

## Case Study



## Cerved

Companies and Their Economic Connections  
Are More Transparent Thanks to Big Data Intelligence

## INDUSTRY

Finance

## CHALLENGE

- Improving calculation efficiency and rapidity for identification of the people who directly or indirectly control companies
- Obtaining a top-level technology for big data network analysis

## STRATEGY

Abandoning the conventional database system in favour of a graph system for network analysis applications

## SOLUTION

- Use Neo4j to identify the actual owner of a company
- Distribute the system to multiple teams working in different business areas in the company

## RESULT

- Up to 99% increase in the application's response times for identification of actual owners of companies
- Simplification of database architecture and greater robustness
- Lower maintenance costs
- Greater precision and security for customers

Cerved is Italy's leader in credit risk analysis and one of Europe's biggest rating agencies. It offers the most complete range of products and services – employed by about 34 thousand companies and financial institutions – to assess their business partners' solvability and credit-worthiness as well as monitor and manage credit risk at all stages. Moreover, through Cerved Credit Management, Finservice and Recus, Cerved offers services pertaining to the assessment and management of overdue debts.

Cerved is a rating tool recognised by the Central European Bank under the Eurosystem Credit Assessment Framework, has 1230 employees and earned more than 331.3 million euros in revenues in 2014, with an EBITDA of 160.1 million. Since 2014, Cerved has been listed on the MTA of the Italian Stock Exchange as Cerved Information Solutions S.p.A.

## Challenge

Technology and performance are key to Cerved's services, handling more than 34,000 customers a year and over 800 terabytes of data from a multitude of different sources. The added value of its services lies in the ability to process this information rapidly in order to provide customers with the intelligence they need to make the best possible decisions.

"Cerved posed several challenges that led us to experiment with Neo4j in 2011 and then use it in production," explains Innovation & Data Sources Manager Stefano Gatti, "but the first challenge, and the most concrete, was to increase the efficiency of the application that identifies the 'real owner' of a business in order to generate a real-time response."

The "real owner" of a business is the individual who, in the final analysis, owns and controls the company, either directly or indirectly owning at least 25% +1 of its share capital. Identification of real owners was introduced in Italian legislation in 2007 with Law 231 for the prevention of money laundering, and is of crucial importance for the world economy, from enterprises to credit institutions and public administrations.

"This is why we were looking for technologies that would make it easy for us to conduct network analysis with a view to developing new applications that would add value to the 'links' emerging between our data," says Gatti.

## The Solution

Unsatisfied with a system based on a relational database, Cerved's specialists started looking at Neo4j, the graph database platform created by Neo Technology.

And so the Aracne project began within Cerved. The Milanese company's analysts needed a system capable of writing algorithms that would link their accessible datasets. These network links were a critical reason why Cerved analysts considered a graph database, because graph database systems offer greater efficiency than relational databases.

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– *Stefano Gatti, Innovation & Data Sources Manager*

“Neo4j was pretty much an obligatory enterprise choice in 2012 because it was, and still is, the strongest graph database system for a company like Cerved that has a large number of customers linked via web with applications that query our services in real time,” notes Cerved Chief Technical Officer Antonello Mantuano. “The information Cerved has on Italian companies represents a natural graph reporting on the existing interconnections between Italian companies. Development took about nine months, including production of the technology, which had in the past been used only in advanced research environments. The result is a robust, efficient, high-performance implementation for identification of the actual owners of businesses, with the participation of multiple teams: A solution that now allows us to promote graph database uses in other areas of the company as well. This expansion facilitated comprehension of the technology even by the people in the company most directly linked with the business, encouraging development of other uses currently underway.”

### The Results

Internally, the Neo4j-powered solution allowed Cerved to simplify processes and cut maintenance and development costs. The introduction of Neo4j marked a change for the company's customers too, as they now enjoy use of real-time applications and, above all, better information quality.

Neo4j's graph platform also made it easier to create other applications based on Aracne, and adoption of Neo4j made it possible to oversee the technology's evolution over the years and allowed it to be used by customers and suppliers.

“The transition to Neo4j technology,” says Gatti, “has at least doubled the level of service for identification of the actual owner of businesses, from an average calculation time of 12 seconds to 67 milliseconds (-99 %) in cases that require tracking of up to 15 ownership links. This allowed us to extend its use and improve the precision of the algorithm at the same time.”

This single – but important – improvement to the algorithm increased customer confidence in Cerved's data. Because especially in the world of finance, the strategic value of real ownership information cannot be overstated.

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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