



**EVEN GIANTS SOMETIMES  
NEED A LITTLE HELP  
THAT MEANS A LOT**



## About client

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### Oil Refinery Serbia

#### Gazprom Neft

is one of the largest vertically integrated energy systems in Southeast Europe. The main activities are research, production, and processing of oil and natural gas, sale of a wide range of oil and gas derivatives, and the realization of projects in the field of petrochemicals and energy. Apart from Serbia, NIS is also developing its activities in other countries of the Balkan region. Regional expansion takes place in two main directions - in the field of exploration and production of oil and gas (in Romania and Bosnia and Herzegovina) and through the development of a retail network (in Bulgaria, Bosnia and Herzegovina, and Romania).

## Project

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### AVS Custom Reports



*"They're professional, flexible, and dependable. Their team is always well-prepared for any discussions we have as well as any tasks we give to them. They work quickly through the delivery stage. You can trust them; they'll put forth their best effort to finish your job well."*

*Stojan Jovanović – Country Manager, Yokogawa*

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# Understanding client's challenges

Towards the end of 2016, the National Oil Refinery of Serbia completed an enormous project of setting up a new system for their entire oil production process. Two major companies implemented the project: Yokogawa - the world leader in industrial automation and control (IA), test, and measurement, and Soteica - the best-in-class energy management and optimization solution service for plantwide energy management solutions (EMS). They had a perfect implementation, but one aspect was still missing. They did not provide sufficient reporting for such a level of complexity and security risk, for this big oil-production company. Few reports that existed at the time were being pulled from the system for days. That reduced efficiency, missed out on considering all relevant factors, and impacted real-time reactions. In other words, it posed a problem of significant data latency and insufficient data accuracy that would be only solved with tailor-made reports.

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## Solution

Our main goal was to enable the National Oil Refinery to pull reports in a customized format. Additionally, we had to prioritize the time needed to do it. The entire process of oil derivative production relies on a Mass Balance system that controls hundreds of measuring instruments. These instruments transmit thousands of data per minute, so the only solution was making a Data Warehouse. Any other solution would not allow any space for maneuvering, flexibility, speed, and control, and would represent limitations for the outcome and future upgrades. The decision to go for a Data Warehouse turned out to be a big plus for future outcomes.

In June 2017, we started the onboarding and discovery process. After several meetings with stakeholders from the Oil Refinery, in charge of controlling and supervising the whole oil producing process, we confirmed our idea and started to develop a Data Warehouse. To implement the project with a prominent level of quality, we invested a lot of time and effort to understand the extremely complex domains, processes, and procedures. Understanding a client's needs and problems is crucial for increasing efficiency, service quality and saving time.

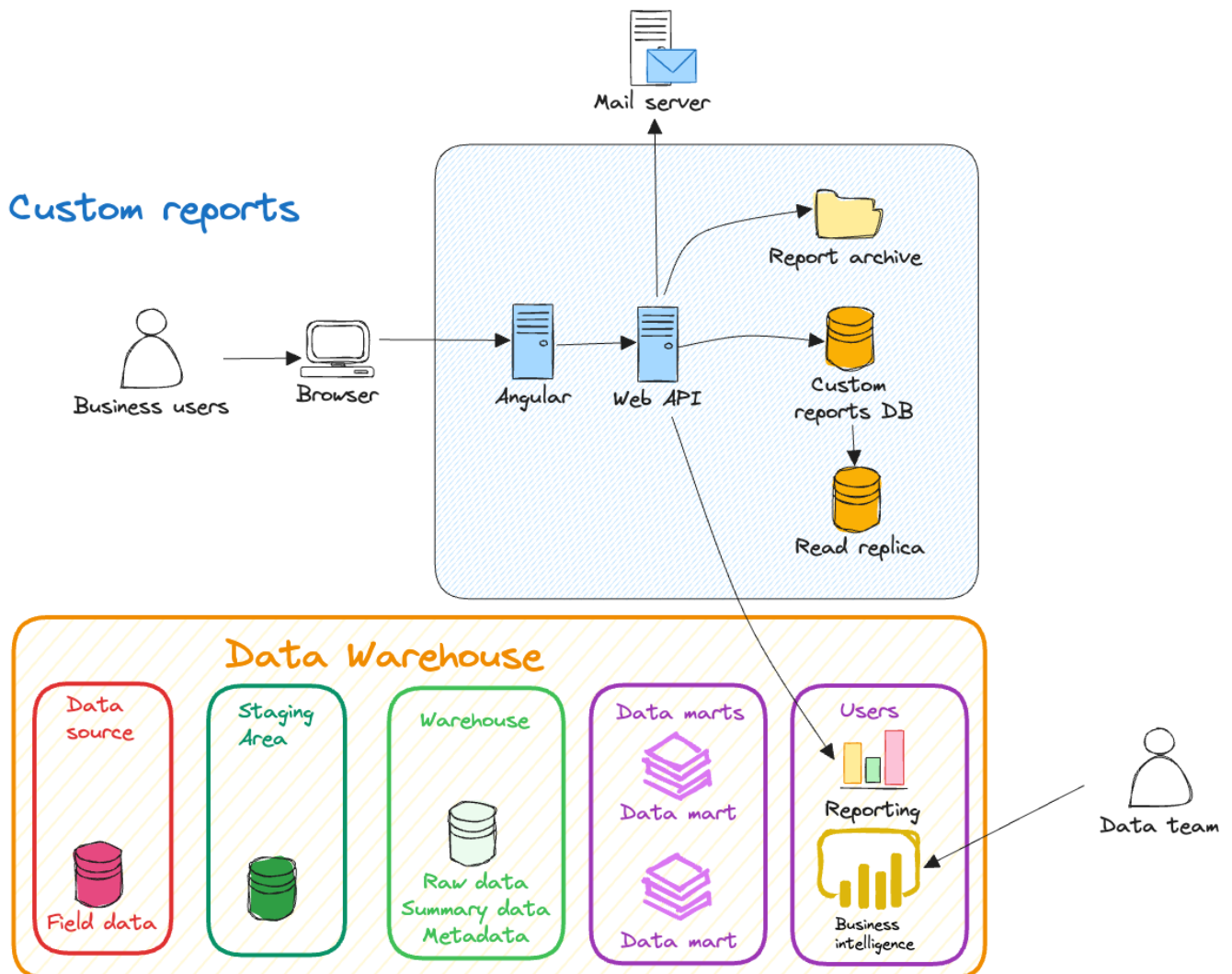
We developed a Data Warehouse, as an enterprise system used for the analysis and reporting of structured and semi-structured data from multiple sources. A Data Warehouse is suited for ad hoc analysis as well as custom reporting. It pulls data from many diverse sources into a single data repository for analytics and decision support. Hundreds of measuring instruments transmit thousands of data per minute, and it is necessary to collect, clean, classify, and place them in a Data Warehouse. When the Data Warehouse was completed and tested, we had a solid foundation on which to build the App.

The App is made to administrate custom and specific reports and access them. It took us 16 months to finish the whole project and provide the National Oil Refinery with complete monitoring of the production process through custom reports.

## Technical insight

To accommodate client's complex data governance, audit, and access policies we built Angular application to serve as reporting portal that is using Web API as backend system. We provided high availability by making DB read replica and redundant file storage for generated reports.

On the data side we selected data marts as the best fit for client's needs because they were in need of focused data analysis, enhanced data quality, customized reporting and analytics. Scalability and cost efficiency were also considered. Data marts enabled clients to leverage their data for strategic decision-making.



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## Business value and benefits

This solution is extremely important for the National Oil Refinery. Finally, they got a powerful tool for monitoring the complete production process. The oil production process is overly complex, as it is influenced by many factors. Not to mention the high-risk level. The entire production process is controlled by hundreds of measuring instruments that transmit millions of data. Unlike before, AVS Custom Reports enabled much faster and more detailed insight into them. Dozens of custom reports gave the management full control over the process and a wider overview of all relevant parameters. The management took advantage of this additional business value to optimize the production process, reduce the consumption of materials, and most importantly increase the security level for employees. These custom reports are still used today, and in the meantime, the solution is maintained and upgraded with the development of additional reports.



*“The best thing about AVS Solutions is that they try to understand the process.*

*They’re not just IT personnel, they do everything they can to learn about our industry. They understand my requests and have helped refine the reporting process.*

*They’ve done a great job. All you have to do to succeed is to let them do their job and foster a collaborative relationship.”*

*Dušica Vučičević – Mass Balance Manager, NIS*