



Shaping Healthcare Possibilities

CitiusTech revolutionizes IoT management for a leading medical device conglomerate

CitiusTech embarks on a significant undertaking with a major medical device conglomerate, establishing remote connectivity for 4000+ devices to a centralized AWS-based IoT platform in a complete transformation of how IoT is managed in the complex world of medical devices.

A large American multinational conglomerate with a presence in life sciences, diagnostics, and environmental solutions and over 15 businesses and 65,000 associates, based out of Washington D.C., utilized various IoT devices across multiple business units. Each business unit operated in siloes and on a distinct third-party IoT platform, overseen by decentralized IT teams. This increased licensing costs from third-party vendors and constrained customization options.

They collaborated with CitiusTech to develop a centralized IoT platform, consolidating all devices under a unified digital infrastructure. The goal? Streamline device management, reduce costs, and enable real-time monitoring and analysis. And the results are a testament to the platform's effectiveness. Over 4000 devices are connected seamlessly, leading to reduced data ingestion costs and a decreased requirement for in-person visits. This initiative goes beyond cost and time savings, enhancing operational efficiency and future readiness.

CASE STUDY



BUSINESS CHALLENGES

Diverse IoT devices, soaring licensing fees, and lack of customizability call for a change

The client's business landscape featured a wide range of IoT devices from microscopes to printers, and lab instruments to molecular diagnostic systems. Each business unit operated in siloes, using a different third-party IoT platforms. The decentralized IT team was navigating between different units increasing licensing fees and customization crunch.

As the business expanded, the need for a centralized IoT platform became clear. They needed a platform adept at unifying and integrating disparate solutions that would connect their IoT devices and enable a seamless flow of data.

The requirements for this centralized platform were clearly defined

- Secure telemetry and event data storage
- Customized rules and notifications configuration for event data
 - Real-time telemetry data queries
 - Remote device connectivity
 - Secure user management protocols

In a nutshell, our client was in pursuit of a centralized IoT platform that could tie the loose ends and streamline their tech ecosystem.



THE SOLUTION

A multi-tenant IoT platform on AWS, offering real-time data and enhanced process efficiency

CitiusTech's solution involved a scalable multi-tenant IoT cloud platform on AWS, aimed at streamlining data transmission and unlocking real-time visibility, effectively enhancing operations and boosting performance. The platform offers deep insights into critical metrics like response times, scalability, and fine-tuning for upgrades.

The cloud-based IoT device care and management application is a powerhouse, utilizing a suite of AWS services – from Route 53 to CloudFront, API Gateway, EC2, and more.

In terms of **Device Connectivity**, CitiusTech gamesignificantly enhanced the process. A new device identification and provisioning mechanism on the IoT platform, is now streamlining the device onboarding process. And security is now top-tier, with meticulous certificate management ensuring robust and secure connections.

Data Pipeline and Storage Management with Kafka deftly handles vast amounts of telemetry and event data, channeling it to destinations like Influx, Redis, and S3. CitiusTech constructed reusable templates and implemented a rule engine, making data management dynamic. The platform also features real-time data stream analysis, with AWS Lambda processing current and historical data – a robust data processing and governance approach.

In **User Access Management**, AWS Cognito forms the backbone, ensuring secure and controlled access, complemented by custom RBAC policies for precise API requests management.

For the final step, CitiusTech constructed tailor-made APIs for each business unit using AWS API Gateway

BENEFITS DELIVERED

Massive cost savings and visit reductions, with a data-driven approach for smarter decisions.

The customer achieved a significant milestone by successfully integrating a multitude of IoT devices from various business units into a single, unified platform. This move substantially cut down on the licensing and management costs that were piling up.



4,000+ devices
connected remotely



Cost savings by leveraging Kafka
for data ingestion, replacing
traditional MQTT messages



20% reduction in field visits
contributing to greater
operational efficiency.



400 GB of telemetry data
processed each day, providing
a foundation for more informed
and strategic decision-making.



Nearly 200 data
parameters per device
ingested and processed,
significantly enhancing
operational insights.



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CitiusTech is a global IT services, consulting, and business solutions enterprise 100% focused on the healthcare and life sciences industry. We enable 140+ enterprises to build a human-first ecosystem that is efficient, effective, and equitable with deep domain expertise and next-gen technology.

With over 8,500 healthcare technology professionals worldwide, CitiusTech powers healthcare digital innovation, business transformation and industry-wide convergence through next-generation technologies, solutions, and products.

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