

# Improving Data-driven App Development at Reduced Cost

## Case Study



## Client

Fortune 5 technology company

## Background

A business insights team at a Fortune 5 technology company was not getting the value it needed from its enterprise analytics and visualization solution. The packaged application-builder had proved cumbersome for the development of internal applications, as each app required additional coding to implement the desired access control. In addition, although the suite offered wide-ranging functionality, a considerable portion of it was under- or unutilized by the organization. These drawbacks, combined with the solution's high annual licensing fee, motivated the team to find an alternative. After looking at a variety of other packaged offerings and speaking with vendors that could deliver custom solutions, the team chose to work with Starschema.

## Challenges

- Exceed performance of leading enterprise software
- Automate integration of client's IAM solution
- Enable Git push-to-deploy for user-built apps

## Business Impact

- Reduced operating costs
- Greater productivity
- Improved decision-making

## Technologies

- GoLang
- React
- Formik
- RTK Query
- PostgreSQL
- Dokku PaaS

## Challenge

For the replacement to enable a more effective development experience, the client and Starschema agreed to custom-build a proprietary application deployment platform. This platform would include all essential features of the enterprise product it would replace, eliminate feature bloat and deliver better value over time. To ensure a smooth transition for users, it would need to maintain the frontend characteristics of the current solution, offer every feature that users had been relying on and improve on the overall user experience, most notably that of access control.

Specifically, the solution needed to accommodate the needs of users – data scientists, data engineers, data visualization experts, etc. – who want to create more advanced visualizations than possible from their existing platform and have the coding expertise to take advantage of a more flexible alternative.

## Solution

The Starschema software development team built a proprietary application deployment platform that enables the client to develop data-driven applications more productively. The new platform accurately recreates the user-requested aspects of its predecessor's look, feel and functionality. It runs in a Linux environment and leverages a range of preexisting components – such as a PostgreSQL database and the client's internal authentication proxy – with custom-developed ones, including a user search function and a solution for monitoring the memory and CPU usage of apps created on the platform.

Among the third-party software components that the team selected, Dokku stands out as especially important, as this platform as a service (PaaS) enables the final product to improve development times with automated "push-to-deploy" capability. As a result, users can push an application to a Git repository and a CI/CD layer, which combines best practices of continuous integration and DevOps, automatically deploys it to supported cloud platforms with the appropriate resource specifications.

The solution also streamlines the development process by minimizing the work necessary to set user-level permissions for each application. It achieves this by incorporating an authentication and access layer, which automatically handles Identity and Access Management (IAM) through the client's internal directory service. This way, users of every application created on the platform will be able to access data in accordance with their predefined privileges with no manual setup required from the application's developer.

To this end, the Starschema team would need to hand-pick third-party software components, develop original ones and integrate them into a custom-composed product to ensure effectiveness in the client's unique use cases.

The platform supports deployment to a variety of frameworks, including Plotly, native D3.js, Vega, Matplotlib and Datashader.

## Outcome

In five months, Starschema delivered a custom-built application development platform that exceeds the functionality and improves the user experience of the license-based product it replaced. This was done at considerable cost savings over the life of the product.

By recreating essential functionality from the reference enterprise product and automating the implementation of the client's internal security and authentication features, the solution enables users with sufficient – but not necessarily developer-level – knowledge of Python or React code to create and deploy custom visualizations with considerably less coding overhead. This has made it possible to integrate the client's IAM system in cases where it was previously unfeasible and made it significantly easier in every other case.

The solution will enable the client to involve a greater number of users in development to ensure faster delivery of internal products, as well as interoperability and information-sharing. As a result, the time it takes to recreate reports from major enterprise data visualization tools in Python – to enable greater flexibility in report building – has decreased dramatically.

In the long run, the solution can help further decrease the client's reliance on restrictive and expensive packaged solutions, which has motivated the company to make the platform accessible for other teams and departments with the help of the Starschema development team.

## Go Further

Discover how Starschema can help you realize business value with custom software leveraging Agile development methodology and the latest technologies — often cloud-native — that enable scalability from day one.

Explore Elements:  
[starschema.com/sft](https://starschema.com/sft)

## TALK TO AN EXPERT



### **Fanni Rákosi** Software Developer Team Lead

Fanni leads engineering teams that deliver large and small software development projects for multinational organizations. Her aim is to deliver flexible, highly end-user-focused enterprise-grade software tailored to the client's unique needs. As a developer, Fanni has contributed to the development of dozens of software products at various companies and helped to build Reportal, Starschema's enterprise BI asset curation and data storytelling platform.

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## COMPANY

At Starschema we believe that data has the power to change the world and data-driven organizations are leading the way. We help organizations use data to make better business decisions, build smarter products, and deliver more value for their customers, employees and investors. We dig into our customers toughest business problems, design solutions and build the technology needed to compete and profit in a data-driven world.

## GET IN TOUCH

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