CASE STUDY

Neo4j Drives Recommendations & Website Optimization

To optimize the user journey on its website and in its online store, Bechtle relies on Neo4j, a graph database that offers the scalability and performance needed to query web data in context and generate relevant recommendations.

BY THE NUMBERS

100M nodes

400M relationships

40K+ products

INDUSTRY

IT Products and Services

USE CASE

Real-Time Recommendations

OBJECTIVE

Optimize the user journey by analyzing user interactions on the website and generating recommendations

CHALLENGE

Process hundreds of thousands of website actions per day and conduct detailed structural analysis needed to generate real-time recommendations

SOLUTION

Use Neo4j to capture a complete model of web interactions and derive insights and recommendations

RESULTS

- Holistic view and seamless analysis of user journeys
- Targeted, relevant product and content recommendations
- Optimization of website, including search and navigation

The Company

Bechtle AG operates about 80 IT system houses in Germany, Austria, and Switzerland and is one of the leading IT companies in Europe, with ecommerce companies in 14 countries. The group employs over 12,800 people and supports more than 70,000 customers with cross-vendor, seamless solutions. In 2020, Bechtle's revenue was more than 5.8 billion euros.

The Challenge

Bechtle's website provides visitors and customers alike with comprehensive information and products in the areas of hardware, software, and IT services. More than 40,000 products and thousands of informational pages are available on its website. To improve the customer experience on the website and gain insights into website usage for further optimization, Bechtle needed a new solution that went beyond common web analytics. Bechtle sought an approach where the structure of the data – and not the data itself – is the focus.

The Solution

"Real-time recommendations require completely new data models and queries. Every day, we record hundreds of thousands of actions on our website," explains Zoltan Kovacs, Project Manager at Bechtle. "If we want to optimize the customer experience, we need to be able to evaluate this data in real time."

The Neo4j Graph Database is used for two crucial use cases at Bechtle: reporting and real-time recommendations. Anonymized customer interaction data is aggregated into key performance indicators for reporting.

Neo4j also makes it possible to find correlations between products and content in real time and display them to the customer as recommendations. This is how Bechtle created its Ginni recommendation system.

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Niklas Lang, Artificial Intelligence Engineer

"You don't get valuable insights from the data itself, but from the structures it forms," says Niklas Lang, Artificial Intelligence Engineer at Bechtle. "In graph databases, these structures are in the foreground. From them, we can extract truly relevant context for the customer and for us. And this is exactly where Neo4j meets our requirements in terms of functionality and performance."

In Neo4j, the Ginni recommendation system generates a detailed model of all the actions customers take on the website. The model is as complex as it is meaningful.

Graph algorithms can be used to derive correlations from these patterns to connect products with other products, information, or services.

"We see which products end up in the shopping cart after which search terms," said Zoltan Kovacs. "This helps us to continuously optimize the system and improve navigation for visitors and customers alike."

The Results

By modeling interaction data in Neo4j, Bechtle can gain a more complete understanding of its business and go much deeper into analyzing user journeys – the prerequisite for creating an improved customer experience. Most importantly, the graph creates much-needed context for AI and ML over all of this data.

"There are a lot of valuable insights in a user journey that can tell you whether an online store is actually working and whether a visitor is finding their way around the site," said Niklas Lang. "To do this, you have to be able to read between the lines. This is where the Neo4j Graph Database makes a significant contribution for us."

Questions about Neo4j?
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