Developing a Video Solution for Enterprise / Surveillance Application

Technology solution provider focused on Video and Test Orchestration solution

INTRODUCTION

Any commercial end-user video solution comprises of the following components:

Capturing

Delivery/Streaming

Consumption (Player and Mobile App)

Content Management

Deployment

Rebaca

CAPTURING

Is the collection of audio/video feeds from various sources

- Capture **full or partial** screen, various types of **camera feeds, audio in/out gathering**

- Maintain **lip/timestamp synchronization**

- Minimum **audio/video latency** in case of network bandwidth fluctuation

- Implement **standardized security measures** within limited bandwidth

- Support various **SIP standards, DTMF tones, AV sync and hardware capability on VC interface**

- Provide portal to **manage meetings, webinars & webcasting**

DELIVERY

Is the transfer of feed in a steady and continuous stream

- Apply **caching, edge caching** and **multicast delivery** for optimal use of bandwidth

- Implement **encoding, transcoding, format changing and segmenting** to support different devices

- **Apache open source** recommended for content/file /LIVE/VOD caching, proxy/reverse proxy, encoding and transcoding

- **Multicast delivery** with existing **RTMFP/RTMFPE** or **proprietary protocol** effective for multiple endpoints but high dependency on **network configuration**

- Maintain/regenerate manifest, playlist and seeking information using **keyframe/time based segmentation**

- **Customization** of **open source ffmpeg for encoding,decoding and transcoding**

- A **Web based video transcript solution**

- **AMS** and **Wowza** are recommended **streaming servers** critical to scalability

- **Dynamic scalability** using **multiple operating systems** and various infrastructural tools

- A **Gateway** catering to several surveillance cameras during deployment, to **distribute camera feeds and camera controls**

- Recommended **open source packagers** for HLS and DASH are S**haka packager, GPAC** and **MediaFile Segmenter**

Rebaca

CONSUMPTION

Is the viewing experience on various end-user devices

- **Recent versions** of **android ndk/sdk** recommended for native decoding & rendering to meet most player needs

- **Opensource Exoplayer** for optimal mobile player development and format consumption of HLS and DASH

- **Opensource** browser based **Video.JS & VideoGular** recommended for HLS and DASH playback

- Native players need modifications to support features like **authorization, genre traversing, encrypted video storing and searching etc.**

- Providing similar user interface on a congruent **mobile app** which is versatile across **all mobile OS, versions and devices**

- A multiview player may be a consideration depending on requirement

Rebaca

CONTENT MANAGEMENT

Is the storing and archiving of the captured feed.

- An **intuitive** yet **effective** UX design

- **Data Processing** on the fly with efficient use of resources

- Maintain a proper **library structure** which sorts user viewings through **desired filters**

- An **interpretive analytics program** providing user feed back and business insights

- Reliable **transfer** of **bulk videos over UDP** with congestion management

- Additional content enriching features like **advertisements, text to speech, tagging** and **watermarking** may be a consideration

Rebaca
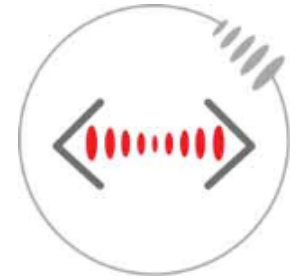
DEPLOYMENT

Is the scaling, checking for redundancy, testing the fault tolerancy, monitoring and management of the solution.

- **Quick** and **efficient availability** of infrastructure with **minimum downtime**

- Support a large number of end users and **scaling on demand**

- Provide a **cost effective** yet all encompassing service

- Optimal result with cloud based solutions on **OpenStack, AWS, Azure**, etc.

- Recommended DevOp tools and technologies are **Ansible, Puppet, Heat**

Rebaca

SOME SAMPLE USE CASES

- **Broadcasting** company wide feeds over a **secure stream** across **multiple locations**

- **Interactive video conferencing** sessions

- **Media bridge** and **gateways**

- **Desktop** & **Web based** VC solution

- **Video Surveillance** System

- Intelligent **video caching** solution

Rebaca