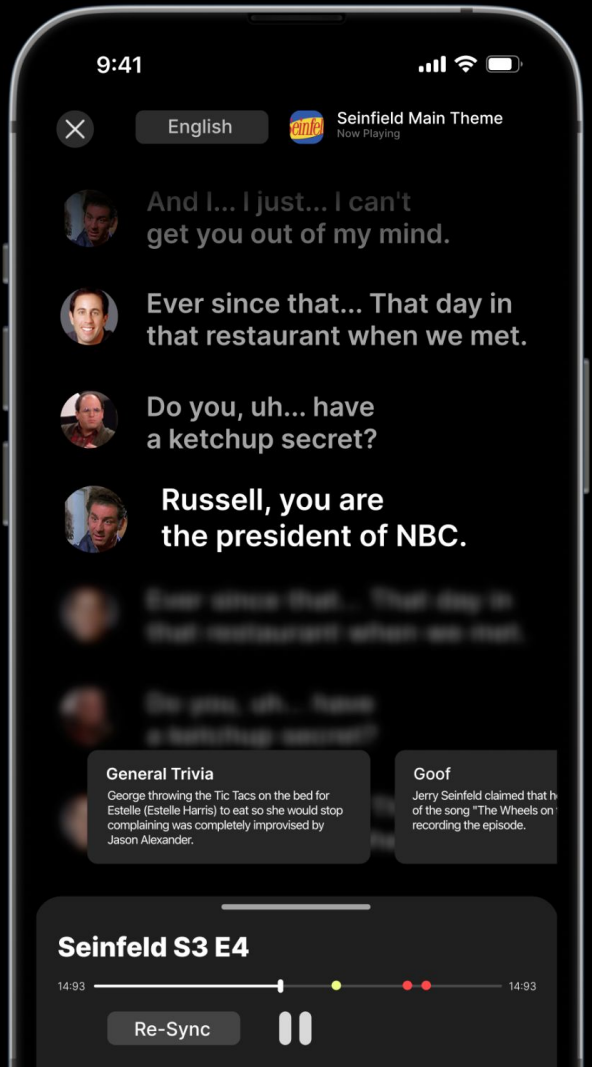


Subtitle**Vision**

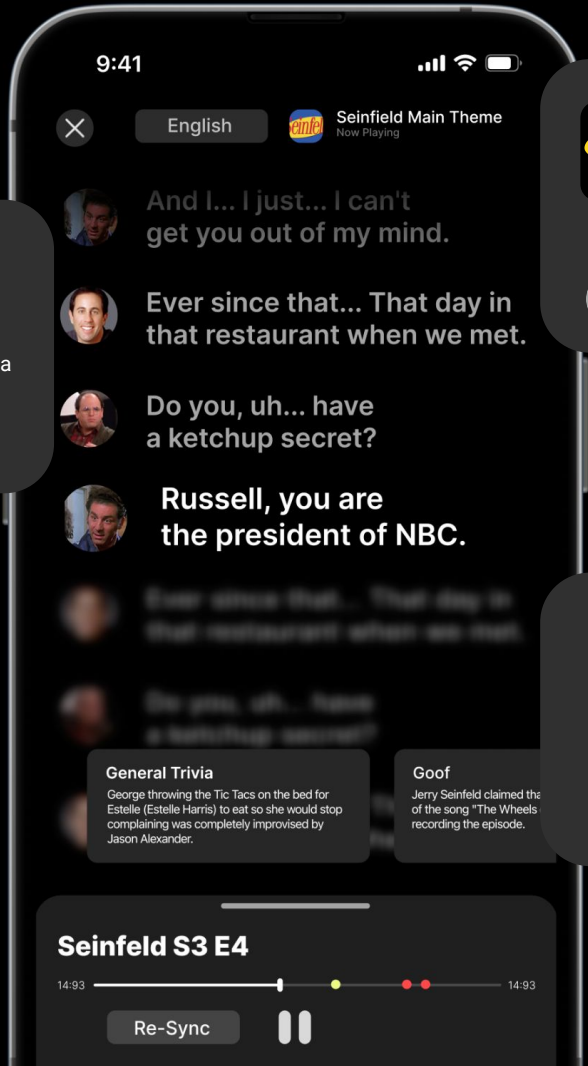
Alpha Demo

Aaron Kovacs, Julia Showl, Ryan Rosica

Jerry Seinfeld

Jerome Allen Seinfeld is an American stand-up comedian, actor, writer, and producer. He is best known for playing a semi-fictionalized version of himself in the sitcom Seinfeld, which he created and wrote with Larry David.

Content Warning



Seinfeld Main Theme

Now Playing

General Trivia

Larry David famously instituted a policy of "no hugging, no learning," meaning that the show must avoid sentimentality and moral lessons, and the characters must never learn or grow from their wrongdoings.

Key Components

Speech to Text
Using Microsoft Azure speech to text API

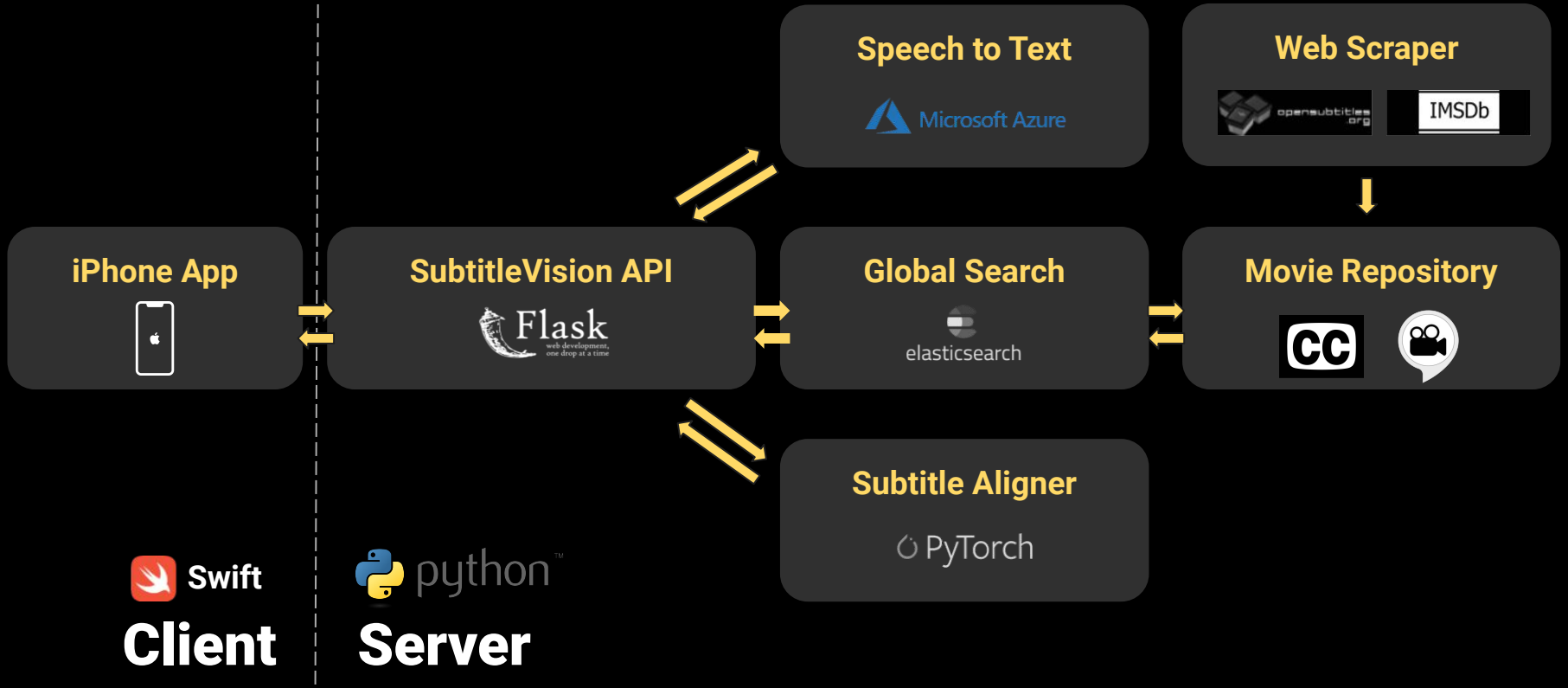
Global Search
Search for substring within subtitle file dataset

Subtitle Aligner
Forced alignment between audio and subtitle file

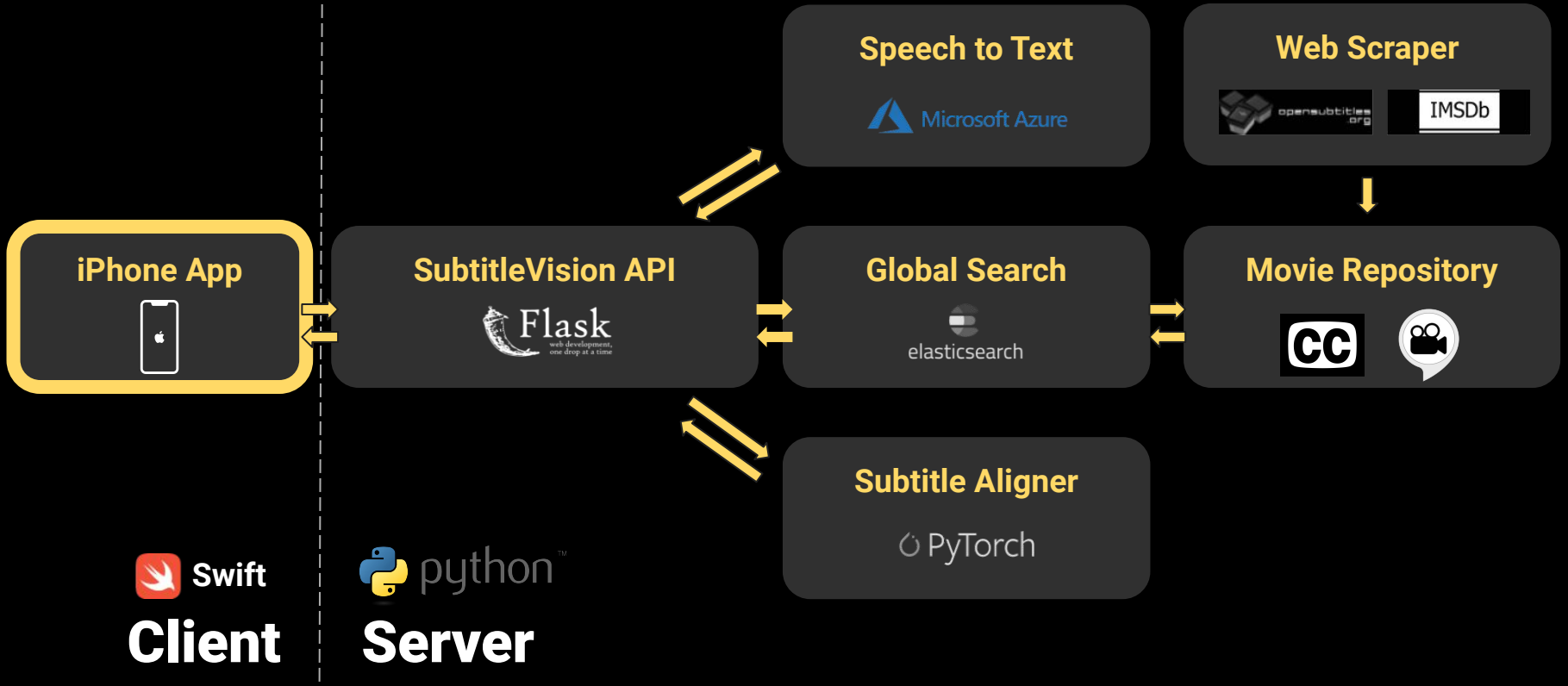
iOS App
Front end user interface for displaying the information

Movie Data Repository
Scrape and organize movie data

System Architecture

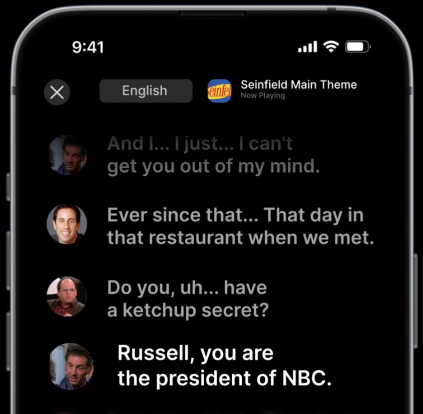


System Architecture

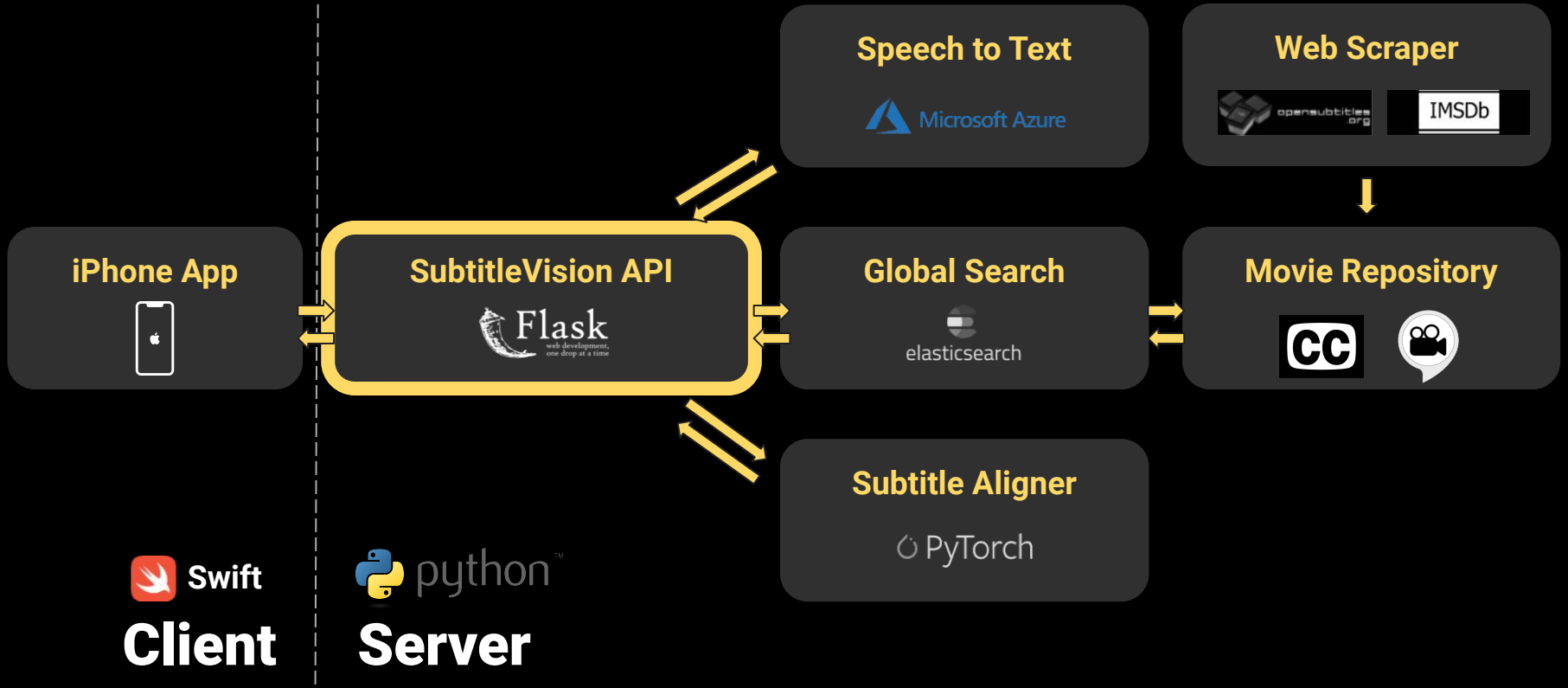


Step 1: iOS App

Goal: A display that is convenient and intuitive for the Movies, TV Shows, and subtitles, synced using audio recording



System Architecture



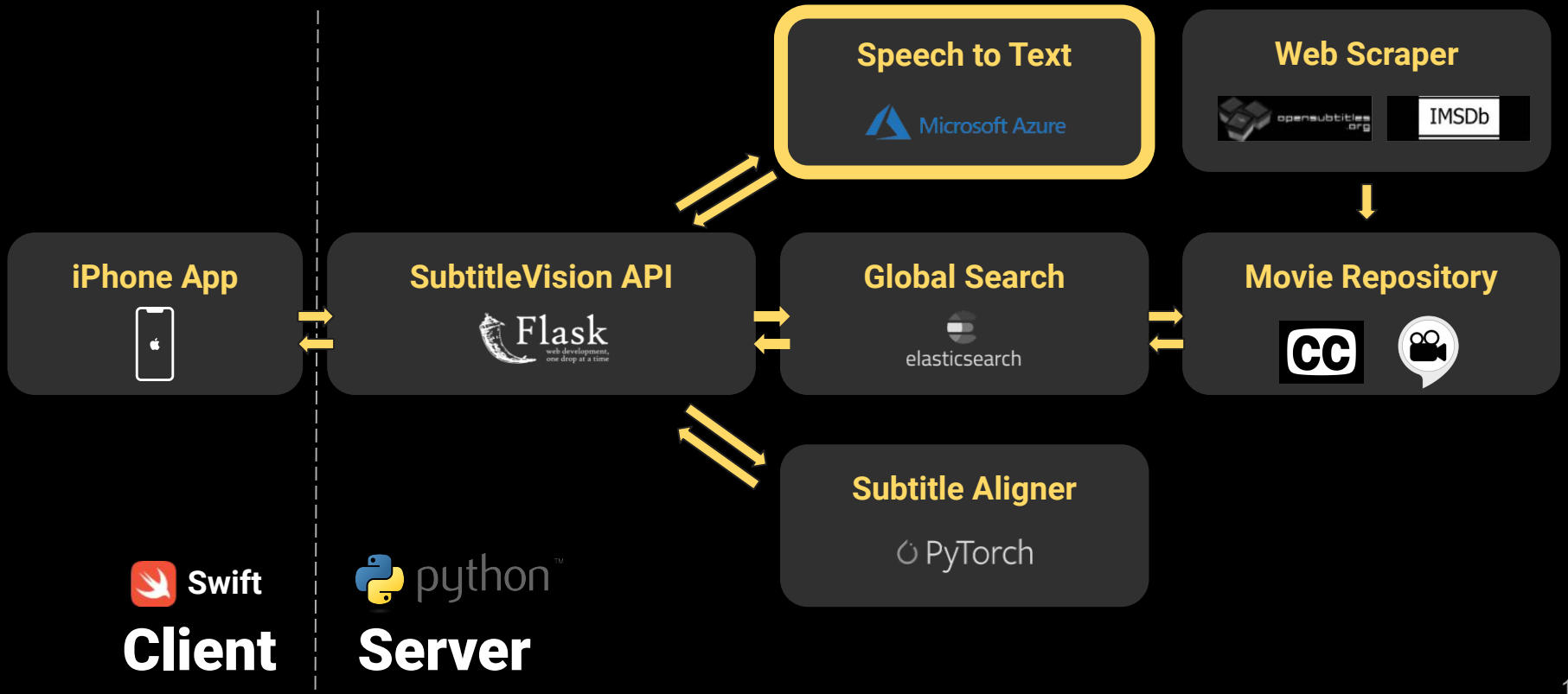
Step 2: Flask RESTful API

Inputs: HTTP requests from the iOS app (Audio Recording Files)

Goal: Process audio and provide necessary JSON information back to the app

1. Call speech to text service to produce transcript
2. Call global search to Identify the movie and rough playback time
3. Call subtitle aligner to retrieve exact synchronization information
4. Retrieve metadata from subtitle repository

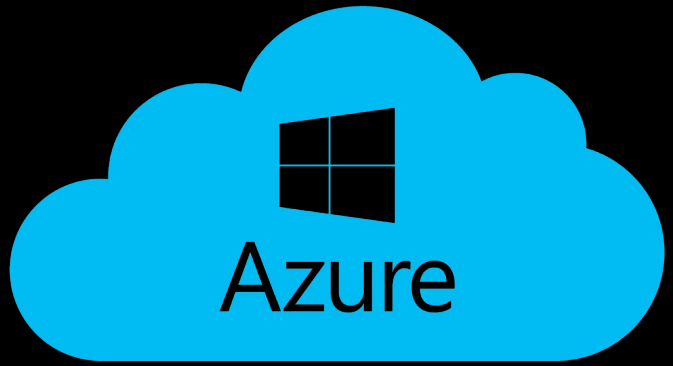
System Architecture



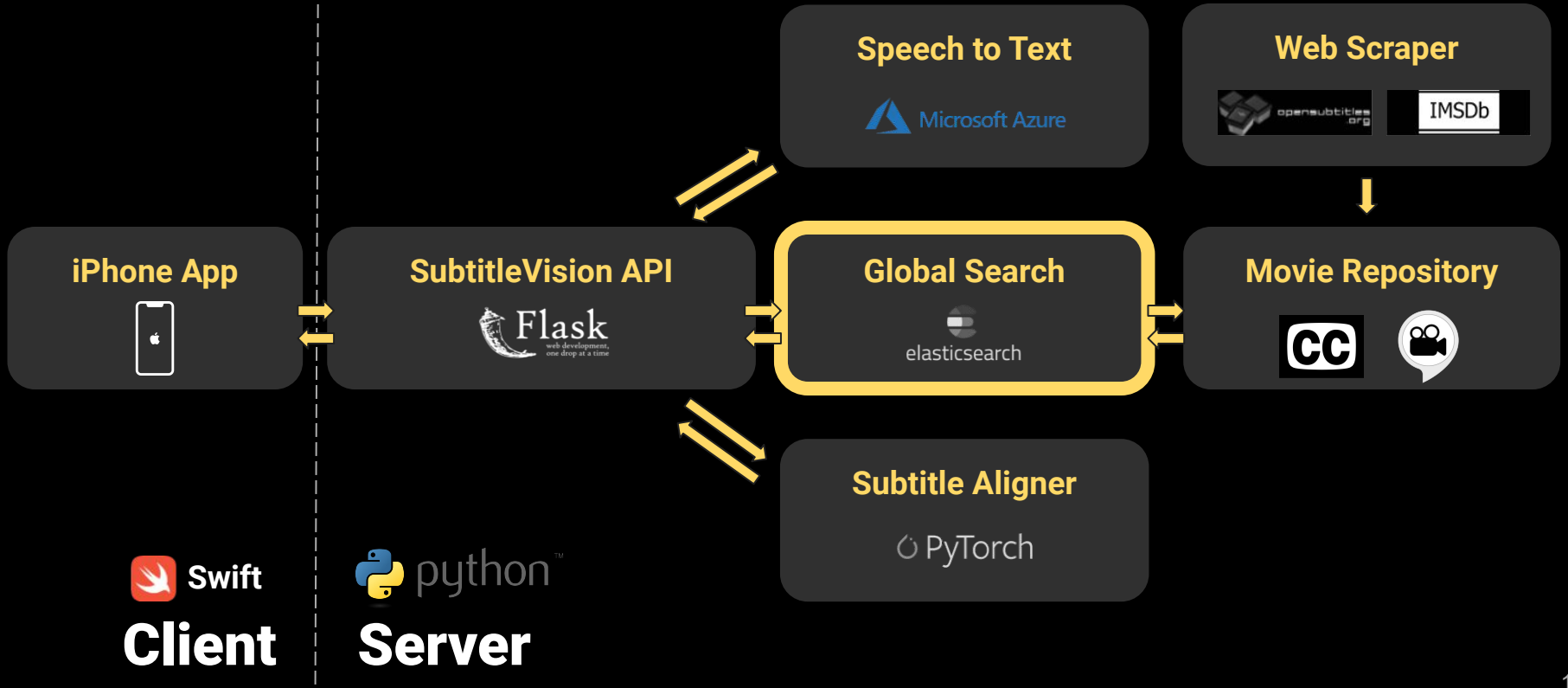
Step 3: Speech To Text

Input: Phone's microphone recording rolling audio sample

Goal: Reliably transcribe the audio sample to usable text



System Architecture

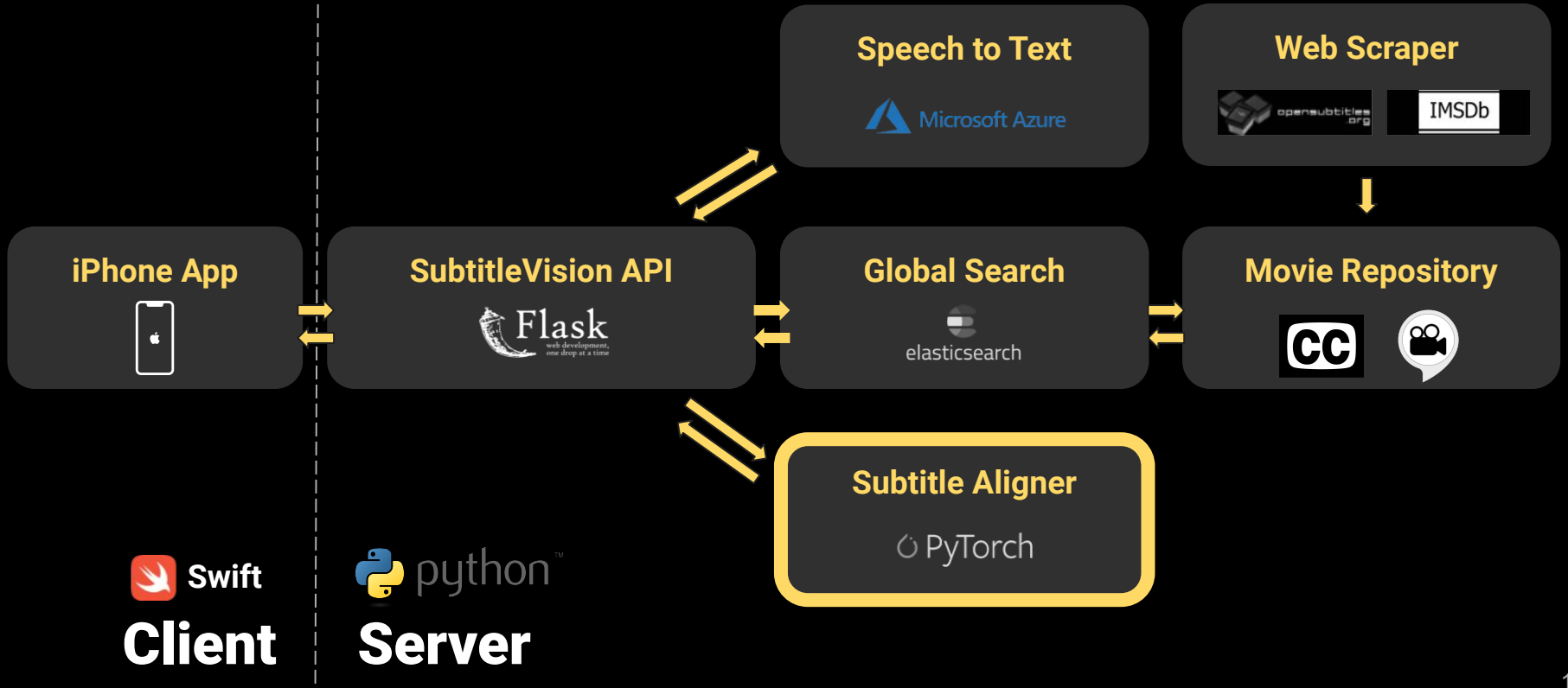


Step 4: Global Search

Inputs: Transcription of audio recording

Goal: Determine the playing movie or TV show and find what line in the Movie correlates with the transcription

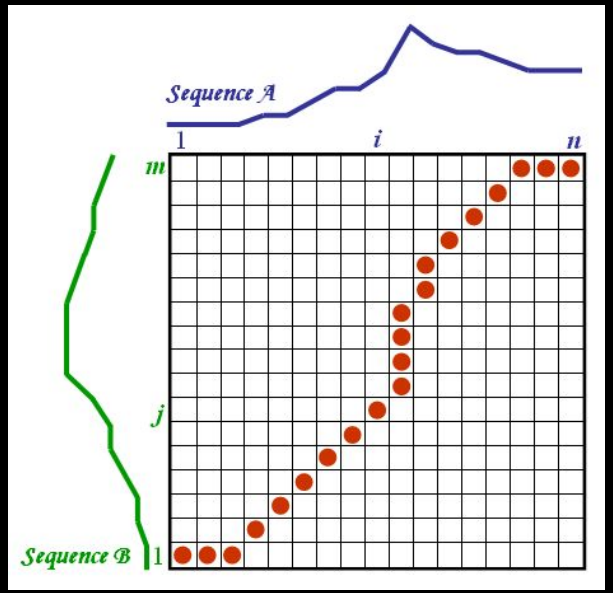
System Architecture



Step 5: Subtitle Synchronization

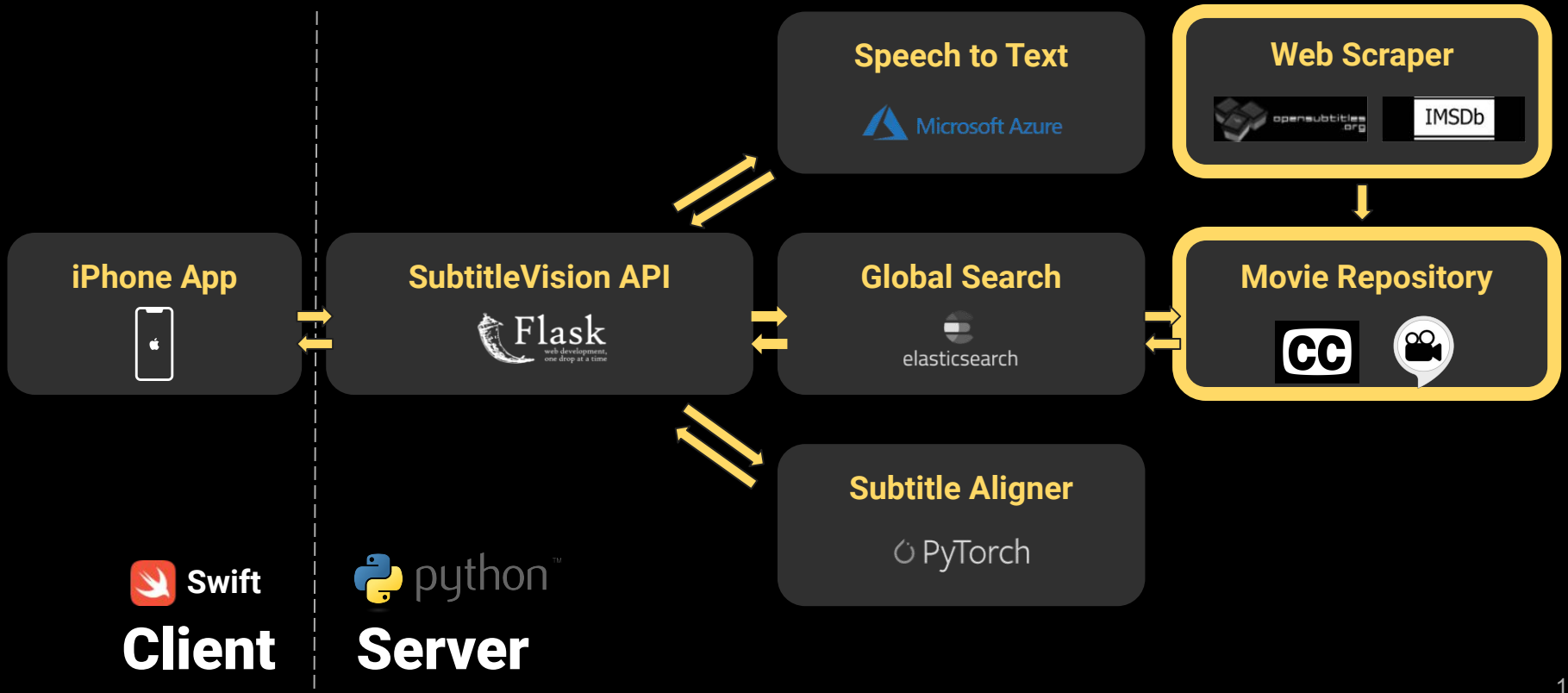
Input: Speech Sample and 3-5 lines of subtitles

Goal: Match a time in the speech sample with an exact playback time in subtitle file



https://techfirst.medium.com/forced-alignment-how-to-match-audio-with-a-transcript-via-machine-learning-dd19da8c0f04

System Architecture



Movie Data Repository

Goal: Build repository of subtitles files and movie information, perform pre-processing

Over 300 movies, catalogued and preprocessed

Questions?