Case Study

Cisco Systems

Real-Time Graph Analysis of Documents Saves Company Over 4 Million Employee Hours

INDUSTRY
Information Technology

USE CASE
Knowledge Graph / Master Data Management

GOAL
Decrease time spent by sales team searching for documents necessary to close deals

CHALLENGE
Documents were difficult to find, wasting time for sales people

SOLUTION
Cisco used Neo4j to store and assign metadata tags to all content within the database

RESULTS
– Saved each of Cisco's approximately 18,000 sales personnel one hour daily
– Provided sales team with extra time to engage new potential customers

The sales team at Cisco Systems relies on an extensive series of documents that help them close deals with potential customers. By using Neo4j, Cisco was able to create a metadata graph to make relevant sales content findable, saving the company millions of hours of otherwise-wasted staff time.

The Company

Cisco Systems is a worldwide IT leader that designs, manufactures and sells networking equipment to enterprise and service providers, small businesses and individuals. With more than 70,000 employees in over 165 countries, they are constantly working to create and patent new networking technologies. An integral part of their DNA is creating long-lasting customer partnerships, working with to identify their needs and provide solutions that support their success.

The Challenge

Because of the scope of Cisco's sales pipeline, there is a huge amount of content – such as documents, files and presentations – in their internal database that Cisco's sales team relies on to sign potential customers.

However, there was a major content findability problem: Each salesperson spent up to one hour every day trying to find the content relevant to their prospects' needs.

The company was relying on a typical index-driven search engine their employees could search with a series of keywords. But because files didn't have assigned metadata, it was a challenge to pull up relevant content.
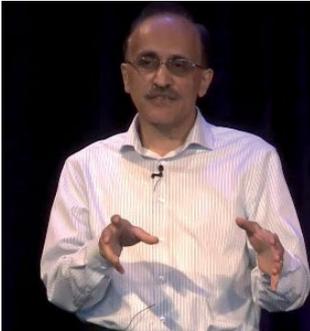
"The problem was too much content, and no deeper understanding of the content," said Prem Malhotra, Director of Cisco Content Services. "We had to ask ourselves, 'How can we make the search engine do a better job, and what is the missing link?'"

The Strategy

To address their findability issue, Cisco had a big job ahead of them.

They would have to assign metadata to all of their content and find a way to make conventional document browsing smarter so their sales team wouldn't have to go through long, complicated routes to get to the relevant content. They would also need to assign metadata tags to a huge library of historical files and tag new documents in real time.

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> *– Prem Malhotra*
> *Director of Cisco Content Services*

The Solution

Cisco turned to Neo4j to solve these challenges.

To assign metadata to the large collection of Cisco's historical documents, the first step was to transform the file types – such as Microsoft Word and PDF – into an latent Dirichlet allocation (LDA) format so the documents could be clustered by large data platforms.

Once the documents were clustered, a collection of common keywords and phrases were fed into Neo4j, where they were combined to create an ontology.

For real-time document processing, the document is sent from the content management system to a machine tagging service that reprocesses the document, assigns tags and adds the keywords and phrases into the Neo4j database while returning the document to the document repository.

The ability to assign metadata to historical data – and in real time – solved Cisco's content findability problem.

But Neo4j took it one step further.

Based on keywords, content ratings and the number of times the document has been accessed, Neo4j was also able to provide content recommendations, providing sellers with additional information they could leverage when closing deals with customers.

The Result

Now Cisco has a robust search engine that saves their staff time and increases their ability to focus on additional customers.

They have fewer search results which are in turn more accurate and effective. With about 20 million documents, search is done in half the time.

After A/B testing, Malhotra said, "Search results were as good as your manual curation of content, which means that manually you can tune the relevance to get an outcome."

Cisco created their own global sales kit to converge related content together so their salespeople can click on any grouping of subjects. The sales kit tracks views and how often a piece of content was downloaded – all of that rich information comes back to their system.

Cisco's sellers now have the ability search their vast document database and quickly provide relevant content to their customers and prospects.

The company now saves **over four million hours a year** that are now used to engage with more prospects and close more deals.

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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