



Graph Technology is Staking a Claim in Enterprise Roadmaps

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Biography

Emil Eifrem is CEO and co-founder of Neo Technology (<http://neo4j.com>). Previously Chief Technology Officer of Sweden's Windh AB, where he headed up the development of highly complex information architectures for Enterprise Content Management Systems, Emil famously sketched out what today is known as the property graph model on a flight to Mumbai in 2000.

Since then Emil has devoted his professional life to building and evangelising graph databases, and jokes that as a result he plans to save the world through graphs and own Larry Ellison's yacht by the end of the decade.

He is a frequent conference speaker and a well-known author and blogger on NoSQL and graph databases, as well as co-author of the agreed Bible on graph databases, O'Reilly's Graph Databases (<http://graphdatabases.com/>).

Keywords Graph databases, NoSQL, SQL

Paper type Opinion

Abstract

As the SQL monolith splinters, we are ending up with increasingly more data handling options for CEOs. Innovation is inspiring new ways of working. But who is likely to wear the next Oracle or DB2 mantel? In this article, the author explains why consolidation and market transformation in the data world is inescapable.

Introduction

A decade ago, SQL databases reigned supreme – but the landscape has changed and a varied lineup of NoSQL database models have arrived on the scene that are garnering interest in the business world.

Suddenly, we have gone from just a few options to a plethora of choice, as the industry explores new ways of working with data in different, shapes, sizes and formats. Developers have tested and instigated new data models, including key-value, column-family and in my company's case, graph databases. Relational databases have managed to hold their own. But new alternatives have appeared that are taking on the SQL Servers, Oracles and DB2s at their own game. Some are niche, others have become widespread. Right now, DB-Engines include more than 300 different options as enterprises research ways of solving increasingly complex data challenges (http://db-engines.com/en/ranking_categories).

The truth is we have reached a turning point. In a highly competitive market not all these options can survive. At the same time, data is changing. The big question is



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which databases will really be able to transform business and deal with the pressures of ever increasing amounts of information.

By 2022, I foresee data divided into three distinct markets: The first part will be the relational world. SQL is not going to hit an upturn in growth, but it is an important and established technology and is not going to disappear. There are still many applications and use cases for relational, and a large number of enterprises still rely on them. It will still play a key role in enterprise data processing.

Next we will see the tier one non-relational database in the NoSQL field. Here we will see a small number come to the fore – and some have already appeared. MongoDB for documents, for example, Redis for key value, Cassandra for column family and my company's Neo4j for graph databases. Each of these has its own native model, but they will also provide secondary functionality for other data models. This will create some cross over between use cases and will also form the foundation for solid commercial growth.

Finally, we have the tier two non-relational databases that will target niche models. These will include models that the leaders have not had the bandwidth to invest in such as geospatial and time-series databases, for example. Being small use cases they will not have the same commercial span, but they will still forge a valuable market segment for themselves.

Relationships

So this is how the database market will be mapped out as I see it. But, what happens when we put graph technology under the microscope. As the creator of Neo4j, this is obviously my model of preference. The figures, however, prove that this space has seen remarkable growth. This is despite all the competition thrusting for a position in the NoSQL space. Graph database technology has been placed first in the fastest growing category of database for the last three years, according to DB-Engines.

What drives this growth and graph technology's commercial success is the underlying belief that with graph databases the relationships between data are as important as the data itself. These relationships are paramount. Why? Because enterprises today are looking to connect everything – from supply chain, accounts and CRM to social media and customer data. The enormous value in rapidly making these connections is key to a competitive edge.

The connected enterprise is at the epicenter of modern business. Graph databases have seen rapid growth. This year, and into the future, I believe that graph database technology will become an enterprise wide standard for all Fortune 500 companies.

The connected enterprise enables an agile business that can innovate new products and processes, expand operations and ultimately improve the bottom line. Have you started connecting yet?