ORACLE
Customer Success

Customer Success Story

Paysafe

ORACLE

- Company: Paysafe processes online transactions for businesses all over the world.
- Challenge: Relational database queries took hours to check for transaction red flags.
- Solution: Oracle graph analytics enabled these same checks in seconds to quickly detect fraudulent transactions.

Paysafe:

BACKGROUND

Based in London, England, Paysafe is a market leader in the online payments industry with more than 20 years of experience. Founded in 1996, Paysafe offers customers a wide range of proprietary solutions from online transactions to in-store payments to global ecommerce to mobile order and delivery. This all-encompassing scope and worldwide reach—spanning a staff of 3,000 people across 12 global locations—allows Paysafe to be a true one-stop solution for customer needs.

Paysafe prides itself on flexibility and agility; both traits are a significant reason why it has seen annualized transactional volume of more than $80 billion USD. Speed and security are paramount for online transactions, which means a sharp focus on customer service whether at the end-consumer or the business operating the payment gateway.

A significant part of maintaining high levels of security and customer experience means utilizing the latest technology to continuously improve Paysafe's solutions. Whether driven by regulatory change, customer evolution, or the growth of new technologies, Paysafe's staff always keeps an eye on the future to stay ahead of the curve. In recent years, this can be seen in the company's commitment to utilizing graph analytics.

"They allow you to dig a bit deeper. They allow you to see the data about the data. They allow you to see the connections. It's something that when you start using graph databases, you start seeing questions that you didn't even ask before."

Yavor Ivanov
Global Head of Database Administration at Paysafe

BUSINESS CHALLENGE: PROCESSING AT THE SPEED OF FRAUD

As a real-time online payments company, Paysafe deals with companies and customers all over the globe—in fact, more than 200 payment types across a variety of currencies worldwide. From its London, England headquarters, Paysafe is counted upon to securely transfer funds and authenticate transactions, particularly in the betting and gaming industries.

Because these industries lack the type of universal regulations found in traditional banking and investment industries, Paysafe is exposed to risk and fraud at higher levels than more traditional payment outlets. And with the company acting as the go-between between customers and gaming/gambling platforms, securing real-time payments—and real-time customer service—while maintaining reliability is a priority. Speed, configurability, and player access are all key to an all-around successful customer experience, but even the best experience can be undercut if trust is damaged.

In 2014, the growing volume of transactions and increasing complexity in fraudster actions prompted Paysafe to examine further options for identifying fraud through data and machine learning. Using relational databases, Paysafe's existing technology failed to analyze data fast enough to catch fraudsters or stop fraudulent activity. As data volumes and users grew, so did the complexity of gaining insights from the data. The patterns and markers that flag fraudulent behavior required increased CPU resources, extra processing time, or simply couldn't finish in a relational database setup.

"Dealing with a lot of money means there are a lot of people who want to abuse your system, to use it in not such a nice way, not such a legal way," says Yavor Ivanov, global head of database administration at Paysafe. "So we have to be able to detect and to stop those, be it fraudsters or other types of people that want to use our systems for not such a good resource."

For example, Paysafe's fraud team would attempt to run traditional SQL queries to determine if a fraudster was up to four relationships away from a highly active customer. By the time the system generated an answer—days, possibly weeks—the fraudsters would have long disappeared with the money.

The solution, then, was to institute a graph-based solution that examined complex relationships between data. Paysafe ultimately selected Oracle Spatial and Graph, a component of Oracle Database:

THE SOLUTION: ORACLE'S BIG DATA FAMILY

Before implementing Oracle Spatial and Graph, Paysafe manually pored through thousands of transactions, which wasted hours of effort and included various levels of risk due to the impacts of a labor-intensive process on accuracy. Moving into a graph analytics platform offered a much faster and easier way to understand the relationships between data—and the patterns between those relationships. "They allow you to dig a bit deeper. They allow you to see the data about the data. They allow you to see the connections," Ivanov says. "It's something that when you start using graph databases, you start seeing questions that you didn't even ask before."

Paysafe implemented a series of rules to quickly identify if further identification was needed before approving a transaction, or if a transaction should be flagged for deeper investigation. With known fraudsters identified in the database, a user's record could be analyzed for relationships with the simple rule that if they were connected to a fraudster by two degrees, additional verification could be required. If fraudsters were three or four degrees away from the transaction, they could be flagged for further analysis or pushed onto other types of standard queries. With machine learning powering the identification algorithms and queries, the more data processed, the faster and more accurate identifying potential fraud became. One of the best uses of graph analytics stems from its ability to provide context when examining a transaction.

Paysafe went beyond Spatial and Graph to incorporate further pieces of the Oracle family. Oracle Database, Oracle Exadata, Oracle Active Data Guard, and Oracle GoldenGate were all, utilized, creating a comprehensive platform for Paysafe. As a cohesive unit, this suite of products streamlined and revamped numerous elements of data safety, transparency, and analysis for Paysafe, and the results spoke for themselves

RESULTS: FASTER BY ORDERS OF MAGNITUDE

Through Oracle's family of products, Paysafe found itself better able to serve customers in a timely manner and improve the customer experience, all without exposing any parts of the transaction to more risk. The process started by using Oracle GoldenGate to retrieve data from Oracle Exadata, then put it into a staging area in a graph database format. An external tool converted PL/SQL to graph tables, ultimately generating the format that enabled relationship analysis.

Moving into graph analytics increased Paysafe's process exponentially. What used to take hours executed in seconds, saving so much time that different analyses could be examined as a means of pushing the data even further. Specifically, Paysafe's backend officers found that the tough fraud cases used to require up to an hour for an investigation. Using Oracle Spatial and Graph, this was reduced to mere minutes, all while improving the quality of the investigation by providing newer, different insights and freeing up time and effort for diving further as needed. Considering that transactions take place in real time, this level of efficiency offers a new level of trust and security for both end users and platform operators.

"We played with a query that took 50 minutes in the relational database. And of course, this made it impossible to run in real time. We cannot process the transaction in 50 minutes. That's why we used the different approaches to screen the payment, because we have to screen the payment, too," says Stanka Dalekova, senior developer at Paysafe. "But the more checks we have, the better we can evaluate if the payment would be fraudulent or not, and we will be more on the safe side and still process more transactions."

While the Paysafe team expected better speeds, particularly with executing queries, the overall increase in efficiency exceeded all projections while minimizing the company's reliance on manual identification. Instead, any manual effort was able to be reserved for driving more fine-grained analyses on a wider range of money or different types of fraudsters. This level of analysis and resource efficiency simply was not feasible before.

It's not only about fraud. We can analyze our payments network, our device agent networks, we can feed graph topology and machine learning algorithms. They help us uncover how much more we can do."

Stanka Dalekova
Senior Developer at Paysafe

From a bigger picture perspective, the accumulation of data explored via graph analytics created behavioral models for additional use cases. This enabled monitoring of communities that arose within the payment system; by analyzing data based on these specific relationships, Oracle Graph and Spatial transformed a previously time-consuming task into mere seconds, all while expanding the scope of detectability for fraudulent behavior.

“We have at least orders of magnitude improvement,” Ivanov says. “Things that were taking us hours, now we can finish in a minute or two. It’s so easy to visualize the payments—so easy.”

Finally, because everything is powered through Oracle Database and protected by products like Oracle Active Data Guard, downtime has been eliminated even when a database experiences severe corruption. This redundancy has allowed for Paysafe to continuously be there for customers despite any circumstances.

CONCLUSION: UNLIMITED POSSIBILITIES WITH BIG DATA

With Oracle’s family of products, Paysafe has found a robust solution that impacts all elements of its organization. As the company has introduced further data sources—and those data sources generate large volumes of data—the spotlight has shone brighter on speed, accuracy, and security. From a bigger picture perspective, though, the introduction of Oracle’s capabilities has meant a greater set of tools for many more possibilities. Starting with Oracle Spatial and Graph, this new configuration is much more than just a solution; it creates a foundation for the future. “It’s not only about fraud,” Dalekova says. “We can analyze our payments network, our device agent networks, we can feed graph topology and machine learning algorithms. They help us uncover how much more we can do.”

ORACLE CORPORATION

Worldwide Headquarters
500 Oracle Parkway, Redwood Shores, CA 94065 USA

Worldwide Inquiries
TELE + 1.650.506.7000 + 1.800.ORACLE1
FAX + 1.650.506.7200
oracle.com

CONNECT WITH US

Call +1.800.ORACLE1 or visit oracle.com. Outside North America, find your local office at oracle.com/contact.

blogs.oracle.com/oracle facebook.com/oracle twitter.com/oracle

Integrated Cloud Applications & Platform Services