



Customer Success Story

Increasing Engineering Productivity and Profitability Via a True Cloud-Based SolidWorks/PDM Implementation

How SPK was able to unify globally dispersed engineering teams to work, and communicate, in real-time.

THE CLIENT

A leading medical device manufacturer was facing a problem common to firms with growing engineering operations: As their product-development team grew, from their New England headquarters, to external teams in California, and then India (not to mention engineers who telecommuted from home in the U.S.), they suffered from mission-critical delays and disruptions from what used to be a simple process—accessing and using engineering data created in SolidWorks, and managed in SolidWorks PDM.

THE PROBLEM

The greater the distance from the company headquarters, the worse the problems. Times for check-in and check-out of files were twice as long in California; in India, it took **six times** longer—assuming that the connection didn't time out.

The client had cobbled together a virtual private network (VPN) to enable access to the PDM server from all three locations and the work-from-home force. It was a kluge, allowing for once-daily updates. Trying to replicate the PDM database, on the other hand, was nigh impossible. They were using a combination of Dropbox and email, with the typical request of *"Please put this into PDM for me."*

Thus, access to critical data at the client's design centers was slow and inconsistent, resulting in slower product releases, quality issues, and ballooning engineering development costs. Missing deadlines on FDA-regulated devices was, simply, not an option.

THE CHALLENGE

While a manually configured VPN is commonplace among companies with dispersed engineering teams, it doesn't provide the level of responsiveness from the "good old days" of on-premise SolidWorks PDM. And while the application was recently certified to be "SQL-compatible," that certification stipulates the use of expensive enterprise SQL licenses *for every single server*.

With a limited budget—which precluded both enterprise licenses and travel to India—the firm turned to SPK and Associates, an engineering IT solutions company specializing in serving R&D/product and software-development teams.

THE ENGAGEMENT MODEL

SPK and Associates met with the client and developed a three-phase engagement timeline that spanned about six months:



**6x Improvement
Application
Response**



**Fully Encrypted
Data Transfer**



**Faster Product
Release Cycle**

Phase 1: Assessment and design. SPK first analyzed the client's existing setup, and walked them through a series of cost/benefit scenarios, in order to determine their optimum "sweet spot" architecture. For example, there's a point of diminishing returns, in which, say, a super-fast response might not be worth the extra money. Phase 1 took about four months.

Phase 2: Implementation. Installing the cloud-based solution (detailed below) required only about two weeks.

Phase 3: Testing. Working the solution through the development environment, then to staging and production, took about two months.

THE SOLUTION

The solution designed by SPK is, at its heart, a hybrid, utilizing SolidWorks and SolidWorks PDM in tandem with SQL running in the cloud via Microsoft Azure. This is an immediately-available, scalable, and incredibly affordable architecture:

- All information is updated in real time. Everything feels “local.”
- The company can easily grow its teams, increasing the capacity of their Azure subscription as needed.
- There was no upfront capital investment—no massive enterprise licenses—since the company was essentially “renting” SQL in the cloud, vs. “buying” licenses for each of its distributed servers.

First, SPK replicated the file servers for both California and India. This immediately resolved the check-in/out and download times.

Next, SPK tackled the thorny database issue, using Azure to host multi-master database replication across two coasts and two continents, providing an instantly available single source of truth for all teams—no lags, no timeouts, no errors, no email workarounds.

ADDITIONAL FUNCTIONALITY

The project actually went beyond the basic SolidWorks/PDM issue in two important ways:

Automation. Using custom application programming interfaces or APIs, SPK was able to automate the tedious, time-consuming, and error-prone process of manual handoffs between engineering and manufacturing. Now things like updates, authorizations, and signatures are all handled automatically. Not only has this slashed the error rate, it’s boosted morale.

Analytics. SPK also created a customized reporting function, using PowerBI, to provide real-time deep-dive dashboards for the engineering management team. Among the metrics now available are:

- Product Turnaround Time
- Defects Detection Efficiency
- Number of Engineering Changes/Revisions
- Scope and Schedule Variance

THE RESULTS

Thanks to the new solution, responsiveness at the California location has **doubled**. At the India location, it’s improved **six-fold**. Even at the company’s New England headquarters, speed and productivity have increased—and that’s including the huge capacity recoup from not using the former creaky workarounds.

Best of all, the project was completed, start-to-finish, in just six months. There was no capital investment. Budgets were met; all of the India work, for example, was accomplished remotely. And the company’s internal IT department was grateful to have a team of specialists take this arcane problem off their plates, so they could focus on core activities.

Six months, incidentally, is typically an outside timeframe. Depending on the situation, SPK can implement a cloud-based SolidWorks/PDM solution in as little as two months.

“We needed all organizations to work together and all work in the same process. SPK was the perfect partner to address our engineering design workflow issues, enabling us to increase both our capacity and productivity, with everyone working from the same page.” –VP Engineering, Medical Device Company

Get a no-obligation initial assessment

If you’re looking to “cloudify” your SolidWorks/PDM solution, look no further than SPK and Associates. Contact us today at (888) 310-4540 or info@spkaa.com.



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