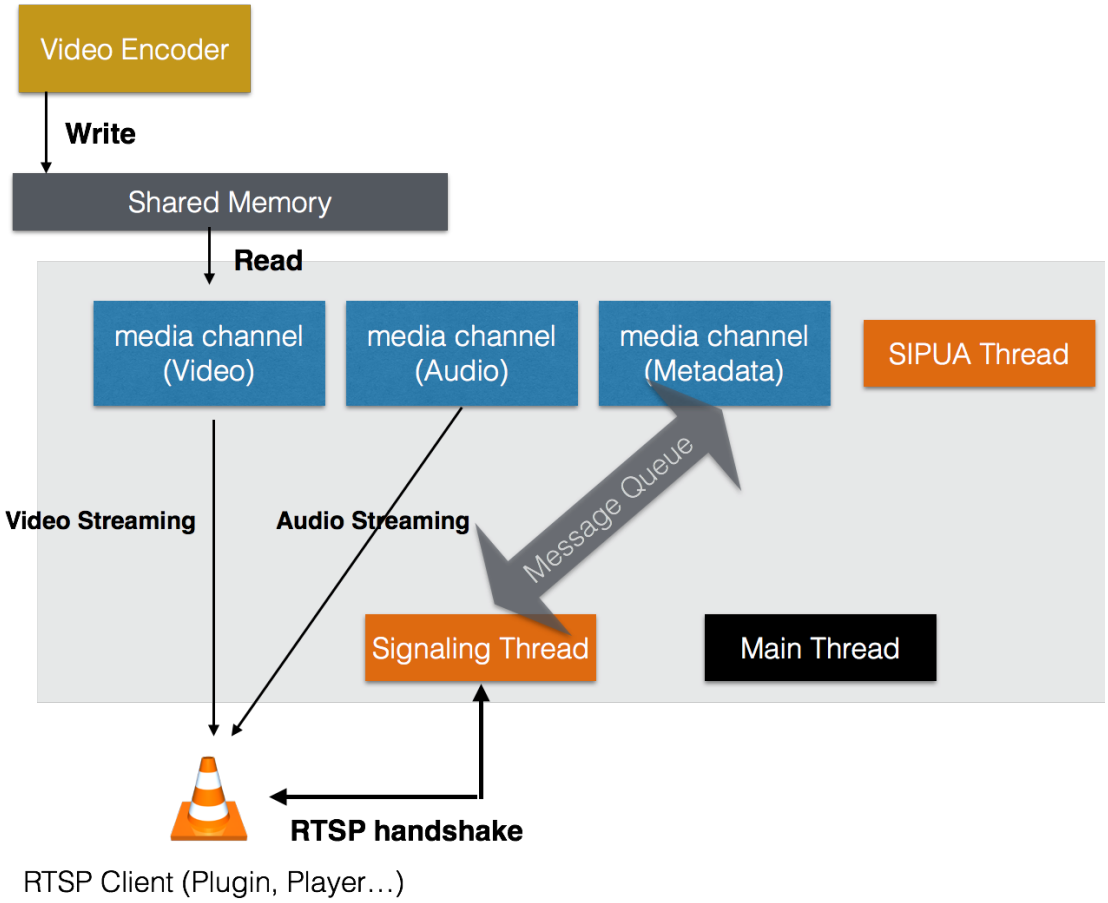
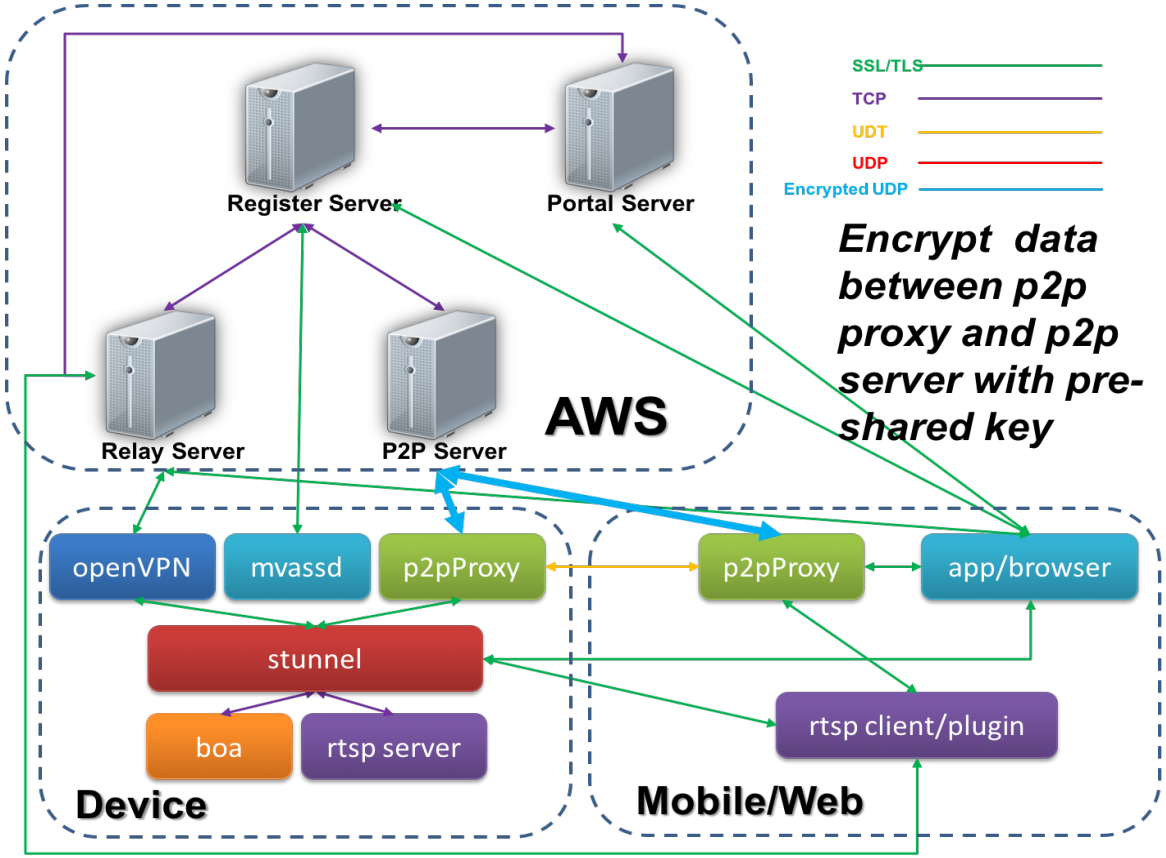
[Project] RTSP Streaming Server



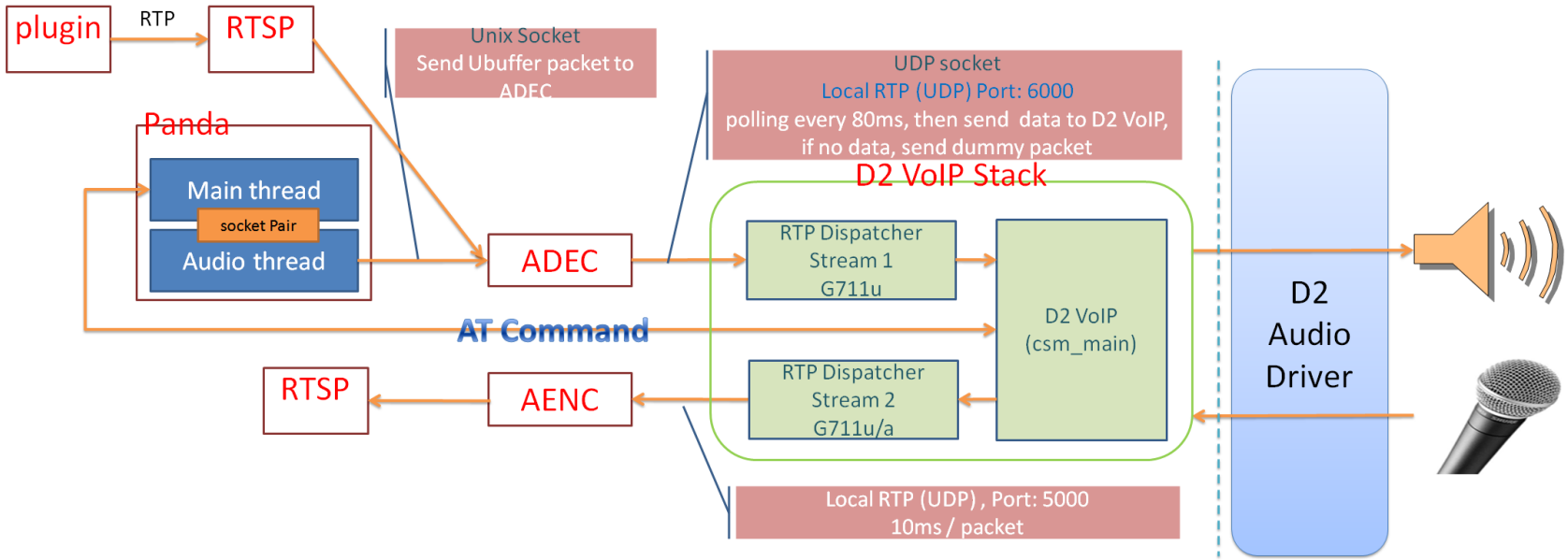
- I was responsible for developing this crucial module inside IP cameras, using C on embedded Linux.
- It is mainly constructed with 6 threads: Main thread, signaling thread, SIPUA thread, and three media channel threads (video, audio, metadata).
- The shared memories are ring buffers for encoders to write frame data & media threads to read frame data.
- It supports various protocols such as RTP over UDP, RTSP over HTTP and SIP. I dedicated to the RFC compliance while keeping compatibility with other third-party software.
- I Implemented H.265 streaming and knew how to encode raw data, composed the corresponding headers, and packetized video data into RTP packets.
- I resolved various issues on networks, OS, and video/audio encoding.

[Project] MVaaS (Managed Video as a Service) Cloud System



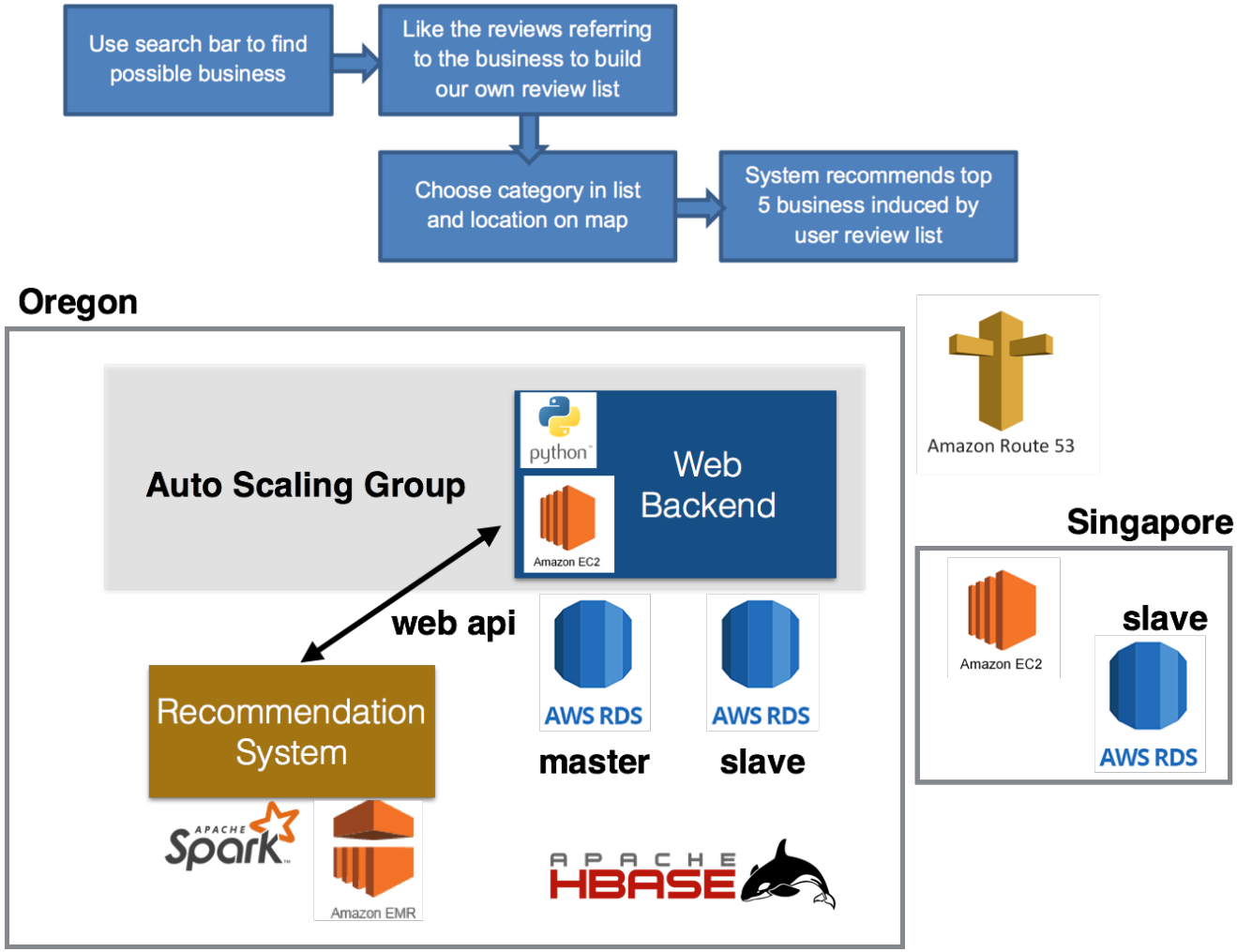
- Users can easily manage their devices (IP cameras) by logging into our system. Once the camera connects to the cloud platform, users can freely watch streaming by mobile devices without additional installation.
- I mainly developed a cross-platform P2P library both for IP cameras and mobile apps, using C++. The P2P hole punching procedure is based on UDP and the data transmission is based on UDT.
- I designed a novel port predict algorithm to improve the success rate of P2P hole punching by 20%.
- The messages exposed to the public network are all well encrypted.

[Project] SIP Based Video Doorbell (ODM Project)



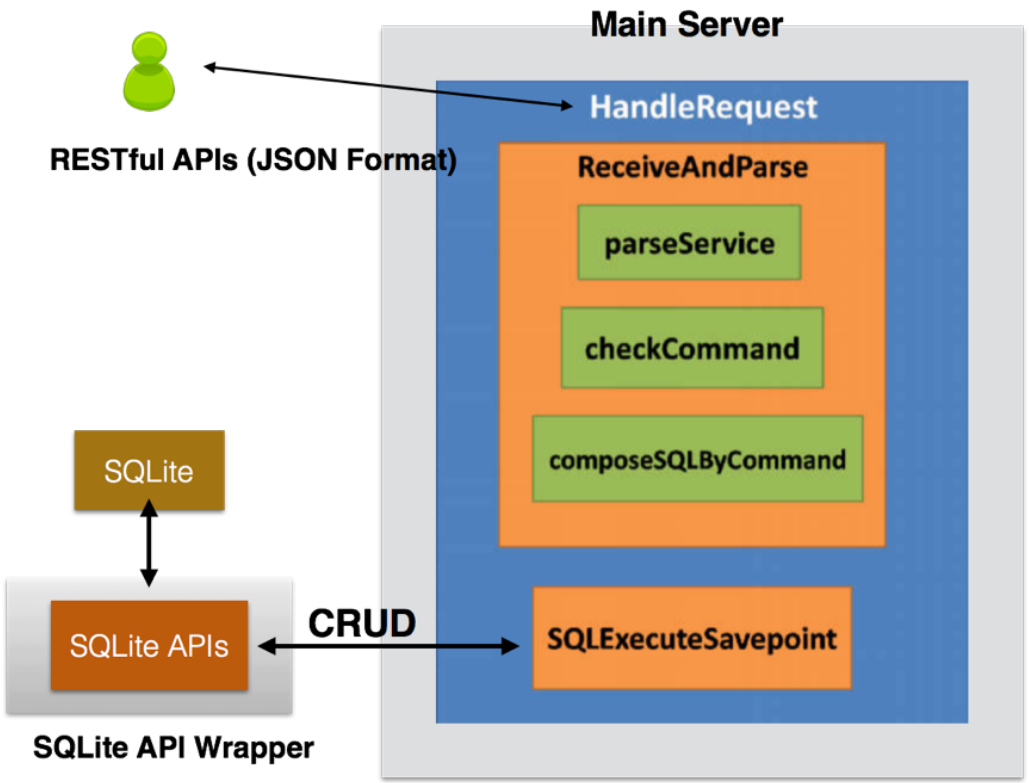
- This project is to build a time-critical VoIP system. The SIP protocol stacks is a kernel driver, and ensures our audio delay is no more than 10ms.
- The video doorbell can be compatible with general SIP phones and RTSP Clients.

[Project] Yelp Recommendation System



- Designed a recommendation system by implementing the collaborative filtering algorithm, using Apache Spark and AWS EMR. It can handle requests from backend servers, train new data set, and provide new recommendations to clients.
- Built the search engine by using HBase to store inverted indexes of Yelp's open dataset.
- Deployed applications and databases on different AWS regions. Used AWS Route 53 to route clients to suitable services.

[Project] Social Networking Service



- Users can register, login, post articles, response others, add friends, instant chat, and transfer files.
- The main server is a single-threaded (asynchronous non-blocking) server implemented by C.
- I Encapsulated SQLite APIs into a series of higher level APIs. Through these new APIs, programmers could register callback functions (called before or after CRUD) and conveniently manage SQL commands and Transactions.