

#### AN INFLUXDATA CASE STUDY

# **EnerKey Uses InfluxDB to Save Customers Millions in Utilities**





# EnerKey Uses Weather And Geospatial Data To Help Clients Detect Energy Usage Fluctuations

## Company in brief

EnerKey is headquartered in Finland and aims to improve their clients' sustainability practices while also providing them with savings. They are ISO 50001 certified and provide ISO 14001 support. EnerKey helps organizations reduce energy consumption and environmental footprint. Their platform is used to monitor 15,000 + properties and is the first SaaS solution that combines sustainability and energy management. Their clients have saved up to 30% on utilities. EnerKey's solution has 80 + out-of-the-box integration with energy companies, building automation, measuring data systems, IoT devices, Solar PV systems, etc. Their API has simplified the integration process with connected systems and services.

#### Case overview

EnerKey needed a better time series data solution to address their raw data collection and analytics needs. They had outgrown their previous solution and knew they needed a more robust tool that was purpose-built for time series data. EnerKey's energy management platform has helped commercial real estate and managing companies easily manage distributed properties — they aim to improve sustainability practices and increase savings. EnerKey has chosen InfluxDB as their time series platform; they have enabled their clients with real-time data, advanced analytics and forecasting.

### The business challenge

EnerKey's clients include real estate owners and management companies, who have various distributed facilities. These commercial properties are spread across different energy companies' jurisdictions, and as a result, utility data (i.e. water, electrical, heating) is provided in 90+ data formats. Additionally, the data is stored in a myriad of locations, and are often provided in Excel. Their clients needed a better solution to manage all utility data across their properties. EnerKey needed a better solution to understand their time-stamped data in real-time and enable their clients with better insights.

### The technical challenge

EnerKey's platform was originally built on MySQL, and all time-stamped data was stored there. By 2016, it became clear they needed a solution that was purpose-built for time series data. Originally, their solution was quite manual, and the team knew they needed to automate their platform in order to handle billions of metrics and to be able to provide access to historical data. Their platform currently supports more than 80 out-of-the-box integrations with energy companies and they aim to grow the list. EnerKey's team knew they needed a platform that could be quickly spun up, collect data quickly, and organize the data by time.

#### The solution

EnerKey ultimately picked InfluxDB as their time series data solution. They considered PostgreSQL, MongoDB and Cassandra. Prior to selecting InfluxDB, EnerKey did a lot of testing and determined they needed a solution with enterprise-level support. They would need it while implementing a new tool. InfluxDB met their business and technical requirements: high ingest, native handling of time- stamped data and reliable storage and support. EnerKey needed a platform that could ingest energy, fuel, air quality, emissions, solar battery and other IoT metrics - through their 80+ integrations. They needed a reliable storage tool that could handle replication easily with an open source time series database; however they also need an enterprise-grade tool to address their clustering and support requirements

Their platform primarily pulls in customers' system data. InfluxDB is used for business data storage, calculations, platform metrics and aggregations. Chronograf is used to monitor their platform and for querying raw data mixed with metadata from Azure SQL. Grafana is utilized to monitor their production environment. They still use Azure as their cloud service provider.

EnerKey's products and services help energy organizations and property management companies modernize their utility reporting capabilities. Their platform offers a great customer experience and helps boost clients' competitive advantage. Their customers are able to offer additional services which increase value for the client and EnerKey's revenue. They have enabled their commercial real estate clients to more easily organize and differentiate energy utility bills for different tenants. Clients are able to manage energy consumption and improve efficiencies.



Figure 1: EnerKey's Data Acquisition Architecture

#### Results

Enerkey uses InfluxDB to monitor and improve internal operations. For example, alerts are generated and pushed out to their team when CPU and memory usage goes beyond a specified threshold. EnerKey is monitoring their API performance — for example, they are able to understand the total number of requests that are going through their different APIs. InfluxDB is used to enable better quality assurance of the time-stamped data; they need to make sure the data is consistent.

They are using Hangfire schedulers to pull data from various data sources and Hangfire is used to instruct Azure functions to pull the data in. Once it's in Azure, it's easy to handle as it's all converted into the same format. After the data is stored in InfluxDB, their platform is able to analyze the data to enable clients to compare data across different facilities and properties where the climate of the sites are different.



Kesko is a large retail organization in Finland with over 1,800 stories and they have saved 5 million euros annually. Prior to using EnerKey's platform, their goal was to reduce total energy consumption by at least 7.5%. Another customer realized that a grocery store was using an abnormal amount of energy compared to other stores of similar size and location. After having professionals on-site, they discovered that the installed condensing equipment was undersized for the location and replaced with the correct size. Since then, there hasn't been any more excessive cooling energy consumption.

By using all of the historical data available to them, EnerKey has created more accurate machine learning models by using Jupyter Notebooks and Python. These analyses have enabled clients to correlate the difference of energy usages for clients across different buildings. Some of the clients have saved up to 300 euros per month during the cold months. Factors that impact a building's utility usage include: temperature (inside and outside), ventilation and how occupied the building is. This adds up quickly for their clients who have 100-200 buildings. By reducing energy consumption, EnerKey's clients have saved money and reduced their CO2 emission and become more sustainable. EnerKey hopes to improve the accuracy of their machine learning models by collecting more time-stamped data and correlating it with other building and environmental characteristics (geospatial location, temperature).





Figure 2: Example Of Grafana Visualization

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I'm a huge fan of InfluxDB - it has been a key success factor for EnerKey, with all its ability to handle time series data.

Martti Kontula, CTO, EnerKey

### About InfluxData

InfluxData is the creator of InfluxDB, the leading time series platform. We empower developers and organizations, such as Cisco, IBM, Lego, Siemens, and Tesla, to build transformative IoT, analytics and monitoring applications. Our technology is purpose-built to handle the massive volumes of time-stamped data produced by sensors, applications and computer infrastructure. Easy to start and scale, InfluxDB gives developers time to focus on the features and functionalities that give their apps a competitive edge. InfluxData is headquartered in San Francisco, with a workforce distributed throughout the U.S. and across Europe. For more information, visit <u>influxdata.com</u> and follow us <u>@InfluxDB</u>.



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