Case Study

CAST

Graph Technology Fuels Rapid Development of IT Architecture Visibility Solution

INDUSTRY
Software

USE CASE
Impact Assessment / IT & Network Operations

CHALLENGE
– Companies need a detailed view of their IT architecture

STRATEGY
– Create a web application to capture and visualize relationships in enterprise software

SOLUTION
– CAST chose Neo4j for its performance, scalability and ease of development

RESULTS
– Rapidly developed a web application that provides MRI-like visibility into complex software

– High-performance queries regardless of the size and diversity of the code base

CAST Software needed a way to accelerate their digital transformation for improved visibility into application and system development. With Neo4j, they now have near real-time access to all software without impacting query response times.

The Company

CAST is the pioneer and leader in Software Intelligence, providing deep visibility into the internal structure of software. CAST operates in North America, Europe, India and China, with more than 350 employees, including 150 in research and development (R&D).

The Challenge

With digital transformation, companies have more and more applications at their disposal that support business activities. Organizations, in turn, also face multiple problems: software is increasingly complex, solutions are quickly obsolete and development team turnover is significant. These situations naturally raise issues around knowledge transfer and maintenance of installed systems.

Damien Charlemagne, Group Product Manager, explains: "CAST technology is the product of a cumulative R&D investment of nearly 200 million euros over 25 years and is to engineering software what MRI is to medicine – a unique, fast, non-intrusive investigative capability that's extremely precise."

To provide visibility into the development of these applications and systems, CAST offers software intelligence – or, insight into complex software structures.

"In order to have real visibility of all the software components of a company, the solution that seemed to be the most appropriate was graphs, in particular, because they allow us not only to see all the components but also to identify the different relationships between them," said Charlemagne.

"The problem is that these relationships are extremely numerous and had no real logic. The graph database seemed to be the solution: it's easy to use and allows quick analysis of all these relationships via a powerful query capability."

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> "Thanks to the simplicity of Neo4j, we were able to develop our solution in one year with five developers, one software architect and myself."

– Damien Charlemagne, Group Product Manager

The Strategy

CAST decided to build a prototype using Neo4j as its graph database, and Linkurious for graph visualization, which work in tandem to provide high performance and ease of use. Neo4j's maturity and responsiveness were key to their choice.

Based on Neo4j, development of the CAST Imaging System began. In less than one year the first version was available. "Thanks to the simplicity of Neo4j, we were able to develop our solution with five developers, one software architect and myself," said Charlemagne.

The Solution

The first version was released as a web application. The CAST application scans a customer's systems and code, and then gives users web-based visualization of all their software projects and components.

Following the example of Google Maps, which allows a top-down view with the possibility to zoom into street-level, the CAST Software solution offers the same type of functionality for software – a vision of the general architecture down to the level of a line of code.

Now development teams can obtain accurate and usable information from potentially millions of lines of code to become productive within a very short period of time.

In the CAST Imaging System, each software component is represented by a node. And for a hundred nodes, there are potentially several thousand relationships the solution can highlight. This also allows for better internal collaboration around complex software systems.

The Results

Today, enterprise software includes an average of 50 different technologies and from 10,000 to 50 million lines of code. Neo4j allows searches in near-real time on all software without the size impacting query response times.

"The scalability of Neo4j opens up all the fields of possibility by allowing us to go even further," Charlamagne said.

"Indeed, in the long term, we plan to incorporate intelligent management and machine learning to further optimize the solution that we offer to our customers. In the near future, thanks to Neo4j, our customers will be able to intelligently group nodes, when it makes sense."

Neo4j is the leader in graph database technology. As the world's most widely deployed graph database, we help global brands – including Comcast, NASA, UBS, and Volvo Cars – to reveal and predict how people, processes and systems are interrelated.

Using this relationships-first approach, applications built with Neo4j tackle connected data challenges such as analytics and artificial intelligence, fraud detection, real-time recommendations, and knowledge graphs. Find out more at neo4j.com.

Questions about Neo4j?

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