Global medical device company assembles the right team and Microsoft Azure and IoT solutions to revolutionize patient care

At a time when the healthcare industry is rapidly changing and evolving to address the unprecedented challenges brought by the COVID-19 pandemic, enhancing patient care, reducing the length of hospital stays, improving productivity and creating safer environments has never been more critical. Rapid digital advancements fueling IoT medical device connectivity are now revolutionizing treatment and workflow management to address these needs.

In many cases, however, obsolete service architecture has failed to keep up with the pace of IoT innovations and continues to prevent healthcare organizations, medical personnel and patients from experiencing optimal performance of these devices.

Recognizing obstacles

One global medical device manufacturer, a trusted provider for hospitals in 100 countries worldwide for over 60 years, was faced with this challenge when their patient care innovations were limited by software.

Because hospitals worldwide utilize thousands of the company's devices, the company's executives needed to consider how to address software limitations that ultimately were hampering their ability to pursue further innovations and products. Not only did the company's devices require disjointed updates, which prolonged development cycles, but a hard limit existed on the number of devices that could communicate with a single system, requiring larger facilities to create virtual servers for data collection that had to be aggregated manually.

To meet the evolving market demands and protocols across multiple products and solutions, the organization recognized that it needed to migrate to the cloud and modernize its application framework and related software. Initially the company considered tackling the project in-house, but hiring and retention challenges bogged down efforts to assemble a dedicated team, so they reached out to Protiviti for assistance.

Working closely with the company, Protiviti conducted a rigorous assessment of the organization's technology solutions, software development life cycle and technology footprint, which confirmed the company's finding that it

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needed to undergo a significant digital transformation. The evaluation, which included multiple workshops, ultimately produced recommendations related to six themes: architecture design, functional decomposition, code structure, application infrastructure, quality assurance and DevOps management.

Recognizing the immediate value the recommendations could provide, the company expanded its relationship with Protiviti to pursue a multiyear strategic roadmap to implement change.

Crafting a new digital health platform for vital connections

A project team made of up the client's workforce, Protiviti consultants and specialized IT staff from Robert Half began breaking down legacy applications and reconfiguring them as reusable modules. Taking an innovative approach, the team brought together multiple solutions to build the cloud-hosting platform using Microsoft Azure Service Fabric, Azure Stream Analytics, Azure Cosmos DB, Azure IoT and Azure Machine Learning.

The team designed the combined solution to not only enable IoT connectivity between healthcare devices, but also to analyze real-time vital signs and other data from multiple devices while cross-referencing the medical history of patients. This information gives the platform the ability to immediately communicate potential patient risk and treatment actions directly to healthcare professionals at the patient's side.

After vigorous testing, the project team delivered the new digital health platform to its first customer in January 2020, followed by a broader rollout a few months later. Throughout the technical implementation process, the company remained focused on the human side of healthcare. By continuously advancing and integrating its solution, the company has given clinicians a vital connection to their patients through the timely delivery of critical information and actionable insights, allowing more accurate diagnoses, earlier interventions and faster recovery times.

The new device platform also enables nurses and other healthcare workers to deliver more robust and timely care. If a worker accidentally leaves the bed rails down for a patient prone to falls, for example, the platform immediately notifies the nurse's station. Similarly, an integrated device that detects erratic or excessive movements in a patient's bed can alert the nurse's station to a potential seizure in an epileptic patient.

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Expanding IoT connectivity for better healthcare

Because the company recognized limitations in its devices and successfully addressed them by implementing a digital transformation in a timely manner, it now has the bandwidth to pursue opportunities to further expand its IoT connectivity, to improve patient care, and to reduce patient and healthcare provider risk.

With the help of Protiviti and Robert Half, the company has enabled healthcare providers to dynamically analyze real-time patient health data and communicate potential patient risk and healthcare facility-defined mitigation actions directly to caregivers, enabling care teams to focus on their passion — helping patients get better sooner. Today, as health organizations face unprecedented challenges, the company proudly continues its 60-year legacy of innovation and desire to enhance outcomes for patients and caregivers and is dedicated to connecting care teams today for a more promising tomorrow.

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