



rackspace
technology™

ONICA
a rackspace technology company

Customer Case Study — Financial

M1 Finance secures transactions and accelerates fraud detection on AWS

Rapid growth led to the collection of ever-increasing amounts of data, and the need to break down data silos.

Our customer

M1 Finance, a groundbreaking online financial services company, offers an innovative integrated money management application for investors who want to access features such as automation, leveraged investing and banking services.

How we helped

AWS Cloud, Amazon Simple Storage Service (Amazon S3), AWS Glue, Amazon Athena, Amazon Redshift Spectrum, AWS Lambda.

The obstacles they faced

M1 Finance realized that its current infrastructure wasn't equipped to handle its current rate of growth. It needed an efficient and scalable data pipeline on Amazon Web Services (AWS) to capture and process login data, allow rapid querying and accelerate fraud detection.

What we achieved together

M1 Finance leveraged Onica's (a Rackspace Technology company) professional services for AWS to handle increased growth while improving its fraud-detection capabilities.





“Onica’s team really went above and beyond in ideating and implementing the solution. A great degree of passion and craftsmanship was visible in the code style and design of the implementation, which is rare to find in these kinds of engagements and really awesome to work with.”

Richard Whaling,
Lead Data Engineer, M1 Finance

Intelligent financial management

M1 Finance is a groundbreaking online financial services company headquartered in Chicago. The company offers an innovative money management application for intelligent investors who want to access features such as automation, leveraged investing and banking services, all wrapped into one integrated solution. Its mission is to empower people with tools and automation to improve their financial well being.

M1 Finance has been growing rapidly, scaling its employee count from the mid-30s in 2019 to more than 65 employees in 2020. The

company’s platform has also experienced significant growth, with over 200,000 accounts reaching approximately \$2 billion in assets and counting. To ensure a secure user experience, M1 Finance aims to provide a seamless interface with robust security and fraud detection.

Legacy infrastructure inhibits growth

M1 Finance’s platform was built on AWS prior to its engagement with Onica. The company had a data warehouse comprising an Amazon Redshift cluster managing just under 400GB of data. The cluster facilitates

its internal analytics needs and serves as a clearinghouse for data from backend services as well as third-party vendors and other sources.

In addition to the data warehouse, M1 Finance has a data lake using Amazon S3 that serves as a staging ground for loading data into Amazon Redshift and as an archive store. However, the data lake wasn’t equipped with capabilities for ad hoc queries — a functionality M1 Finance was looking for to improve its fraud detection capabilities.

With rapid user growth, the company found it was collecting significantly higher amounts of data from internal systems than what could fit in its existing data warehouse. Handling

such high data volume could get very expensive with traditional data warehousing.

Additionally, the company also had Java applications, which had accumulated data over many years, that could be highly useful for fraud analytics. This data was trapped in silos of legacy databases and it wasn’t able to find a solution to query a high volume of rapidly moving data with its existing system.

As an organization in the financial industry, M1 Finance takes user data security extremely seriously, and it’s imperative that its team has the ability to track system access and usage to detect and prevent fraud. The company’s existing process for reviewing system logs was manual and not

scalable. As the volume of data and logs continued to increase, the company required a more efficient process to execute a task that is highly time-sensitive.

The M1 Finance team wanted real-time visibility into suspicious activity so it could respond as soon as possible. It learned about Onica from the AWS Jumpstart program and was impressed with Onica's expertise and capabilities. It found the team had insight and knowledge that could be valuable to M1 Finance's needs.

A clear goal leads to a strong solution

Onica worked closely with the M1 Finance team to architect and build a solution leveraging AWS services for enhanced automation, visualization, analysis and data reporting. The Onica and M1 Finance team worked collaboratively to achieve clarity on project scope.

The Onica team designed an efficient and scalable data pipeline to capture small AWS Database Migration Service files dropped into M1 Finance's Amazon S3 bucket from its authentication database. Login event data is captured, organized, partitioned and data partitions are registered within an AWS Glue data catalog. The files are compacted into fewer larger files for optimal I/O performance, which can then be queried through Amazon Redshift Spectrum or Amazon Athena.

Onica extended the capabilities of its database by creating a separate data path. This facilitates a variety of cost controls, access controls and governance that can be applied at the Amazon Redshift Spectrum or Amazon Athena query interfaces. Together, this allows M1's engineering team and frontline fraud analysts with SQL knowledge to query the data dynamically

and in real-time without requiring an engineer's expertise.

The solution implements Amazon S3, AWS Glue, Amazon Athena, Amazon Redshift Spectrum, and AWS Lambda. Amazon Redshift Spectrum was used because the data was also going to be combined with other data already within an existing Amazon Redshift cluster. Amazon Redshift Spectrum uniquely provides an additional layer where data can live outside of the data warehouse on Amazon S3, but still be queried like it's within the cluster. This allows M1 Finance to avoid paying large costs for querying a large scale of data, and still maintain optimal functionality.

"Onica's team really went above and beyond in ideating and implementing the solution," said Richard Whaling, Lead Data Engineer at M1 Finance. "A great degree of passion and craftsmanship was visible in the code style and design of the implementation, which is rare to find in these kinds of engagements and really awesome to work with."

Real-time scalability and efficiency

The new solution streamlined the process significantly, automating what was previously done manually over multiple hours to a practically real-time solution. The design of the solution provides scalability, low cost operation and integration with existing data sets.

Furthermore, the solution offers great flexibility, replacing the process of needing to queue tasks for an engineer with one where data analysts can perform ad hoc dynamic queries. M1 Finance business users now have the ability to build robust queries at scale and are able to address their multi-petabyte size data sources and return meaningful timely results. This provides a significant

advantage in fraud detection where every minute reduced in processing time can mean proportionately greater success and improved security.

To help mitigate cost risk for M1 Finance, Onica built alerts for Amazon Redshift Spectrum and Amazon Athena. M1 Finance's team was also pleased with the delivery of the solution that was carefully tailored to its existing practice and unique use case. The company felt confident about the way Onica's team handed-off the solution, and educated the M1 Finance team in effective implementation and management.

"Onica's team demonstrated a strong ability to be thought leaders and also be implementation experts. It is rare to find a partner who is so honest about bill rates and targets to come under budget for customers. The Onica team builds trust and confidence that they care about our problems and about producing custom solutions that are highly effective and cost-efficient."

Steve Gall, VP of Engineering, M1 Finance

About Rackspace Technology

About Rackspace Technology™ is the multicloud solutions expert. We combine our expertise with the world's leading technologies — across applications, data and security — to deliver end-to-end solutions. We have a proven record of advising customers based on their business challenges, designing solutions that scale, building and managing those solutions, and optimizing returns into the future. As a global, multicloud technology services pioneer, we deliver innovative capabilities of the cloud to help customers build new revenue streams, increase efficiency and create incredible experiences. Named a best place to work, year after year according to Fortune, Forbes, and Glassdoor, we attract and develop world-class talent to deliver the best expertise to our customers. Everything we do is wrapped in our obsession with our customers' success — our Fanatical Experience™ — so they can work faster, smarter and stay ahead of what's next

Learn more at www.rackspace.com or call **1-800-961-2888**.

This case study is for your informational purposes only. RACKSPACE TECHNOLOGY MAKES NO WARRANTIES, EXPRESS OR IMPLIED, IN THIS CASE STUDY. All customer examples and the information and results illustrated here are based upon the customer's experiences with the referenced Rackspace Technology services and are not necessarily indicative of the future performance of Rackspace Technology services. Rackspace Technology detailed services descriptions and legal commitments are stated in its services agreements. Rackspace Technology services' features and benefits depend on system configuration and may require enabled hardware, software or additional service activation. Actual cost of specific hosted environment and performance characteristics will vary depending on individual customer configurations and use case.

Copyright © 2020 Rackspace - Rackspace®, Fanatical Support®, Fanatical Experience™ and other Rackspace marks are either registered service marks or service marks of Rackspace US, Inc. in the United States and other countries. All other trademarks, service marks, images, products and brands remain the sole property of their respective holders and do not imply endorsement or sponsorship.

October 8, 2020 / Rackspace-Case-Study-M1-FIN-TSK-2022-V2