

XYZ LEVERAGES OUR SOFTWARE EXPERTISE TO HELP CUSTOMERS IDENTIFY RF SIGNALS ASSOCIATED WITH MALICIOUS ACTIVITIES

The Challenge: Combining Hardware and Firmware Expertise with Software Skills

XYZ, headquartered in Seattle, began its operations in 2018, specializing in radio frequency (RF) analysis for customers in the defense, transportation, utilities, government, and telecom sectors. Their antenna system products swiftly detect individual RF signals emitted by communication devices and classify their attributes to provide actionable intelligence for asset security.

Having expertise in system hardware and embedded firmware, XYZ sought a software firm to develop a front-end application to visualize the vast data sets collected by their systems. However, their initial partner needed help converting the client-server application into a web one. Consequently, XYZ began looking for a new partner.

XYZ aimed to find a software development firm capable of presenting complex data sets on web pages through easily consumable visualizations. This would enable customers to promptly act upon intelligence regarding RF activity within their property perimeters, such as airports, government locations, and prisons. XYZ desired a partner with a broad range of software and project management expertise and resources based in nearby time zones for efficient collaboration with their technical team.

We met with XYZ on-site to evaluate the architecture of the customer-facing application and its supporting infrastructure.

The Solution: Our Consultative Approach Drives System Improvements

Taking a consultative and collaborative approach, we recommended redesigning the application and infrastructure instead of simply providing technical services as directed by the client. We proposed modern development technologies, including Python, to update the client-server application and enhance its maintainability. Python also facilitated adapting the application for cloud deployment and delivering intricate data visualizations.

Impressed by our software development capabilities, DevOps expertise, CI/CD practices, and project management skills, XYZ

sought our assistance in various solutions.

Working closely with XYZ, we incorporated machine learning techniques such as computer vision with convolutional neural networks and RNN-LSTM, running in real-time for monitoring purposes and triggering alarms within seconds upon detecting anomalous activity.

We also developed APIs and the user interface of the customer-facing application. The revamped application filters out unnecessary data noise in visualization reports, including spectrum and waterfall graphs. Additionally, we advised XYZ on best practices for system administration, synchronization, networking, and cost optimization in the cloud. The migration of servers and a virtual private network from an on-premises data center to our cloud infrastructure was achieved using Infrastructure as Code (IaC).

To meet XYZ's requirements, we expanded our team to 10 resources and remained flexible in scaling according to XYZ's needs. We even provided a security expert to address a short-term malware issue unrelated to our projects on XYZ's internal servers.

The Results: Improved Responsiveness and Enhanced Customer Options

Our partnership with XYZ has enabled them to respond swiftly to new use-case demo inquiries from prospective customers. Each prospect typically has unique requirements for the RF signals they wish to collect and how the information should be displayed. Both companies collaborate efficiently to set up data processing and visualizations as requested by prospects, aiding in securing more business.

The visualization output adjustments have provided a significant benefit by allowing customers to easily comprehend the thousands of data points produced by XYZ's antenna systems in real time. Customers can quickly implement security measures when unauthorized RF signals from communication devices are detected.

Moreover, adapting the front-end application for web accessibility has expanded customer options in accessing antenna system reports and data visualizations, assisting XYZ in broadening its customer base.

Reduced software development costs have been another key benefit for XYZ through our partnership. By opting for our partnership rather than hiring full-time employees, XYZ has lowered software development costs by approximately 40%, leading to annual savings of close to \$500K, according to the Vice President of Product Development at XYZ.

Throughout the years of our partnership, XYZ has developed a profound trust in our team. We take a consultative approach, actively participating in the process, and providing suggestions on best practices for software development. We effectively manage the development process, collaborating closely with XYZ's internal team to organize work, plan accurate timelines, and maintain visibility of project statuses. We always consider the broader picture to help XYZ enhance its product portfolio.

Customer Testimonials:

"The team is not just a development team for us; they also actively participate in the process. They suggest new ideas and assist with architectural ideas and design—a truly beneficial relationship for our company." - VP of Product Development at XYZ

"Working across the full software stack—from application development to data analytics, modeling, and implementation—the team helped us offer a quality product that enabled XYZ to be named among CIO's 10 Most Promising Critical Infrastructure Protection Providers of 2018. The team provides top-notch talent that drives excellence throughout our organization. I highly recommend them." – CEO at XYZ

TANGONET SOLUTIONS

LET US HELP YOU FIND YOUR TEAM.

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