

# Establish an architecture design pattern to harness speech-to-text technology in translating conversations into medical records

## A. Problem Statement (Current State)

There are many speech-to-text (STT) solutions available today that could almost instantly convert clinician-patient voice conversations into summarised medical notes in the clinical system seamlessly, greatly enhancing the clinician's efficiency and productivity.

These STT solutions possess features such as built-in medical vocabularies for audio-to-text conversion, ambient dictation, summarising capability that leverages AI technology, natural language processing to generate summary notes, and the ability to support multi-language recognition. With added capability to integrate with Electronic Medical Record (EMR) systems such as Epic, this makes the adoption of STT solutions more appealing.

However, such STT solutions that leverage their proprietary Large Language Model (LLM) hosted at their native location for the processing of audio to text and summarising capabilities poses a challenge: Users may come from countries that have policies governing data sovereignty and data residency restrictions - particularly in clinical use cases where there is the possibility of personal identifiers being stored while processed by the system hosted overseas.

## B. Challenge Statement

How might we address the solution design for such STT solutions with their core processing that leverages their proprietary Large Language Models (LLM) hosted at their native locations outside of Singapore – such that they comply to the healthcare cybersecurity, data sovereignty, as well as data residency requirements?

## C. What are we looking for? (To-be State)

To conduct a time and scope boxed Proof-of-Concept (POC) to address the challenge statement with the desired outcome of obtaining an endorsed architecture design pattern by Synapxe's solution governance authority. The scope of the POC includes:

1. **Speech-to-Text (STT) solution** – The proposed STT for this POC shall fulfil the following capabilities to be considered as a candidate:
  - a) **Ambience Dictation** – ability to accurately generate medical notes from clinician-patient conversations and almost instantly convert voice conversation data into draft medical notes.

- b) **Clinical Summary** – ability to summarise the clinician-patient conversation’s captured text and create a summary note in near real-time with appropriate tagging to the clinical notes. It allows clinicians to review and finalise the notes before they are updated into the hospital’s EMR system.
  - c) **Multi-Languages** – ability to support multi-languages (both English and Mandarin at the minimum).
  - d) **Medical Vocabularies** – ability to support in-built medical vocabularies to capture medical terminologies.
  - e) **Integration with Epic and Other Applications** – ability to integrate at least with Epic system and other EMR system via standard integration methods.
  - f) **AI-Safety** – added advantage if there is AI safety services to detect and block sensitive health information and personal identifiable information.
2. Overall collaboration requirements:
- a. **Collaboration:** This POC collaboration is to establish an endorsed architecture design pattern with a desired STT solution for Synapxe. Once completed, successful applicants are free to use the architecture design pattern established for their future projects.
  - b. **Scope and Timeline:** This POC collaboration is to scope with the focus on the architecture design pattern that addresses cybersecurity and data sovereignty, data residency requirements and aimed at time boxing the exercise to be completed within 1-2 month/s maximum.
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Participate in this challenge statement by submitting a proposal via email to [healthx@synapxe.sg](mailto:healthx@synapxe.sg).

Have any questions? Check out our [FAQ section](#).