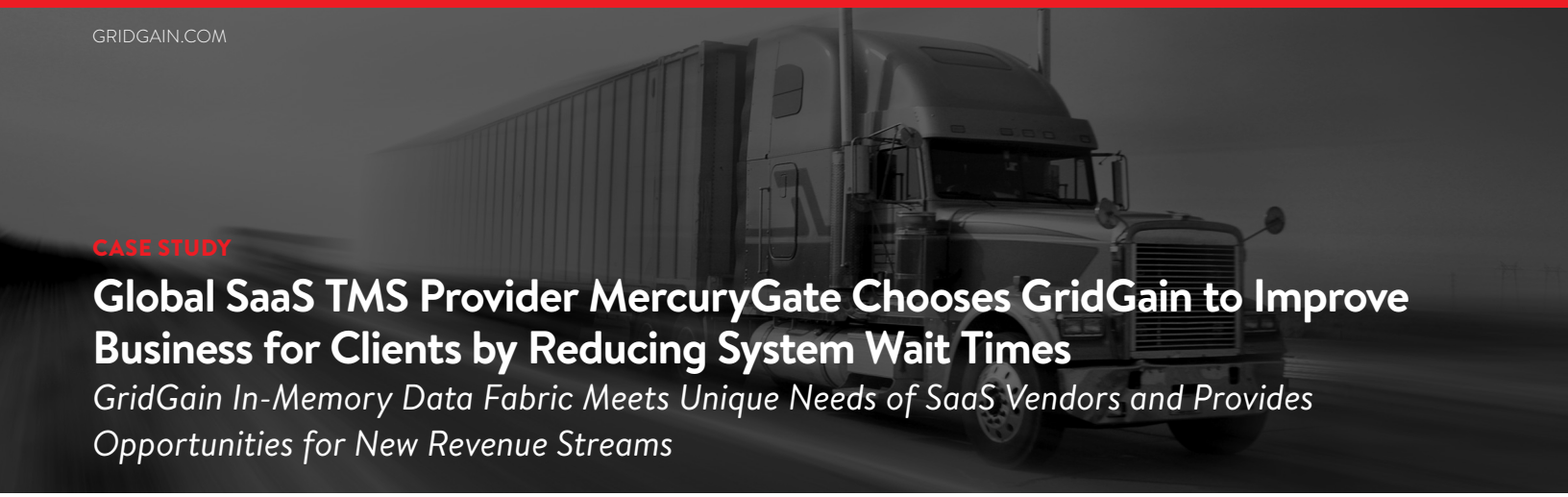

CASE STUDY

Global SaaS TMS Provider MercuryGate Chooses GridGain to Improve Business for Clients by Reducing System Wait Times

GridGain In-Memory Data Fabric Meets Unique Needs of SaaS Vendors and Provides Opportunities for New Revenue Streams

MercuryGate
TMS that delivers.

CHALLENGE

MercuryGate International, a SaaS TMS technology provider to global shippers, brokers, freighters and third-party logistics companies, needed to increase infrastructure performance to reduce system request wait times, add horizontal scalability to meet growth demands, and apply new memory management techniques used to build UPS-certified software.

SOLUTION

After determining a grid solution was the way to go and evaluating solutions from Hazelcast, Tibco, Oracle and GridGain, MercuryGate chose the GridGain In-Memory Data Fabric, a high-performance data access and processing solution with advanced in-memory caching and distributed computing capabilities.

BENEFITS

- With GridGain, the MercuryGate sales team can market new, higher-response-time service offerings to SaaS customers.
- MercuryGate's clients achieve higher customer stickiness and satisfaction due to shorter system wait times.
- Utilizing the GridGain In-Memory Data Fabric, the deployment of new server hardware can quickly and seamlessly scale (horizontally) the most processing-intensive operations of MercuryGate's software architecture

MercuryGate International delivers collaborative, global Transportation Management Systems (TMS) for shippers, carriers, brokers, freight forwarders and third party logistics providers. These solutions enable clients to plan, optimize, and execute global transportation movements while providing complete end-to-end control visibility and decision support. MercuryGate TMS opens doors to new growth opportunities while controlling costs related to managing parcel, intermodal, truckload and LTL (Less Than Truckload) shipments, as well as complex multi-leg, ocean, air, and rail movements.

SYSTEM MUST DELIVER

Software-as-a-Service (SaaS) TMS provider MercuryGate made a significant investment in its communications infrastructure in order to meet the demands of managing and delivering more than seven million files a week to thousands of its transportation trading partners. In the early 2000's, the company recognized the need to improve system performance in terms of database responsiveness for its customers requesting pricing from its very large rate tables. After exhausting use of its homegrown distributed cache solution, which worked better than the limited and subpar solutions available on the market, in 2014 the company began searching for a more robust performance solution. In addition to boosting performance to support the delivery of these millions of files quickly to clients, MercuryGate needed to add vertical scalability to its infrastructure and support the process of achieving UPS Certification.

> *"GridGain has not only solved our performance challenge, but it has provided us with a way to sell a premium service using GridGain, which results in an added revenue stream. It is a significant and obvious return on our investment."*
>
> **– Brian Armieri, Chief Technology Officer, MercuryGate**

Considering these requirements, MercuryGate started looking at grid computing solutions. "Our TMS allows customers to create very large and complex rate and zone tables," said Brian Armieri, Chief Technology Officer for MercuryGate. "We develop using Java and currently use VMware to virtualize servers. But we still have more than 60 production servers and an additional 40+ development servers across three data centers. Our clients range from small organizations to some of the largest third-party logistics providers, brokers and shippers in the world – some requiring dedicated hardware and others that share. It's a complex, distributed infrastructure."

The challenge for MercuryGate was to meet customer performance expectations: Clients require rate information on their many shipping needs first thing in the morning and they need it quickly in order to make smart decisions that keep them competitive, save money

GridGain

and increase profits. "In addition to exceeding a practical 3 GB limit we faced in our application due to JVM garbage collection, we needed to cut the time it took to for the very first rate request submitted in the morning," said Armieri. "Any single contract can rate very fast once the information is cached, but the first time the data for groups of hundreds of contracts is fetched from the database, and loaded to the cache, can take anywhere between 45 and 60 seconds. Many of our customers were asking us to deliver a faster solution for that very first daily rate request."

GRID, NOT GRIDLOCK, FOR SAAS PROVIDERS

This is where a grid solution is especially beneficial to SaaS vendors. From banks storing billions of transactions to data management firms storing millions of documents in clouds, teams using Java technology for high performance applications have to employ strategies to minimize JVM garbage collection and overall Java object creation. SaaS vendors like MercuryGate, with its millions of files and very large zone and rate tables, face these JVM-related issues as they collate an enormous amount of data very quickly, for many customers across a distributed network of servers. Enter: in-memory or grid computing.

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"The idea of a grid-based architecture really makes sense for SaaS vendors, so we decided to move in that direction. We need really fast response from the database to our cache first thing – a delay of even a minute (for a first request) is a risk that a user may stop waiting and go elsewhere," said Armieri. "SaaS providers need to take advantage of compute and memory – or cache – and an in-memory grid solution does that; it also adds horizontal scalability for reduced cost and enhanced customer service and confidence."

Armieri and his colleagues evaluated solutions from Hazelcast, Tibco, Oracle and GridGain and conducted thorough proof of concept tests with each. After thorough evaluations, MercuryGate selected the GridGain In-Memory Data Fabric. "GridGain was mentioned by Gartner as a vendor to watch, so we looked at their solution and we're glad we did. The POC went well and the team that came in was terrific. The data fabric solution GridGain offers is a particularly appealing combination of remote compute and grid

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cache," said Armieri. "We were able to drive our rating times low in our UPS certification project and it also solves our horizontal scalability challenges for client growth."

NO SPEED LIMIT

The GridGain In-Memory Data Fabric is an advanced, open source data access and processing software solution. Its features go far beyond those of traditional data grids, providing MercuryGate with unique in-memory caching, distributed computing and streaming capabilities, and it offers the SaaS TMS provider critically needed real-time performance, availability and reliability. Armieri is pleased with the ability to easily add new hardware to the solution for horizontal scalability, which is beneficial when a customer wants to increase its hardware allocation. MercuryGate also uses the GridGain Visor Dashboard for management and monitoring. GridGain Visor provides a high-level view of the overall performance of the grid, allowing the company to closely monitor performance and ensure customer satisfaction.

"The ability to easily snap in new hardware for horizontal scalability is key, whether to dedicate to a single customer, or use for multiple clients," said Armieri. "The most impressive benefit, however, is the performance boost and all-important wait time reduction. Finding the combination of cache and compute in a grid is powerful – some solutions offer one or the other, but only GridGain offers both."

The integration process went smoothly, and Armieri said GridGain has provided good support and responsiveness. "When GridGain brought in the solution during the evaluation phase, provided onsite training and conducted the POC, we were impressed. Our sales team has stayed with us from the beginning and they're all great points of contact," he said. "Some of the brightest minds have provided us with detailed answers to anything we've thrown at them."

Results have been both well received by customers and fruitful for MercuryGate. "The response from the database when our first client requested rates and wasn't pulling from cache, which as I've mentioned before took up to a minute, is well below 10 seconds with the GridGain In-Memory Data Fabric," says a pleased Armieri. "We couldn't completely eliminate the wait because our customers sometimes include carrier's web-service-based rates in the mix,

but GridGain has removed all the barriers it possibly could. Suffice it to say our client is very pleased and feels their customers are much stickier without the wait time."

DRIVING NEW REVENUE STREAMS

With GridGain deployed, MercuryGate offers a premium service for an additional charge, realizing an immediate return on its investment. Using GridGain Visor, MercuryGate is able to identify customers who are faced with long wait times and offers them the premium service, which can eliminate the delays that are such a risk to business.

"We've introduced an entirely new product offering, which is extremely well received with customers looking for that level of performance," said Armieri. "GridGain has not only solved our performance challenge, but it has provided us with a way to sell a premium service using GridGain, which results in an added revenue stream. It is a significant and obvious return on our investment."

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MercuryGate is happy with its choice and looks forward to implementing additional capabilities made possible by the GridGain In-Memory Data Fabric. MercuryGate is planning to roll out route optimizer and load balancing services using the GridGain In-Memory Data Fabric, which will benefit both its customers as well as its infrastructure.

"Cluster-based computing has been around a long time, but GridGain's In-Memory Data Fabric has really enhanced and optimized it for the SaaS landscape," said Armieri.

ABOUT MERCURYGATE

MercuryGate International delivers collaborative, global transportation management solutions for shippers, carriers, brokers, freight forwarders and third party logistics providers enabling them to plan, optimize, execute and settle global transportation movements while providing complete end-to-end control tower visibility and decision support. With MercuryGate's configurable architecture and workflow engine, MercuryGate clients are able to manage parcel, LTL, intermodal and truckload shipments as well as complex multi-leg, ocean, air, and rail movements.For more information, visit www.mercurygate.com.

ABOUT GRIDGAIN™

GridGain is revolutionizing enterprise data access and processing by offering the first enterprise-grade In-Memory Data Fabric built on Apache Ignite (incubating). The GridGain In-Memory Data Fabric is designed to conquer today's Fast Data challenges and unleash the competitive advantage of any real-time business, whether on-premises or in the cloud. Offering the most comprehensive, enterprise-grade in-memory computing solution for high-volume transactions, real-time analytics and hybrid data processing, GridGain enables Fortune 500 companies and innovative mobile, web and SaaS companies to anticipate and innovate ahead of market changes. GridGain is headquartered in Foster City, California. To download the GridGain In-Memory Data Fabric, visit http://www.gridgain.com/download/.

GridGain

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