오픈 소스를 활용한 비디오 커머스용 라이브 스트리밍 서버 구축

Implementation of Live Streaming Server for Video Commerce using Open source projects

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요약

With the advance of ICT technology, E-Commerce is getting popular and used widely in daily life. Nowaday's commercial videos are also being used extensively to introduce commercial products to consumers. Most commercial companies are advertising their products on the internet with images and videos through online sharing sites. Putting pre-recorded videos online is easy, but it is difficult for sellers to interact with customers. Live Streaming is the transmission of digital content directly to the Internet in real time. Although there are many services available that provide live streaming on the internet, most are limited in the content they transmit. Building live streaming servers using open source projects will help users master the content which conveys to their customers. In this paper, we will consider implementation of Live Streaming Server for Video Commerce using Open Source

I. Introduction

Today, using video in commerce is becoming more and more important. Video Commerce is a method of using video content for promoting, selling and supporting products and services on the Internet. The video can be downloaded and played or streamed to the viewer.[1] Videos will introduce more details of the products, therefore it can attract the attention of customers.

Streaming is a technology used to deliver content—usually audio and video, but increasingly other kinds as well—to computers and mobile devices over the Internet. Streaming transmits data as a continuous flow, which allows the recipients to begin to watch or listen almost immediately. In principle, there are two approaches to streaming. The first method is to use an HTTP streaming and the second method is to use real-time streaming, which uses the standard IETF protocols RTP and RTSP. Currently, the use of real-time streaming is a more efficient approach.[2] Using Live Stream for E-commerce video enables viewers to interact directly with real-time sellers. Therefore, live streaming is a powerful support for e-commerce.

1) 교신저자

Ⅱ. Related Works

In this section, we will show the ways to live streaming and basic problems in video streaming.

1. Live streaming services online

Currently, there are many websites that support live streaming on the Internet such as Youtube, Facebook, Twitch. Users only need to create accounts on those websites, service providers will give them a streaming with a key to connect

2. Live Streaming on the Live streaming Server using Open Source Projects

Basically, live streaming on Live streaming servers using Open Source Projects is similar to live streaming on existing services. However, this method requires the user to install Live streaming server. This will be discussed in the next section.

3. Basic problems in video streaming

There are a number of basic problems that afflict video streaming such as : bandwidth, delay jitter, packet loss.[4]

Ⅲ. Video streaming system

The Live Streaming system will include: streaming sources (Video, Camera, webcam), streaming programs (Obs Studio, XSplit Broadcaster, VLC, ...), Streaming Server and client software (Media Player, Web browser, Applications mobile,).

Figure 1. shows the structure of a Live streaming system. Users will use programs that perform streaming to send video to the streaming server. The streaming server then splits the video file into frames and sends the frames to the client, using real time protocols (RTSP, RTP, RTCP). When these frames are on the client side, they will be stored in the buffer pool and the contents of the frames will be decoded and displayed via video programs (eg VLC player, Flash Player).

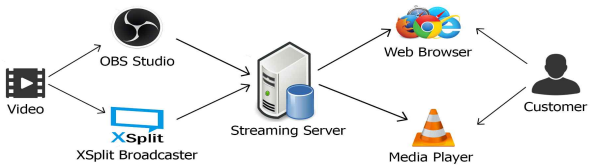

Figure 1. Live streaming System

As mentioned in the previous section, there are two ways to live streaming video on the Internet. These two ways are similar in how they transmit video content to users.

With the use of Live streaming services online, users must create accounts (free or paid) on those sites. With free accounts, users are provided with only one live stream. Content will be displayed at the service provider's website and there will be restrictions on the content posted. With paid accounts, users are offered with greater content customization capabilities, able to stream in more than one live stream and display their content in different Internet locations. However, a quite large maintenance fee must be paid to the service provider.

Building live streaming servers using open source projects provides solutions to the ongoing problems of Live Stream services online. RTMP is actually extremely light on system resources. Its data transfer manner is simple, just grabbing data from the input and forwarding it to the output. Therefore, the live streaming server does not require too high hardware configuration. With satisfactory hardware and Internet connection, the Live streaming server building process is pretty straightforward. With the use of open source, users can save on the cost of using and mastering the video content they want to convey. This gives users greater control over their streams or enables them to stream multiple channels simultaneously at multiple locations and without a doubt, brings wider range of customization.

In my paper we chose to build a Streaming Server by installing Nginx with RTMP module on Linux Server. Live streaming Server using Nginx with RTMP module does not too much regarding hardware because RTMP is definitely light on system resources.

Steps to setup Live streaming Server :

1. Install Linux server : Ubuntu is used for the server software.

2. Install Nginx with RTMP module on Linux server : Nginx with RTMP module is a completely free open source project which can be installed easily on Linux.

3. Set up live streaming Server : To set up RTMP support you need to add rtmp{} section to nginx.conf.

Ⅳ. Conclusions

The use of live streaming for commercial video is increasingly necessary and widely applied. With low requirements on hardware configuration and use of open source absolutely free. Building and using Live Streaming Server based in Nginx with RTMP module is simple and economical. This gives users greater control over their streams or enables streaming multiple channels at multiple locations at the same time and certainly offers greater customization. This paper outlines the concept and setup of Live Streaming Server using open source projects.

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