LEARNING SUMMARY ON MEDIA CLOUD

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This week we mainly focus on applications using FFMPEG&OpenCV on the cloud platform.We've searched some useful resources on Github.

1.applications using FFMPEG on the cloud platform

**schema**

Applications using FFMPEG on the cloud platform mainly focus on transcoding. We've searched two similar projects below about it. Additionally, we've also found a useful sample on how to run simple batch jobs for FFMPEG on Microsoft Azure Cloud Services / Worker Roles / PaaS.

**1）.applications on Transcode**

[sportarchive/CloudTranscode](https://github.com/sportarchive/CloudTranscode)   
*a cloudTranscode project*...   
*Distributed video encoding/transcoding using Amazon Web Services and FFMpeg.*

**What is Cloud Transcode ?**

**Cloud Transcode** is your own distributed transcoding stack. With it you can transcode media files **in a distributed way**, at scale.

**Goal**

The goal of this project is to **create an open source, scalable and cheap distributed transcoding platform** where users have complete control over performance and cost.   
the goal is to **transcode any type media files** (audio, documents and images). use FFMpeg for video transcoding.

Today's commercial solutions for video transcoding are very expensive for large volumes. With this solution you can transcode large quantity of files **at the pace you want, thus controling your cost**.

**Benefits**

You can run everything locally if you want, no Cloud instance required. Or you can deploy on AWS EC2, Beanstalk or Docker containers.

Your workers only need an Internet connection to use the required Amazon services: SWF, SQS and S3. It means that you can have a local, hybrid or full cloud setup. It's up to you.

**Transcoding supported**

Video to Video transcoding: One video IN, many videos OUT. Any formats and codecs supported by your ffmpeg.   
Video to Thumbnails transcoding: Snapshot at certain time in video or intervals snapshot every N seconds. Keep image ratio.   
Watermark integration in video: Take image IN and position a watermark on top of the video. Custom position and transparency. Keep image ratio.   
We are working to support ALL FFmpeg options.

**How to use CT ?**

Cloud Transcode is a set of "activities" that are **executed by the Cloud Processing Engine (CPE) project.**

With CPE you can execute workflows (chain of tasks) in a distributed way using the SWF cloud service. It initiate tasks executions on workers that you deploy. You can deploy your workers anywhere: locally or in the Cloud. Your workers (machines running your tasks) only need an Internet connection to access the AWS services.

CPE allows the execution of arbitrary workflow that you define yourself. CPE is a good fit for any type of orchestrated batch processing that needs to span over several workers.

**2).another example on transcoding**

[streamkit/ffmpeg-vod-transcoder](https://github.com/streamkit/ffmpeg-vod-transcoder)   
*a cloud transcode project*...   
*A micro-service with Springboot and Docker used to transcode a single video file in multiple formats, in the cloud.*

**Running the transcoding job in Chronos**

This microservice is built to be executed once for every file that needs to be transcoded. **Chronos is a nice way to schedule jobs if you're using Mesos.**Chronos is a fault tolerant distributed scheduler for jobs that includes ISO8601 support and dependency based job scheduling.   
It's the same with the CT project above.

**3).ffmpeg PaaS**

[chgeuer/FFMPEGOnAzureWorkerRoles](https://github.com/chgeuer/FFMPEGOnAzureWorkerRoles)   
***FFMPEGOnAzureWorkerRoles****Sample how to run simple batch jobs for FFMPEG on Microsoft Azure Cloud Services / Worker Roles / PaaS*

**Definition**

This sample demonstrates   
- how to run a simple executable in one or more worker roles in Micorosft Azure,   
- how to submit jobs to this executable,   
- how to automatically transfer input and output file from Azure blob storage to the executable, and back.

**sections**

Codes contain five parts:demoHost,FFMPEGCloudService,FFMPEGDemoClient   
, FFMPEGLib, FFMPEGWorkerRole to sample a simple batch jobs on MicroSoft Azure Cloud Service.

2.applications using OpenCV on the cloud platform

schema

Applications using OpenCV on the cloud platform mainly focus on the image/video processing, for example , video recorder and face dectecion. We've searched a nice project called CloudCV, which lets quickly prototype a REST API in a Node.js for a image processing service written in C++.

**1).video recording using OpenCV**

[cloudcvr/recorder](https://github.com/xsmart/opencvr)   
*open source ONVIF Video Recorder*

**features**

* ONVIF profile S support.
* Unlimited timeline playback.
* Anti file system fragment recording system.
* Multi Display screen support.
* Alarm Support
* PTZ Support
* ONVIF ProfileS simulator
* Emap
* Data Mining Framework
* HDFS Video Recording
* HW accel Decoding.
* MJPEG/MPEG4/H264/H265 support

*The project looks pretty mature. But,it's just an simple application. If our group add video recording to our huge project, we think it a nice preference for our consideration.*

**2).CloudCV-bootstrap**

[cloudcv/bootstrap](https://github.com/CloudCV/cloudcv-bootstrap)   
*A starter template for Node.js with OpenCV bindings. This project lets you to quickly prototype a REST API in a Node.js for an image processing service written in C++.*

**demonstration**

This project demonstrate interopability between Node.js and OpenCV library.It's hosted in the cloud environment. Here we will see that it's really simple to perform CPU-intense image process routines in the cloud. A Node/js server handle client requests and calls C++ back-end.   
And we can drop arbitrary image to extract dominant colors using REST-API.

**3).CloudFace**

[jinyuze/CloudFace](https://github.com/jinyuze/CloudFace)   
based on opencv&cloud server&ios,Face Detection system.

**demonstration**

*project functions*

* take pictures on iphone and upload.
* preform Face Dectection on the cloud server.
* load the trained model for dectection.
* return the dectection result.

*Resources*

The project contains five main parts.   
ios app, web server,Face detection module batch,Face training module,docs.