

# Multi-Language Walkie Talkie

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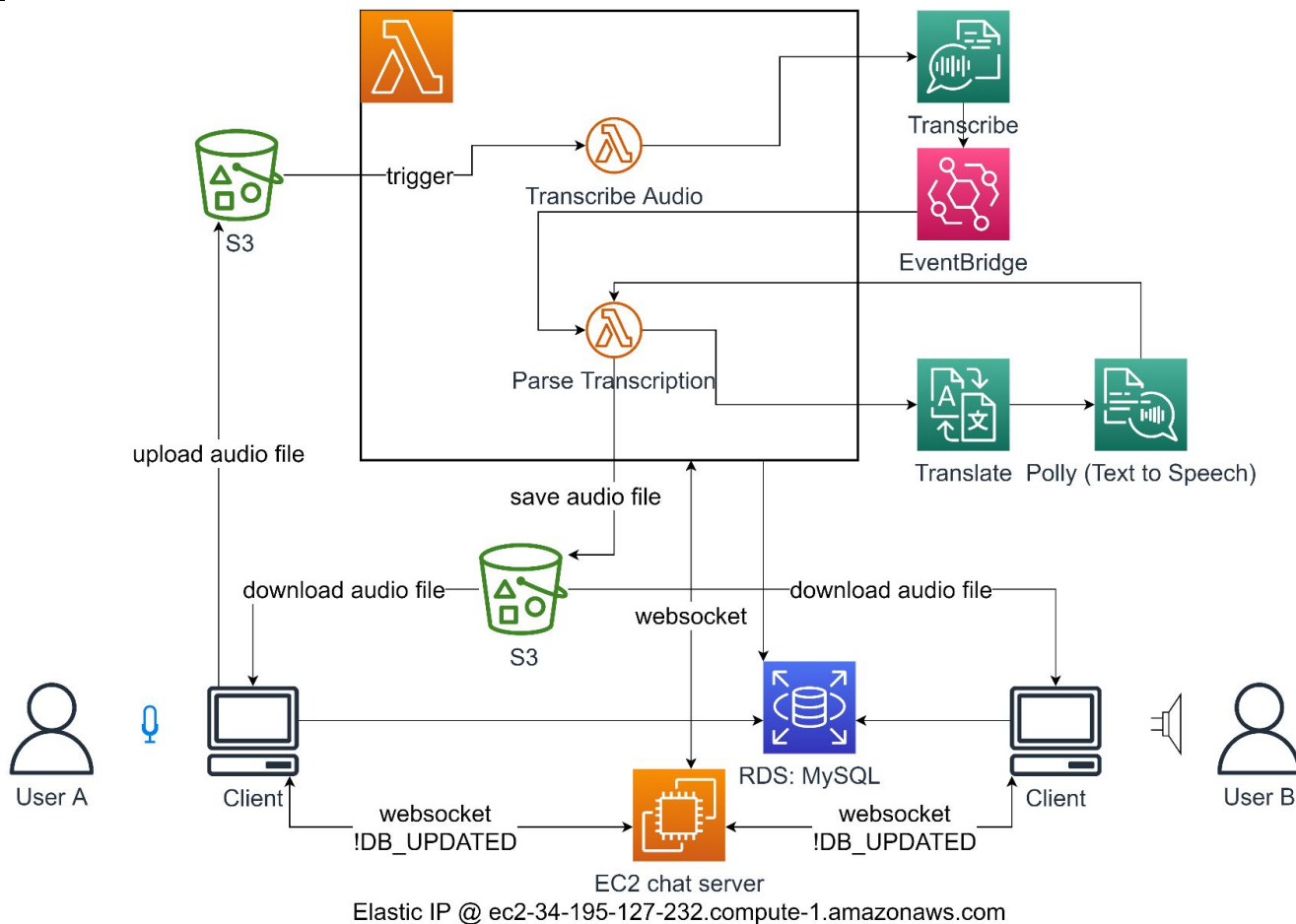
你好



Hello



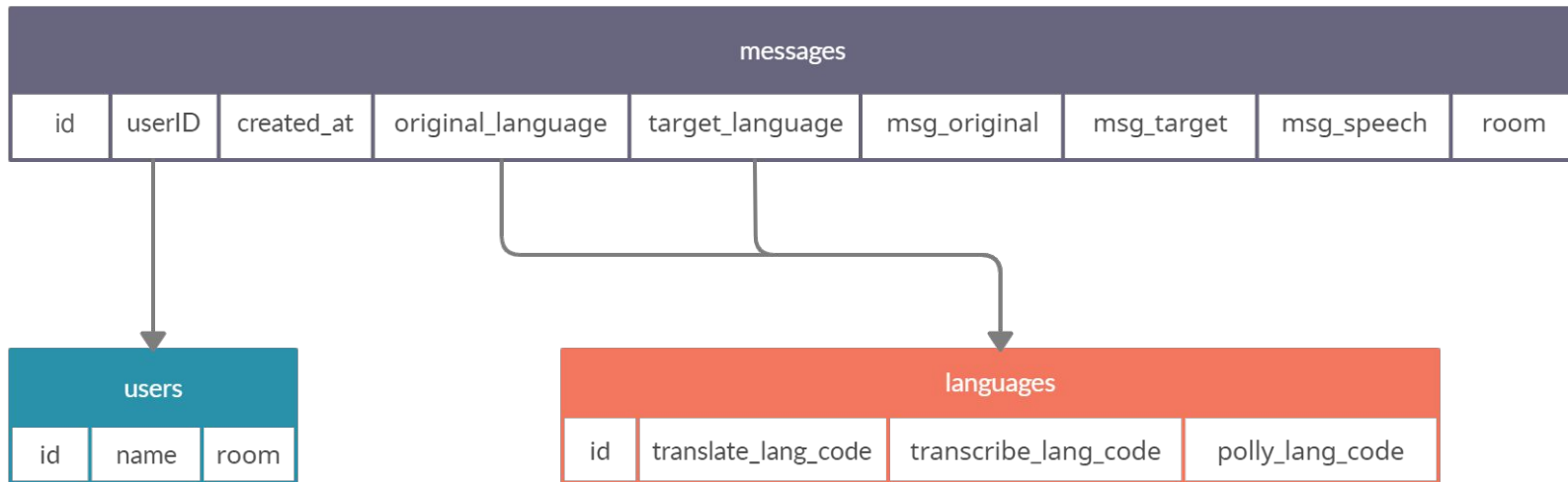
# Architecture



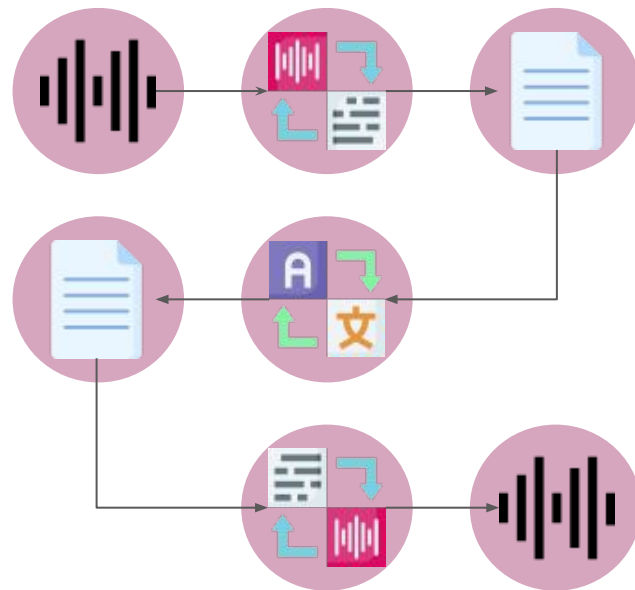
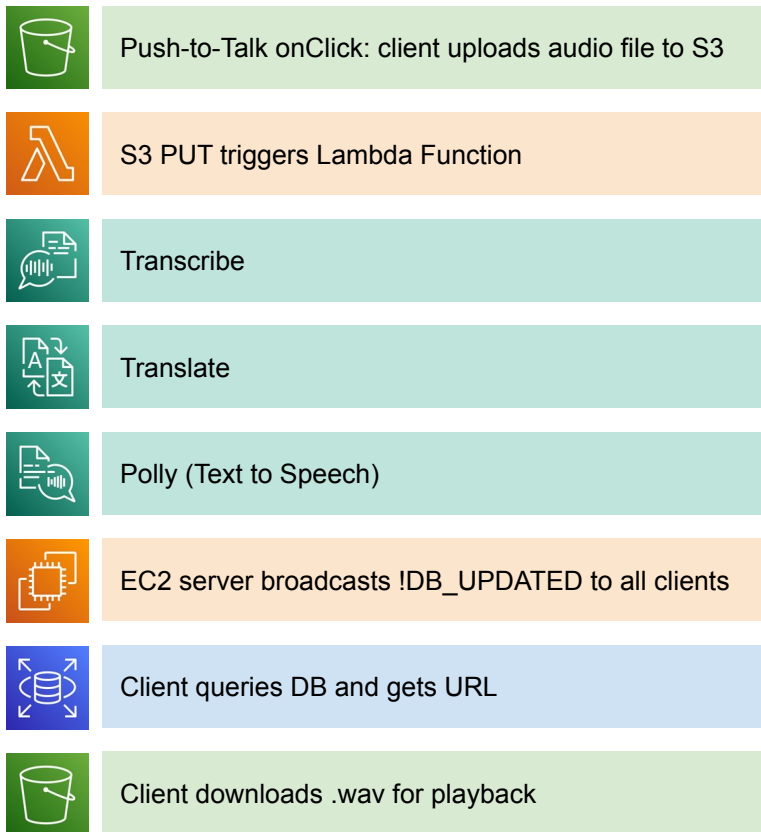
# Database Schema



Amazon RDS (MySQL)



# Data Flow



# Rooms



462.5625 MHz

462.7000 MHz



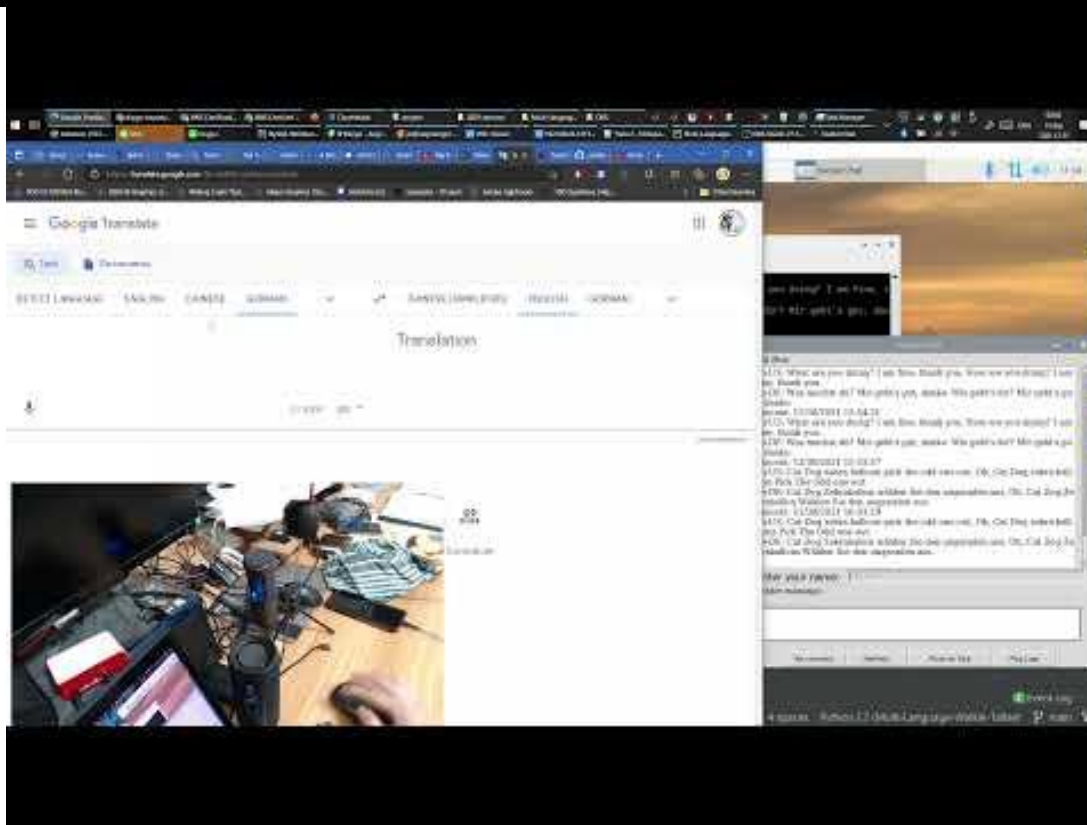
Room 1



Room 2



# Demo

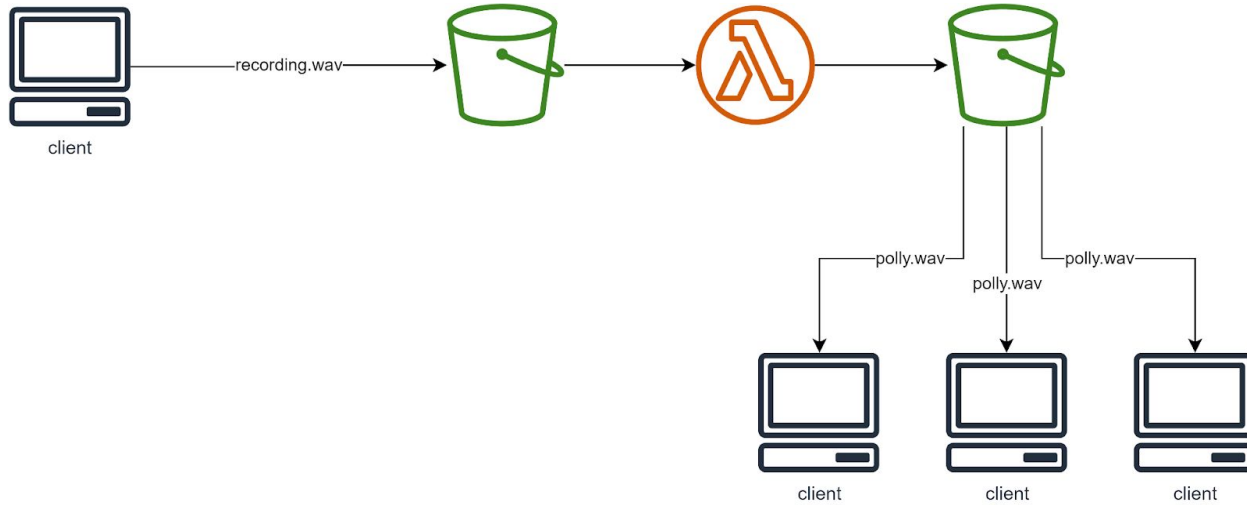


<https://youtu.be/BqdGG8GoxNw>

# Discussion

## Comparison with other Architectures:

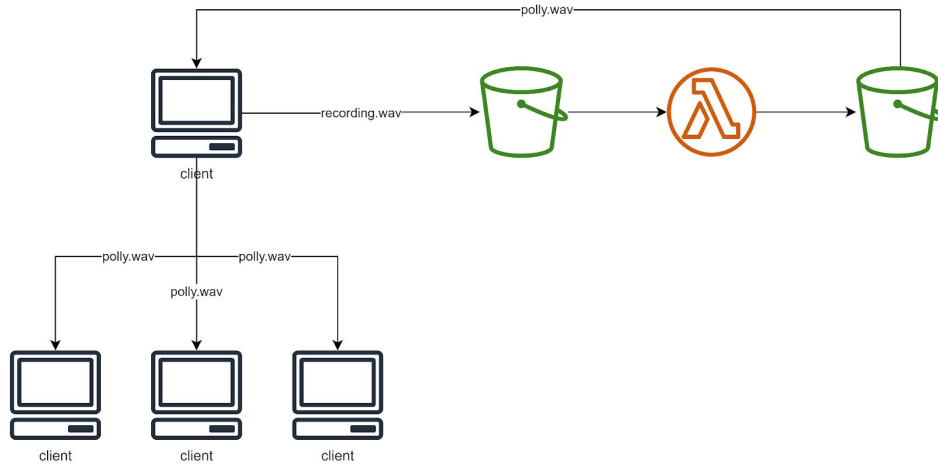
### Centralized



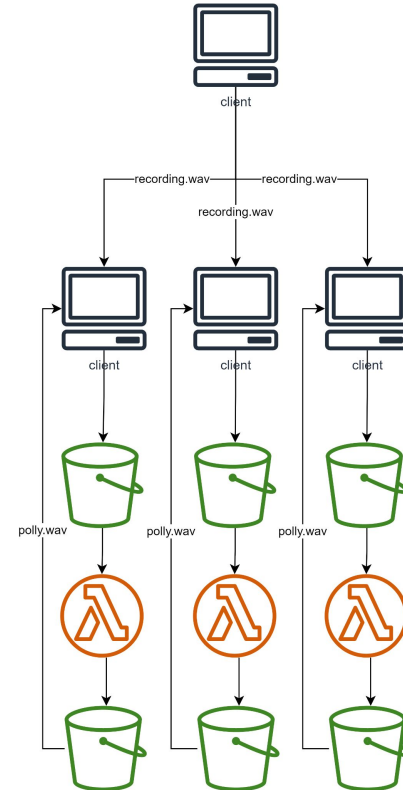
# Discussion

## Comparison with other Architectures:

### P2P



### P2P v2





# Discussion

## Negative Aspects:

- Latency too high
  - No real time communication
  - The whole process from uploading a speech file until we get synthesized speech takes about 30 seconds
    - Transcribe too slow
  - **Idea:** Streaming Transcription (Real-Time Transcription)
  - **Problems:** Chunking, Client GUI

# Discussion

## Next Steps:

- **Multi-lingual Rooms**
  - Currently only two person communication
  - Metadata of the audio file contains what the original language is and what the translated language should be
  - **Idea:** Translate speech into multiple languages. Each client filters for the desired target language
- **Message Identification**
  - Currently client simply queries for the most recent message
  - **Idea:** Client pre-allocates the row in DB table → Get the message id → Send id as metadata
- **Scaling / Availability**
  - Currently our architecture is centralized with one EC2 server (Single Point of Failure)
  - **Idea:** use **AWS Fargate**
- **User Authentication**
  - Currently no user authentication

## Use of existing Solutions:

- Apache Kafka or Amazon MSK