

case study -

How a leading public safety software vendor modernizes its operations,

attracts the new generation of public safety workforce and gains cutting edge with Resolute Software

[Web App Development](#)[Microservice Architecture](#)[DevExtreme Components](#)[.NET Core](#)[Oracle/ElasticSearch](#)[Angular/TypeScript](#)[API Development](#)

Company

A leading public safety software vendor

Customer since

2018

Goals

- ✓ Modernize large, complex legacy applications to meet the needs of an increasingly mobile public safety workforce.
- ✓ Comply with the National Incident-based Reporting System (NIBRS) by January 2020.
- ✓ Select a long-term consulting partner that could act as an extension of the technical operations team.

Leading the charge for modern public safety software

Ensuring public safety can't be done from behind a desk. Rapid access to mission-critical information in the field is essential for police officers, detectives, sheriffs and other public safety professionals on the move.

To that end, the imperative to automate and mobilize activities such as incident reporting, evidence tracking, entity searches and other key functions is behind an important trend in public safety: Modernization. For example, a recent Accenture report notes that police will be routinely using mobile apps to access operational systems and data within the next 1-2 years, enabling officers to access key systems and information, share information and insights in real time, and make faster decisions. The end result is more efficient use of resources and public funds, and increased public safety.

Leading public safety software vendors are beginning to transform and modernize their solutions and our client is leading the charge.

Cross-platform compatibility a top priority

A privately-held, woman-owned family company, our client provides software and data management, integration and exchange solutions for public safety, law enforcement and other public sector entities of all sizes and tiers.

The company's software helps ensure officer and citizen safety through better, more cost-effective information management, sharing, integration and analysis.

In 2014, The VP of Technical Operations, was tasked with modernizing the solutions, in order to meet the needs of a younger, increasingly mobile public safety workforce. As this new generation of professionals enter the public safety scene, keeping up with their expectations for modern technology and software is essential.



"Our customers want software that runs seamlessly across devices and operating systems, so they can access it anywhere."

- said the VP of Technical Operations

In addition to supporting a younger, more mobile workforce, our client's software has to be able to integrate with other new apps and technologies, such as bar code scanning, to simplify and automate time-consuming data entry.

"The people who use our software are out in the field -- patrolling the streets on foot or by motorcycle, walking around a school campus, or even on boats and ATVs in the case of fish and wildlife enforcement professionals. You can't chase after criminals in these environments toting a desktop computer".

To address the changing needs of their customers, the team, which oversees all technical aspects of our client's operations, launched an initiative to modernize two software platforms:

→ Global data sharing and tactical search platform

A real-time data source integration, exchange and sharing platform that enables agencies to collect, store, analyze and share information from multiple data sources.

→ Integrated public safety software

An integrated software system for public safety agencies that includes records management, computer-aided dispatch, case management, corrections applications and other mission critical functionalities.

Although the VP's team had taken some initial steps toward the modernization project by moving the Global Data Sharing and Tactical Search Platform to a .NET environment, it was slow-going.

"We didn't have intricate knowledge of the new platform and we were learning as we went. We made some mistakes, and we knew it was taking us longer because we weren't experts."

The team enlisted the help of Hristo Georgiev, Resolute Software's Co-founder and Co-CEO, and the initial effort was successful. However, as they looked toward launching the next phase — modernizing the Integrated Public Safety Solutions — they knew it would be needed to conduct a more formal evaluation to choose a long-term partner.

Another driver: NIBRS compliance

In addition to updating the code base, our client was also under pressure to implement the National Incident-based Reporting System (NIBRS), used by law enforcement agencies in the United States for collecting and reporting data on crimes. Local, state and federal agencies generate NIBRS data from their records management systems to improve the overall quality of crime data. As the Federal government is now mandating NIBRS by January 2020, our client's team knew they needed to move quickly.

"Our Public Safety platform was a legacy Delphi application that had been in place for more than 30 years and consisted of millions of lines of code. Moving to .NET and integrating NIBRS functionality would not be fast or easy."

- Vice President of Technical Operations

The quest for a long-term partner

Finding the right partner couldn't be rushed. To our client, flexibility, responsiveness and professionalism were equally as important as technology knowledge and expertise.

"Although I was leaning toward Resolute Software because of our history with Hristo, we wanted to be sure we chose a partner that would be able to handle a complex, long-term modernization project and be responsive to our needs."

They evaluated three consulting organizations, requesting each of them to provide an assessment of Their legacy systems along with recommendations for modernizing them, then participate in a proof-of concept project. Resolute Software was the clear choice.

"Resolute Software came out ahead of the others in every aspect, from their talent and professionalism to their price and thoroughness during the evaluation. We knew they were the right partner."

- Vice President of Technical Operations

A multi-year project and partnership takes shape

Together with Resolute Software, our client embarked on a multi-phased, multi-year modernization project, with the goal of meeting several key requirements:



Modern, future-proof technology stack

Currently, the majority of the system is written in a mix between Delphi, .NET and HTML. Standardizing on C#/.NET Core and Angular enables a robust, resilient and performant application architecture that can support intuitive user experiences on any device and operating system.



Offline operation and sync

In the field, public safety and law enforcement professionals must enter information about incidents, evidence, arrests and more.

Historically, this was largely completed with pen and paper. Software is automating manual data entry in the field, but in many areas, there is no Internet connectivity. The new system has to support offline operation, so data that's entered while devices aren't connected to the Internet is automatically synced to the system once a connection is established.



Responsive design

As our client's customers will be accessing the software remotely and primarily on handheld, mobile devices, responsive design is essential to ensure adoption and usability.



Data security

Storage on the client has to be encrypted to protect sensitive information that officers and other field professionals enter via their devices.



Access and permissions

To keep data secure, the system must be able to authenticate users and apply license and permissions regardless of location, device or network connectivity.



Messaging

The new platform has to support an integrated messaging solution for sending alerts between users. "This is a multiphase project with many tendrils. We're working closely with the team at Resolute to set milestones for the coming months and years. One of our first goals is to be NIBRS-compliant by January, 2020. After that, our plan is to roll out modernization module by module, running side-by-side with the existing software, so our customers can begin to realize immediate value."

Technology:

To meet the demand for a robust, yet flexible application infrastructure, Resolute Software designed a distributed microservice architecture based on .NET Core and Oracle. Breaking the classic monolith into a set of microservices allowed our client to deploy core application capabilities both on customer premises as well as on private cloud infrastructure, depending on business needs.

Application services communicate with each other and with the database through a shared message bus that helps orchestrate data flow in the system core. A distributed multi-tier user authentication and licensing subsystem manages end-user access to the system, delegating authentication to related tenant identity providers. Backed by a flexible core application infrastructure, the system provides an intuitive end-user experience through multiple responsive web-based applications.

Powered by Angular and taking full advantage of modern browser technologies for caching, storage and encryption, our client's web apps run on any device, transform intuitively to fit any screen size, and enhance the end-user productivity both out in the field and behind a desk.

results -

Competitive advantage in 2020 and beyond

By providing cross-platform compatibility, mobile functionality and a modern interface, our client will gain strong competitive advantage. Their modernized Public Safety Software will meet the needs of its customer base in 2020 and beyond, as it will be agile enough to accommodate innovations in public safety technology as they become available.



"The best part is we didn't have to spend years trying to find and hire people with that level of talent and expertise — by partnering with Resolute, it's immediately available to us."

- Vice President of Technical Operations

Let's talk about your technology requirements.

[Get in touch](#)

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