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Global
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CASE STUDY

Modernization of the Customer's Core Web Application on a Tight Schedule

Massive reengineering of the core product to avoid business interruptions

Client: Integrated IT solutions provider

Industry: Computer Software

Employees: Germany

Size: 300+

CLIENT BACKGROUND

Our client is a leading provider of integrated software solutions for IT, data centers, and telecommunication infrastructure management worldwide. The company serves hundreds of customers globally in the automotive, banking, telecommunications, aviation, medical, and energy sectors.

BUSINESS CHALLENGE

Our client had a mission-critical web application based on soon to be ditched Adobe Flash Player technology. As an operations support system, this solution provides high management transparency of IT assets and infrastructure, data centers, telecom infrastructure, etc. With over 25,000 users, this resource management application is one of the underpinning systems of many world-famous organizations.

After [Adobe announced the end of life for Flash](#) by December 2020, Google and Mozilla also promised to drop Flash Player support for all users of Chrome and Firefox browsers. Thus, our client decided to upgrade their Flash-based web application. The need to have a flexible approach to the complex migration project along with tight deadlines prompted the client to search for a partner able to take ownership of the whole migration process. After evaluating other providers' solutions, the client addressed Infopulse for

our balanced technological and organizational approach to rebuilding the frontend architecture in line with the business requirements.

The main goal was to rework the entire frontend from scratch without changing or adding any server-side components to the backend of the web application. It contained large amounts of business logic accumulated through 11 years of project development. Among technical difficulties were:

- 1.5 million lines of code;
- manual testing that was time- and resource-consuming;
- programming in accordance with UX/UI on the client's side;
- large scale of the application featuring multiple modules.

SOLUTION

The joint team developed a Proof of Concept, which verified the feasibility of the solution for the customer, as well as our aptitude and suitability for the project. In 18 months, Infopulse engineers and QA experts managed to completely upgrade the product's tech stack:

- Modernized the core application by fully rewriting Flash+Java+XML-based application in HTML5 on the Angular framework.
- Rebuilt the app frontend from the ground up along with the UX/UI redesign without altering the structure of dynamic templates on the server side.
- Separated libraries (based on the metadata approach) to work with a huge amount of SVG data and dynamically generated templates.
- Redesigned the application core components, improved their rendering, and the entire UI.
- Developed and implemented new application features.
- Mapped out a detailed testing strategy including the analysis of business-suitable test platforms and test environments.
- Enabled automated cross-browser testing performed on VMs provided by the client.
- Configured and integrated test environments with a Continuous Integration (CI) system.
- Established a test management system TestRail and integrated it with a CI system. The system allowed gathering all test cases and the results of tests for each browser version in one place, with subsequent visualization in both TestRail and Jenkins.

Most importantly, the client decided to engage Infopulse in the optimization of the application backend. Initially, Infopulse specialists suggested creating a server module for converting existing SOAP web services to REST APIs. The latter has a more lightweight and flexible architecture resulting in improved performance and faster web page load time.

TECHNOLOGIES USED:

- The team chose **Angular**, an open-source JavaScript framework, combined with **TypeScript** for building interface and forms processing.
- Utilized **RxJS**, a reactive programming library, for composing asynchronous code and handling data streams.
- **Lodash** library for dealing with collections and objects as well as for iterating over hierarchical data structures.
- **Redux** library for managing the state of the app, components interaction, and one-way data flow.
- **IndexedDB API** was chosen to overcome different browsers' limitations in terms of the amounts of data to be stored in Local Storage.
- **Ranorex** (API based on the .NET framework) to run automated tests across different environments and devices.

BUSINESS VALUE

Infopulse's assistance in the customer's core product modernization helped our client to avert business interruption losses with the approaching Adobe Flash Player end-of-life, laying in the center of our client's core product.

- The upgrade of a technology stack and newly developed functions enhanced the web application's performance, stability, and quality.
- By upgrading the frontend infrastructure layer, Infopulse helped the customer enhance the UX and UI of the product.
- Our client received a proprietary continuous testing system, which resulted in the increased stability of the application.
- Accelerated implementation of new versions and the frequency of new features releases.
- With the introduction of automated testing, we managed to reduce the testing time of the whole application. Additionally, we increased the overall efficiency of application testing compared to manual testing.
- Optimized backend performance.
- The developed test strategy greatly improved the application's quality, performance, and reliability, which resulted in a decreased number of support tickets coming from end-users.
- The German IT solutions provider reinforced their application's key purpose – enabling better transparency and robustness of a complex resource management system for the end-users.





ABOUT INFOPULSE

Infopulse, part of the leading Nordic digital services company TietoEVERY, is an international vendor of services in the areas of Software R&D, Application Management, Cloud & IT Operations, and Cybersecurity to SMEs and Fortune 100 companies across the globe. Founded in 1991, the company has a team of over 2,000 professionals and is represented in 7 countries across Europe and North America. Infopulse is trusted by many established brands, such as BICS, Bosch, British American Tobacco, Citrix, Credit Agricole, ING Bank, Gorenje, METRO Cash & Carry, Microsoft, Mondelēz, OTP Bank, Raiffeisen Bank Aval, SAP, UkrSibbank BNP Paribas Group, VEON, Vodafone, and others.

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