CitiusTech
Shaping Healthcare Possibilities

Success Story

Implemented FHIR Integration to enhance CRRT and clinical support
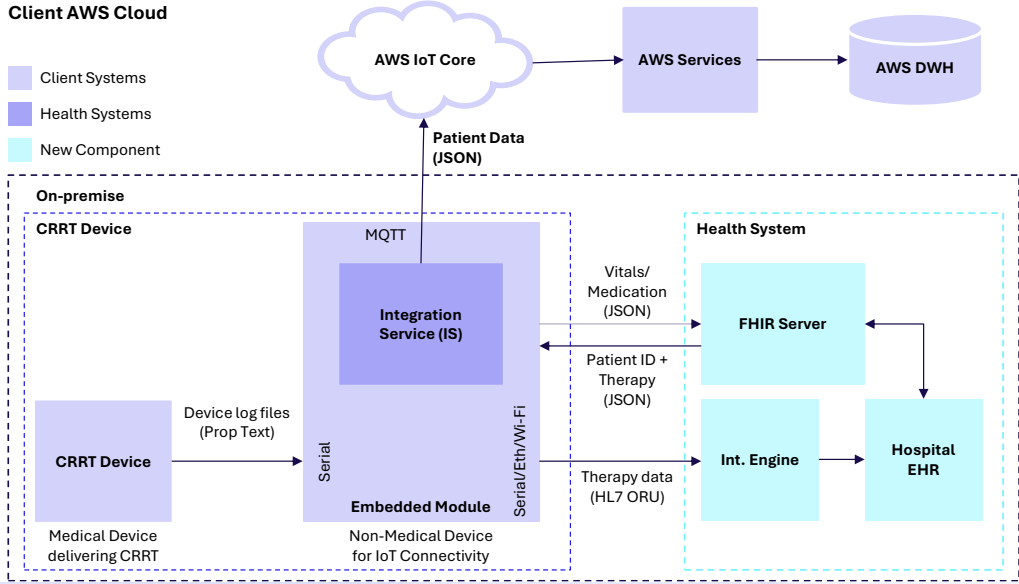
![CitiusTech]

Client is a leading medical device company that primarily focuses on renal and hospital care products.

Client Requirements

1 Client has devices that deliver continuous renal replacement therapy (CRRT) for treating patients with Acute Kidney Injury. Client's devices did not support reading of patient vitals, medication and other data from EHRs. Client needed bi-directional integration between its CRRT devices and Hospital EHRs to drive clinical decision support for therapy improvements. CitiusTech was selected to enable interoperability with EHRs using FHIR format given our expertise in interoperability and medical devices.

Solution Schematic

Client AWS Cloud

- Client Systems
- Health Systems
- New Component

AWS IoT Core → AWS Services → AWS DWH

Patient Data (JSON)

On-premise

CRRT Device

MQTT

Integration Service (IS)

CRRT Device

Device log files (Prop Text)

Serial

Serial/Eth/Wi-Fi

Embedded Module

Medical Device delivering CRRT

Non-Medical Device for IoT Connectivity

Health System

Vitals/ Medication (JSON)

FHIR Server

Patient ID + Therapy (JSON)

Int. Engine

Therapy data (HL7 ORU)

Hospital EHR

The Solution

CitiusTech designed and developed integration service (embedded module using C++) on CRRT device to enable FHIR interoperability with EPIC Open Sandbox.

Key CitiusTech Services

Establish secure **FHIR R4 API connectivity** between device and EPIC

Leverage patient context available in embedded module of CRRT device to **query EPIC EHR**

Read patient data from hospital EHR including vitals, medication & dosage, diagnostic reports, allergy intolerance, etc.

Write patient therapy data back to EPIC EHR

Provide configurable intervals for fetching and displaying patient data on **web-based GUI** - ranging from near time for some parameters to several minutes or hours for other parameters

Send patient data to AWS platform to **enable analytics for therapy improvements**

Value Delivered

1 **Provide roadmap for scaling** the solution across new EHRs and additional FHIR resources to support future use cases

2 Parallel operation to current workflows **enabled advance analytics** without additional development from hospitals

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Thank You

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