Custom Java Application for Healthcare Integration

INTRODUCTION

The customer provides digital scanning and storage solutions to the healthcare industry located in North America. The client has the experience and the expertise in digital documentation saving employees time in searching for files, and is ready to function seamlessly for a pivot to remote or hybrid work.

Technology-driven workflows should enable care navigators to drive greater clinical insights into interventions on behalf of their physician partners.

Abbreviations:

- **HL7:** Health Level Seven (HL7) is a standard for exchanging information between medical information systems.
- **HL7 message:** HL7 is a messaging standard that enables clinical applications to exchange data

BUSINESS NEED

The scanning solution was currently used for healthcare. The client used an interface engine between the scanning solution software and the database, but the interface engine had some major security issues (Log4j had some vulnerabilities). Due to the security risk, the client wanted to replace their current interface engine with another interface engine or application.

CHALLENGE

Replacing with another interface engine had the following challenge:

- New available interface engines were not open source and hence expensive.
- New interface engine would have added monthly maintenance costs.
- The client's (interface) requirement was so minimal that it was unnecessary to employ an interface engine.

So our team at KPi-Tech suggested to develop a customized application

Challenges in developing the customized application:

- Making sure new APIs are secure.
- The new application should have all the functions of an interface engine in order to capture all the data.

SOLUTION

As part of the solution KPi–Tech created a Custom Java-based application. This application listens to HL7 messages on a specific port from the Hospital software. And sends an acknowledgment back to the hospital software immediately after receiving the message.

The custom Java Application parses HL7 messages and stores them in the database.

Other Features of the Application:
- Error Handler, which will handle the below errors:
  - -Message Receive error
  - -Parsing HL7 message errors
  - -Message processing errors
- Error alerts via. emails

Technologies and Tools: Java 11, Spring JDBC, Spring Core, Maven, Apache Camel, Apache Mina, JavaMail, and MSSQL Server.

SOLUTION ARCHITECTURE
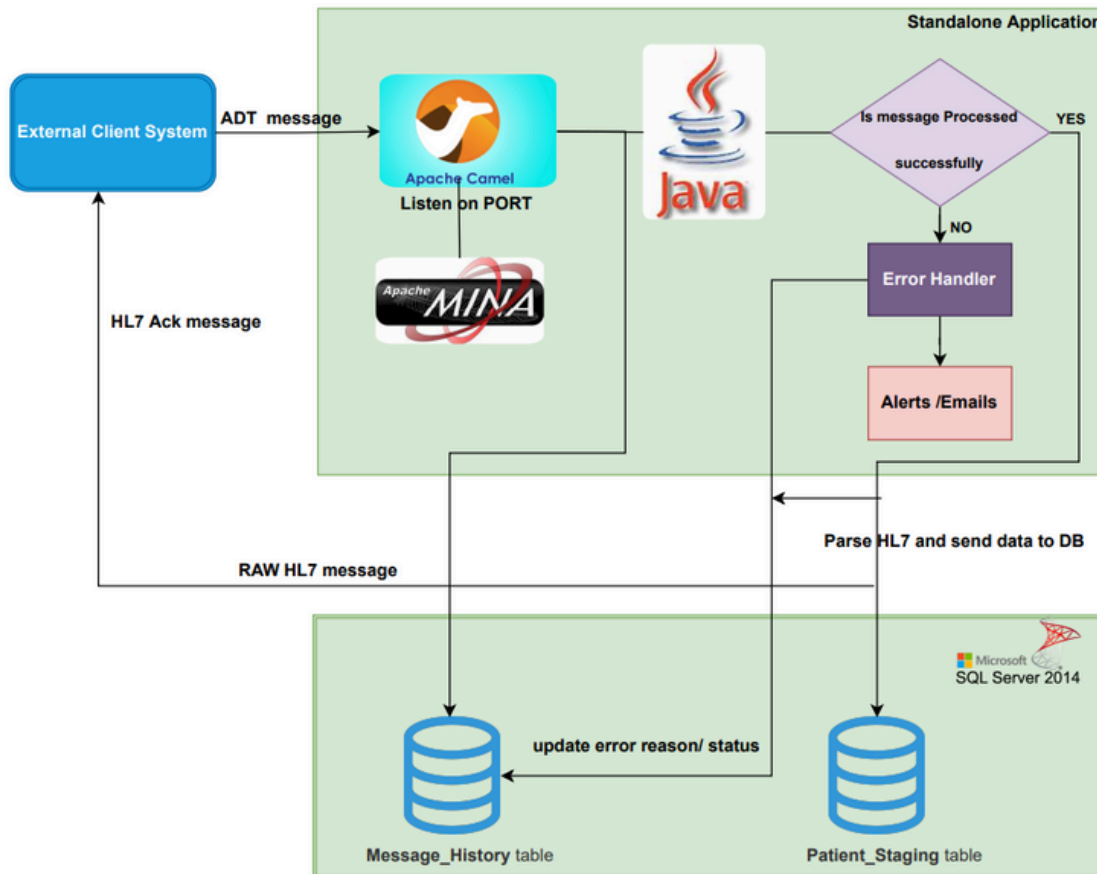
RESULTS

KPi-Tech experts successfully replaced an Interface engine with a Java based Custom application to parse and store healthcare data securely.

- **Enhanced Security**

Custom Java app runs in the secure private network which is not available publicly. Camel offers encryption/decryption services to secure payloads or selectively apply encryption/decryption capabilities on portions/sections of a payload.

- **Compliance**

The data encryption is as per HIPAA standards

- **Cost-effective**

The standalone application was built at half the price of an Interface engine without any recurring or maintenance costs.

Discover How KPi-Tech's Advanced Solutions Can Transform Your Operations

This enhanced version amplifies the narrative by detailing the technological solutions and their direct impact on operational efficiencies, aiming to resonate strongly with stakeholders looking for comprehensive, future-proof solutions in operations.

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