



CASE STUDY

Small team, big impact: software unification and DevOps as equalizers

The Challenge

Proto Manufacturing, already on the right path to modernizing its software suite, faced challenges in harmonizing its DevOps practices, managing its diversified codebase, and delivering consistent software updates.

The Solution

Opreto transformed Proto's software delivery mechanism, unifying the codebase, transitioning to industry-standard GitHub for version control, and implementing automated workflows.

The Benefit

With streamlined operations and Agile practices, Proto achieved faster software iterations, reduced code redundancies, and ensured a high-quality, consistent software release cycle.



Support and advice from Opreto was always timely and helpful. They aided in every step of the migration process, and in providing educational support to the company, such that all stakeholders would be on-board with the transition.

Matt Williams,
Software Engineering Manager

Streamlined Software Stack: Building on Solid Foundations

Proto Manufacturing is a maker of scientific instruments and measurement systems for laboratories and factories. The Company has made investments in their software technology infrastructure to modernize their systems and improve their competitiveness in the industry.

The Company had recently deployed new software applications to power their sophisticated scientific instruments. The applications were built on a modern software stack that consisted of Electron-based front ends and Python-based back ends that communicated via REST API. However, remnants from their legacy systems caused the new applications to diverge. Video streaming, a key functionality that was used in the calibration of machinery, had slowed down. Fearing that these challenges could be a harbinger of other functionality to be impacted, the development team was beginning to question the efficacy of the new technology.

Opreto stepped in for a comprehensive assessment of the new technology stack. First, Opreto reviewed the chosen technologies, and concluded that it was in line with industry standards, existing competencies, and the extant codebase. Then Opreto addressed the worries around system responsiveness that impacted operational functionality, such as video streaming. Opreto implemented a proof-of-concept to demonstrate that Electron could indeed efficiently handle key functionality, ensuring fluidity and responsiveness across all systems.

In the next phase, Opreto conducted a deep dive into Proto's existing repositories. The investigation brought to light fragmented build systems and inconsistent dependency management. With a focus on efficiency and uniformity, Opreto provided guidance to harmonize these disparate systems, establishing a unified software architecture.

Centralization for Enhanced Collaboration

Recognizing the fragmented nature of Proto Manufacturing's software repositories, Opreto proposed a shift to a mono repository structure. Moving all isolated code parts inside one repository not only centralized the codebase but also reduced duplication, paving the way for efficient software development and collaboration.

Opreto transitioned Proto Manufacturing's code development and management environment from Backlog to GitHub, to effectively harness the power of an industry-standard platform. GitHub allowed a robust feature-branch workflow, rigorous code reviews, approvals, and automated code analysis, ensuring that software releases met the highest quality benchmarks.

Opreto implemented GitHub Actions to automate build and test processes, allowing the enforcement of a functioning build and passing tests before merging any new feature to the main codebase. Automation through GitHub Actions was a game-changer for Proto Manufacturing, reducing manual intervention for fewer errors, and accelerating software delivery.

Agile Practices for a Dynamic Team

Beyond tools and processes, Opreto focused on the importance of methodologies. Educating Proto Manufacturing's development team on agile practices ensured that they had the mindset and strategies to adapt, iterate, and deliver effectively.

Positioned for Future Success

With an updated DevOps infrastructure and a team well-trained in agile practices, Proto Manufacturing has bolstered its software delivery process. These practices give the software team the tools to create applications that power their advanced scientific instruments. As a result, Proto Manufacturing is well-positioned to compete more effectively in their industry, and to drive growth for its business.