Technical Interoperability Suite

Functionality

The Technical Interoperability Suite (TIS) enables patient data synchronization from local health and social care systems to C3-Cloud. Following an Extract-Transform-Load (ETL) approach, TIS extracts patient data from local EHRs, transforms the data into FHIR resources using the SIS Structure Mapping Service, and loads the FHIR data into the C3-Cloud FHIR repository. TIS is an extensible platform that provides both a suite of ETL toolkits to support development of integration pipelines for a particular context of use and a task execution engine that allows to schedule and manage the execution of ETL pipelines. A web-based control panel is available that allows users to register patients, schedule pre-configured integration tasks and monitor the task execution. In addition to allowing a user to import data through the control panel, TIS also exposes a REST service that allows a data integration pipeline to be triggered by another software component (e.g., C3DP) in a synchronous manner. TIS is part of C3-Cloud Interoperability Middleware which enables the integration of tools, such as the Coordinated Care and Cure Delivery Platform (C3DP) for the collaborative creation and execution of personalised integrated care plans for multi-morbid patients by a multidisciplinary care team (MDT) with local health and social care.

Solution Components

The Technical Interoperability Suite is composed of the following software components:
- TIS Service – a web application that bundles all web services for scheduling and executing integration tasks and the control panel user interface.
- TIS MongoDB Database - stores the data required to support TIS Service.

Users

The targeted user groups are:

- EHR/EMR system vendors or other platform solution providers needing access to heterogeneous information systems.
- Healthcare provider IT Systems Administrators looking to integrate isolated systems across their hospital

Benefits

The major benefits are:
- Supporting interoperability of heterogeneous systems for integrated care.
- End users can use their local systems while benefiting from the C3-Cloud integrated care solution.

Benchmarking

Compared to other interoperability solutions on the market TIS is:
- Lightweight and simple to customise
- Easy to execute and schedule ETL tasks for non-technical users

Limitations

Limitations and future plans:

- TIS currently only supports the FHIR messaging standard but other standards will be investigated in the future
- TIS requires data sources to have a known API for extraction of patient data

Business Model

The project team seeks to collaborate with relevant partners to build and configure integrations for clients. We will adopt a service and licence model for this.

Implementation

C3-Cloud TIS can be easily packaged and delivered as Docker images.

Dependencies

Technical and organisational dependencies:

- TIS requires a destination FHIR repository be accessible for loading data and a suitable structural mapper for transforming data into the required format.
- There is no OS dependency, but Linux servers are preferred.
- User training can be done remotely via documentation or teleconference

Customisation

Customisation of TIS can be performed by the project team to interrogate a chosen system's API.