Media Management Platform

Project Work

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Overview

Media Management Platform

- Singular platform for streaming and storage of network surveillance camera footage
- Easy, user-friendly UI for access and management of camera streams

Proposal of tech stack

Media Management Platform

- Backend: Node.js/Django/Spring
- Frontend: JavaScript, TypeScript, HTML & CSS
- Libraries: GStreamer/FFmpeg, Docker, Redis, Coturn and OpenCV

Backend

Media Management Platform

- GStreamer- or FFmpeg-based pipeline
- GStreamer can be used with Python, Java (+ JavaScript)
- Webframework: Python -> Django, Java -> Spring or JS -> Node.js
- JSON-based log sharing with frontend
- Websocket server for message exchange using Redis channels
- Django’s premade user management solution for login and authentication
- SQL server and Redis-based solution to maintain user data, camera data and camera state data

Frontend

Media Management Platform

- By using browser’s WebRTC streaming capabilities we will implement HTML video players
- Exchange SDPs and ICE candidates to set up peer-to-peer connection with backend
- A console for each camera so that a user can start, stop and record footage including video player for livestream

Deployment

Media Management Platform

- Containerised Docker environment to deploy whole architecture
- Local STUN/TURN for better data security using Coturn
- Docker network management for best UDP packet transfer

Open Questions & Discussion