said, "All of this was quite cumbersome to do in an RDBMS. We had to do large offline computations, which created problems in terms of consistency of this information. Hence we started looking at a purpose-fit database that could help us achieve this."

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"What we are getting from Neo4j is something we would not have been able to achieve using any other database. It would have been impossible with any other solution."

– Harish Iyer,
Head of Product Engineering, Digitate

The Solution

Digitate assessed a range of possible solutions and approaches, like Apache TinkerPop and RDF triple stores versus labeled property graphs. It decided graph technology was the best approach and reviewed multiple graph database companies.

Digitate conducted an evaluation based on multiple parameters: hard factors such as performance metrics (data volumes handled, response behavior, etc), scalability, availability and functional features (support for various data types, multiple relationships between nodes, bi-directional relationships, etc.), as well as soft factors like user community and market presence.

"We finally chose Neo4j because we are very serious about our product and we wanted a technology that we could trust for the long term," Iyer said. "Neo4j has a leading market share in the graph market and a good thriving community, which gave us the confidence that this is the way to go. The Neo4j community was a huge benefit as part of the total package."

Now, he said, "Neo4j is a key cog within the ignio technology framework. Our entire understanding of each customer's enterprise structure, constituent parts and relationships is based on the Neo4j graph store."

The Result

ignio's success is due to the fact that companies of any size can use it to automate their business-critical operations in a more effective and (artificially) intelligent way than current approaches allow.

"This isn't just simple automation," Iyer said. "It requires cognitive automation, more higher-level thinking, an understanding of how things behave and are connected to each other."

Neo4j was the only product Digitate found that delivered these capabilities while scaling from the smallest to the largest customers' needs.

"Neo4j helps us achieve our functional requirements of being able to handle this kind of complex structure," Iyer said. "What we are getting from Neo4j is something we would not have been able to achieve using any other database. We couldn't have this product with an RDBMS or any other type of data store. It would have been impossible with any other solution."