

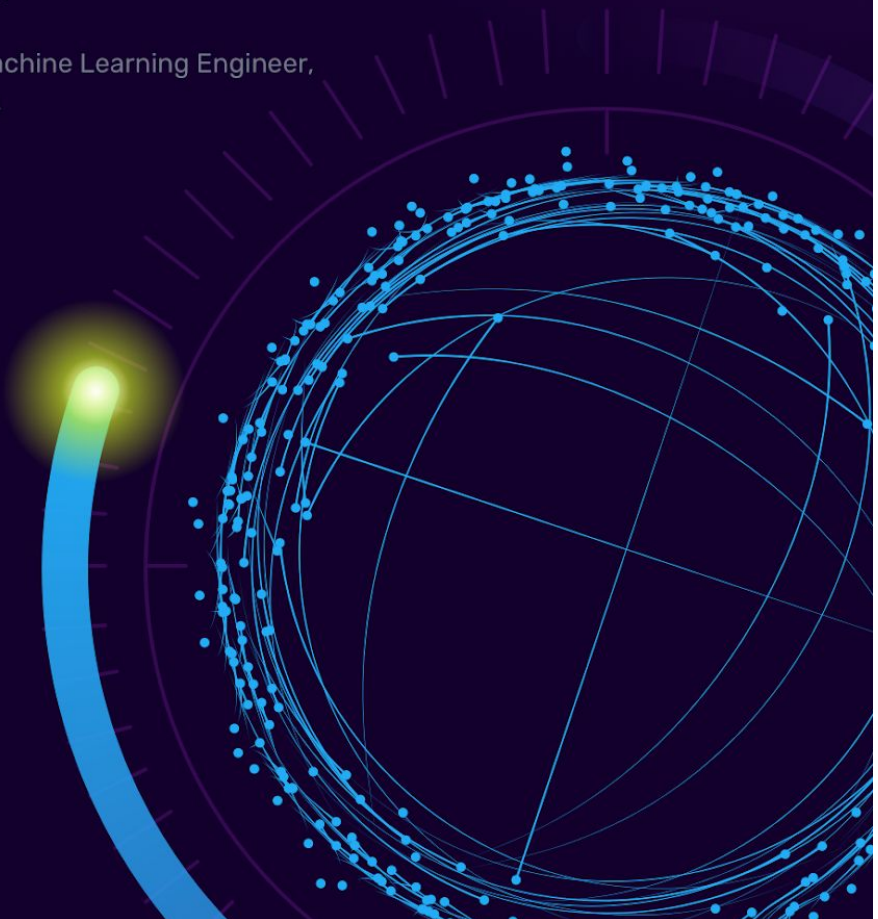


How ING Bank Netherlands Transitioned Diagnostics from an Expert-First to a Metrics-First Approach

CASE STUDY

Herminio Vasquez, Machine Learning Engineer,
ING Bank Netherlands

October 2019



Company in brief

ING Bank Netherlands is a global bank with a strong European base, with shares listed in Amsterdam (INGA NA, INGA.AS), Brussels and New York (ADRs: ING US, ING.N). They employ 53,000 employees, serve around 38.4 million customers, corporate clients and financial institutions in over 40 countries. Their products include those of a typical bank, such as savings, loans, mortgages, etc. as well as specialized lending, tailored corporate finance, debt and equity market solutions, payments & cash management and trade and treasury services to wholesale clients.

To create a superior customer experience and differentiate themselves from their competitors, ING Bank has focused on four strategic priorities: use advanced data capabilities to understand customers and meet their changing needs; implement innovations faster; think beyond traditional banking to develop new services and business models; and earn the primary relationship. ING prides itself in customer experience, sustainability and innovation. They believe that these priorities are what help differentiate them from their competitors.

They strive to partner with others to bring disruptive ideas to market faster, facilitate and finance society's shift to a low-carbon future and pioneer innovative forms of finance to support a better world. They seek to exceed their customers' ever-changing expectations, make banking easy and better, and to meet them where they are: on the digital platforms and smartphones, where they are shopping, socializing and doing business. Further, they believe that their real advantage is their mastery of data – knowing what people want and need helps them to drive value for themselves and their users.

Case overview

The mortgage team at ING Bank Netherlands was looking for a way to perfect the experiences of clients and complement their expertise with metrics. By acknowledging the ever-changing world of technology as well as customer expectations, the team began to move towards becoming a more data-driven organization.

This is where their implementation of InfluxDB came in – but it took some convincing – even within an innovative organization such as ING Bank. They had to steer a big boat that has legacy systems with legacy processes and methodologies towards uncharted territory of metrics-first data analysis. Herminio Vasquez, Machine Learning Engineer at ING Bank Netherlands and his team had to sell not

only metrics – they had to sell the expertise and the value and insight that can be derived from metrics, which is exactly what they did.

The mortgage team at ING Bank Netherlands was able to transition from a pure knowledge- and experience-based diagnostic of anomalies in their production environment, to a metrics-first approach enabled by InfluxDB and the TICK Stack. This transition empowered them to decrease their Mean Time to Resolution (MTTR), discover overbooking in virtual appliances, and much more.

“People don't buy drills, people buy holes. If you come [to your team] with the idea of metrics... what you're really getting into is the expertise, the value, the insight that you can get out of these metrics.”

Herminio Vasquez, Machine Learning Engineer

The business problem

ING Bank Netherlands' mortgage team works in a Mortgage Data Network that splits the market share on mortgages in the Netherlands. The team sells about 1,000 mortgages in an average week and 2,000 in a great week and have always looked into how they can increase their market share. They do so by providing a better service or lowering the time it takes to acquire a house but something as simple as lowering interest rates can multiply the number of mortgage applications coming in, so maintaining response times is crucial.

In order to ensure system response times and prevent their Customer Loyalty Team from being bombarded by phone calls from worried applicants, ING Bank Netherlands has to be able to run performance testing or reproduce realistic scenarios. In their former legacy systems, just to run a query from three months or one year prior took too much time, could prove frustrating, and did not provide the granularity they so badly needed. The mortgage team at ING Bank Netherlands was looking to perfect the experiences of their clients, so they began searching for a metrics solution that could deliver granularity, visibility, flexibility, and so much more.

The technical problem

ING Bank Netherlands' mortgage department had a number of challenges to overcome due to their legacy system. In order to solve the business problem, however, the entire mortgage team at ING Bank Netherlands had to be on board first. To convince the team to adopt a new system amidst everything else they have to do, they had to come up with a few reasons to steer this "big boat" that has legacy systems with legacy processes and methodologies in a new direction. In the words of Herminio Vasquez, Machine Learning Engineer at ING Bank Netherlands, "people don't buy drills, people buy holes," so he and his team had to sell not only metrics – they had to sell the expertise, the value and the insight that can be derived from metrics.

They found that it's important to recognize expertise that exists within their team and to look to others who have the experience implementing new technologies and figuring out how they did it. They've found that – apart from having the patience to motivate people to implement something by doing it – achieving change also involves motivating others to be open to adopting something and learning from those that are introducing new technologies. Herminio and his team worked diligently to change the way their team worked and alter their habits as the real challenge but also where the value lies – these changes would help the team develop good habits and therefore transform the organization, as a whole, into an expert, backed by data and metrics.

To put their technical plans into motion and keep the team on board, Herminio and his team decided they needed to identify their priorities and take smaller steps to transition from a pure knowledge and experience-based diagnostic of anomalies in their production environment to an expertise backed by a metrics-first approach enabled by InfluxDB.

Improving granularity was a huge priority for the team because they had so little in their legacy systems. As stated previously, they are a mature organization with a dated legacy system that was only collecting certain metrics and not others. On top of that, in an average week they sell anywhere from 1,000 to 2,000 mortgages, meaning they are taking in a massive amount of data each day.

Below is a summary of their priorities and what achieving them required:

- To increase their market share, they are always looking into ways to improve the customer experience whether it's lower interest rates, better service, or decreasing the time it takes for customers to acquire a home.

- To maintain their response times, or their Mean Time to Resolution (MTTR), when they lower interest rates, for example, and prevent their Customer Loyalty Team members being bombarded by calls when the system is running slow, a fair share of performance testing is required.
- To maintain normal IT operations, they have to be able to reproduce realistic scenarios. In ING's legacy systems, however, running a query from three months or one year ago would take too much time and prove frustrating.

By deploying InfluxDB, the team at ING found that they were able to greatly reduce the amount of time it takes to gather or extract the same amount of data – a big win for the team at ING and a huge plus for InfluxDB!

Another major obstacle ING Bank Netherlands' legacy system presented was a lack of visibility. In the words of Herminio: "It was very hard for us to say where or to pinpoint where the problem areas were in our systems because we didn't have any visibility. We didn't have any visibility because we couldn't extract the data. And when we wanted to extract the data, it was taking ages."

The solution

"It was very important that whatever technology decision we made, there [was] an entry strategy and an exit strategy. We have that with InfluxDB. They don't lock you down and that [provides the] flexibility that we were searching for."

Why InfluxDB and Telegraf?

To adhere to their IT strategy, it was very important that whatever technology decision ING Bank Netherlands made came with both an entry strategy and an exit strategy. This was one of the reasons they implemented InfluxDB – they weren't locked into some restraining contract and were allotted all the flexibility they were searching for. They also liked the fact that there is an open-source version.

Deploying Telegraf allowed them the visibility they required, provided fast aggregation queries, and proved to be an inexpensive metrics tool. Additionally, due to the vulnerabilities of banking data, ING

Bank Netherlands has to go through a vetting process when deciding on implementing new technologies. Because Telegraf is such a lightweight, composed agent and doesn't require a ton of space or hundreds of configurations, it was an easy sell.

In ING Bank Netherlands' use case, InfluxData serves as the foundational time series data platform and is ushering them into a new era, backed by data. After making the decision to deploy InfluxDB and Telegraf to collect and analyze metrics and events in their mortgage department, they were able to better meet the needs of their customers, get their whole team on board, and obtain all the data they could want.

With the newfound interchange of data and combined source of system and business metrics, the team at ING Bank Netherlands has gained more granularity and visibility into their data, allowing them to reduce their Mean Time to Resolution (MTTR). Further, the team at ING was able to implement retention policies to optimize query performance, and explore and present their data in ways they hadn't imagined before.

Results

"Our journey is just starting. We would like to carry on exploring the value of metrics. We have proven that metrics is our way forward. Our communication, our language, is now based on metrics."

InfluxData helped the mortgage team at ING Bank Netherlands transition from a pure knowledge- and experience-based diagnostic of anomalies in their production environment, to a metrics-first approach enabled by InfluxDB and the TICK Stack. It was a transition that empowered the mortgage team to meet its needs in terms of granularity, visualization, flexibility, and unifying previously separate business and system metrics to meet the needs of their customers and reduce their Mean Time to Resolution (MTTR). Using InfluxData, ING Bank Netherlands gained real-time visibility into metrics and events that were nearly impossible to access in the past; the ability to explore and present data in ways they never had before; and insights into a new way to work with metrics.

Incidentally, InfluxData empowered the mortgage team at ING Bank Netherlands to become experts. According to Herminio, one of the biggest reasons they decided to embark on the journey of adopting

InfluxDB was to allow their team to develop confidence and insight they wouldn't otherwise have. Shortly after they began working with InfluxDB, team members who previously had little-to-no background in statistics and metrics began identifying patterns, forecasting seasonality and identifying events – simple to some but a big step forward for the mortgage team at ING Bank Netherlands. They now had the understanding and confidence to act as experts in their work, something Herminio sees as often underestimated. Now with their confidence invested in metrics, their work, and themselves, they see that the possibilities are endless.

What's next for ING Bank Netherlands?

ING Bank Netherlands is planning to expand use of InfluxDB by:

- **Learning Flux** – the team at ING Bank Netherlands is interested in continuing their learning and would like to start with understanding this syntax/language.
- **Making a contribution to the community** – because of one instance where they lost data prior to enacting retention policies, a number of team members suggested making a contribution to the community to prevent others from experiencing the same issues. The team discussed writing a plugin so that when data is lost users can use a K-Means algorithm to tell you what kind of values existed previously.
- **Lowering the entry level** – because of all the data they were able to cultivate, their database and dashboards have become a little convoluted and people can get lost in the weeds. They are working to make their graphs and dashboards clear and aesthetically pleasing so that even the least technically-oriented consumers can understand the data.
- **Continue exploring the value of metrics** – they have proven that metrics is their way forward.

About InfluxData

InfluxData is the creator of InfluxDB, the open source time series database. Our technology is purpose-built to handle the massive volumes of time-stamped data produced by IoT devices, applications, networks, containers and computers. We are on a mission to help developers and organizations, such as Cisco, IBM, PayPal, and Tesla, store and analyze real-time data, empowering them to build transformative monitoring, analytics, and IoT applications quicker and to scale. InfluxData is headquartered in San Francisco with a workforce distributed throughout the U.S. and across Europe.

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