

# Case Study

## How AWS RDS & Microsoft SQL Server Improved Patient Care



One of Datavail's clients, a biomedical device company, offers a non-drug pain management therapy system for hospitals, outpatient clinics, nursing facilities, rehab clinics, and in-home care. This innovative company operates in the energy-based medical products market and has a goal of improving quality of life for its customers.

### The Problem

This biomedical company created a medical device intended for in-home patient usage. It treated and alleviated pain and swelling. It also collected data for each treatment session and placed it into local storage. When the patient goes back for a follow-up doctor visit, the office can pull this information off of the device to see how well the patient followed their treatment plan and how effective it was.

The device has a design that supports remote uploading of patient data. An included cellular modem can send the information directly to the office so the patient doesn't need to go in for an appointment. However, the biomedical company needed a database and an endpoint to make this functionality possible.



## The Solution

Datavail chose Amazon Web Services (AWS) to act as the endpoint, as AWS offers reliable availability so the patient information can be uploaded any time of day or night. We used AWS for the database, as it works well with AWS's infrastructure and we have extensive expertise in MS SQL Server.

AWS Lambda offered savings on operational costs and acted as a serverless infrastructure for the medical device. We created the function in C# with .NET Core 2.0. API Gateway that talked to this function to create the endpoint. The medical device is built on first generation technology and does not support HTTPS, this changed with generation two hardware. To secure data for generation one devices, all data is encrypted on the device before transmitting and we created a CloudFront Distribution endpoint which supports both HTTP and HTTPS. Furthermore, it does an HTTP to HTTPS conversion for the generation one hardware. The system also utilizes a VPN for all other connectivity to AWS to better protect patient health information.

## The Results

The biomedical company now has high-availability databases available for critical patient information that comes from the device's uploading system. Datavail's decision to use Lambda gives this organization the elasticity that it needs to handle spikes in demand. They can also look at the device data in close to real-time, giving their customers better insights into their patients.

Their customers also provide an improved experience for their patients, as they eliminate unneeded office visits. Now, staff and doctor time and attention can be focused on achieving better health outcomes rather than manually handling a data uploading process.