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Transforming Dental Data to HL7 Standards Using FHIR Integration

The Client

The client, one of the leading dental associations in the country, is recognized for developing and enhancing dental healthcare standards.

The Challenge

The client follows specific standards and protocols for data exchange. The process can become problematic and tedious for certain dental practices and DSOs. As a result, they enlisted a fixed number of other service providers to meet this requirement.

One of the leading dental associations in the country has approached us to extract data from the PMS and translate it into HL7 format. They are renowned in the industry for developing and enhancing dental healthcare standards.

For the uninformed, Health Level 7 (HL7) Fast Health Interoperability Resource (FHIR) is a standard developed to allow the exchange of medical records and healthcare data. The client requested the creation of multiple resource files using data extracted from the PMS. While data extraction is relatively straightforward, transforming it into the required HL7 format involves additional complexity and effort.

Our Solution

After receiving the requirement document from the client, we created various resource files. Initially, we selected the required data from the PMS and then extracted it. This data can be anything that the client demands from the PMS. It can be patient data, such as location, personal information, healthcare information, or transaction information.

We stored the data in a data warehouse and a staging database after extracting the data from the PMS. The stored data is cleaned for further processing and transformation. The next step is to transform the data to meet HL7 standards. These files are stored in the Newline Delimited JASON (NDJASON) format. It is one of the standard file formats for storing and streaming structured data.

The final step is to create elements from the extracted data for the resource files that the client requires. We achieve this by extracting data from the database and mapping each value to the corresponding HL7 format. We secure the file with a public-private encryption method to ensure that sensitive data does not get into the wrong hands. This data is uploaded to Azure blob storage.

Results

After we share standardized resource files based on the HL7 model, the client validates this data. They access this data from the blob storage by decrypting it with a private key that we share with the client. Once the client accesses this data, they validate and use it appropriately for their requirements.

We saved the client's time and resources by transforming the data into a HL7 format. The client's researchers could use the data further to improve their services.

Key Benefits

Veltris transformed the client's data into HL7 format, significantly improving interoperability. Here are some of the key benefits of our services:

- Standardized data enables seamless integration with diverse healthcare applications.
- Improved interoperability for easier data exchange.
- Mapping every value from the database is a tedious task that requires a lot of time, and we saved our client from this hassle.
- Transforming the data into the HL7 standard makes it easier to create Electronic Health Records (EHRs).

About Veltris

Veltris is a Digital Product Engineering Services partner that delivers next-generation technology and industry solutions across the healthcare, technology, communications, manufacturing, and financial sectors.
Veltris enables clients to build, modernize, and monetize smarter products and platforms powered by Connected Industry AI solutions. Through an experience-centric approach, agile delivery, and differentiated talent, Veltris helps businesses optimize product development cycles, monetize platform investments, and drive transformative outcomes in niche micro industries.