

# Design of Cloud-based and IPTV Digital Signage System

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## Abstract

*The purpose of this research is to control, monitoring, and broadcast video, audio, text with digital signage system based on cloud and IPTV. It also provides multi content on one screen display included YouTube channel and RSS feed. Network connection transfer using internet protocol, the component of cloud-based and IPTV included with a content management system and a broadcast management system. Companies provide digital signage services are still using one of the ads in large size, this can alleviate the cost of advertising using digital signage. Therefore, the result is a designed from a display of how the content can be variatif when displayed on a digital signage as well through cloud-based and IPTV.*

**Keywords:** *digital signage, content management system, broadcast management system, cloud and IPTV*

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## 1. Introduction

Digital technology is very supported in the field of marketing or advertising. However, it certainly requires a large cost to use it because of more tools needed in the design. For greater efficiency in the use of ads and cost burden, that tools is digital signage. Digital signage is widely used as a tool of the viewer the ads are cheap and efficient. Even digital signage is now a topic of research is encouraged. He also is widely used because it can be adapted to the wishes of the perpetrators of the ads can be found in the Shopping streets, the streets Way, and airport. By using a Digital Signage can display multiple Windows display, and can use a television with digital TV-based IPTV called on LED Signboard Advertising [1]. Furthermore, recent TV broadcast that can be enjoyed by IP networks, but is capable of more TV, such as being able to provide multimedia services and interactive in real time. Because it's very appropriate if the service advertising used an IPTV-based Digital Signage Design [2], [3] Digital Signage that is applied with IPTV surely requires a means in its implementation, and means the most support for the implementation of IPTV-based digital signage this is LED Signboard. LED Signboard is which will be the medium output in the digital signage displays.

IPTV is a new development in the client-server communication software that can broadcast video, audio, text, graphic, high-quality data through the network to the user. Digital television signal delivery is done using Internet Protocol via a network connection as a LAN or WAN. The formulation of the problem in this research is How to build digital signage that can be used for a media delivery of information in the form of text, images, and video through cloud-based and IPTV. In order to make this research more focused, easy to analyze and avoid the occurrence of irregularities and also in accordance with the background that has been described. The purpose of this research: 1) create multi-screen video ads, streaming YouTube, RSS feed using cloud-based, 2) the content dynamic images, text can be played and easily to change, 3) add real-time video and image. The benefits of this research: 1) updating content is quick, easy and cost nothing with digital signage as opposed to traditional signage, 2) efficiency in being able to update the display with up to date content instantly saving resources and time for the business much to the benefit of the end user, 3) Increasingly, digital signage is seen as highly effective medium for advertising, promotion, and marketing.

**2. The Related of Work**

Some of the research that has been done by including the following Jaegeol Yim [1] IPTV in order to design a system with integrated digital signage system-based broadcast management system and content management system. the major components that are described in the picture below is how to make a digital signage system by using a broadcast management system that has been created to fill the content of advertising that will be shown either in the form of image, video or text. The system can work through the service web portal so that users can access the system and can control their own channels easily through internet protocol.

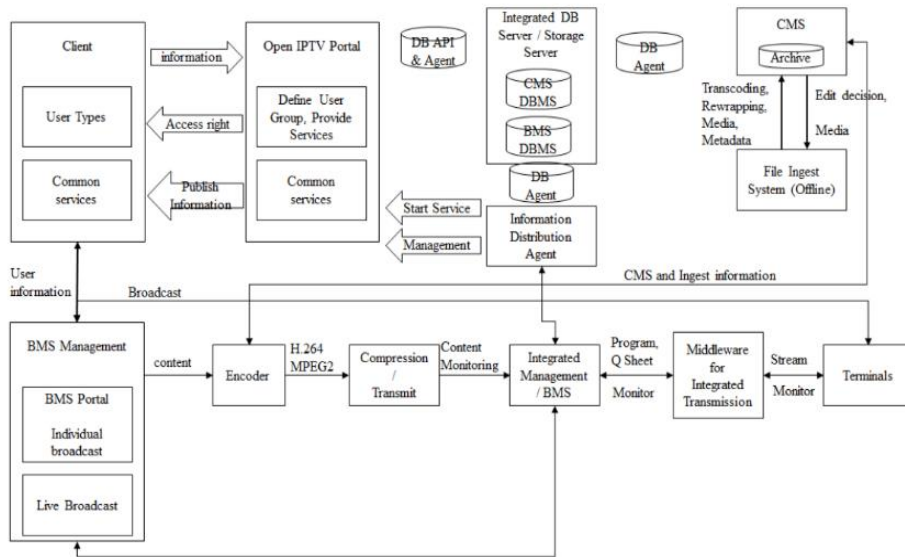


Figure 1. Main component broadcast management and content management

Web portal service provider digital signage provides convenience to be able to upload content that you want to display and manage through access content management system so that it can display it through access to the web portal. Sugiura et al [2] Propose can create a digital signage system that is open access through illustration of system architecture that has been designed. for advertisers who want to advertise content can be displayed on digitally managed signage and accessible via web server using multiple web interfaces. where through the web service can play several players directly. It is also the most effective way to attract people to view so that the ads match the target profile.

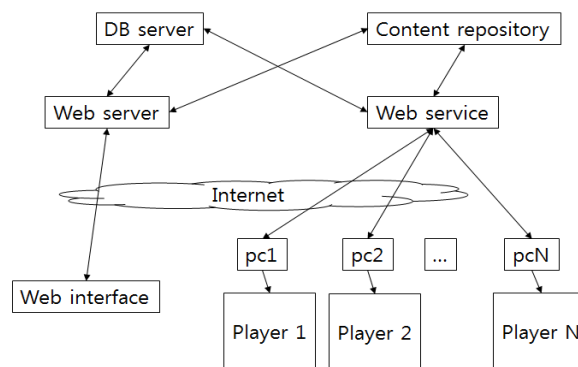


Figure 2. The architecture of CMS digital signage system

Yoon et al. [3] presents a digital signage system in the form of a point access platform that can be configured through the entire mobile system shown in Figure 3. The owner or manager of the ad can define ads that have been uploaded to the web and can be accessed spontaneously using POA and the service provider digital signage system receives requests directly from user to create the ads you want to display. Enabling content that is multimedia content already stored on the server content.

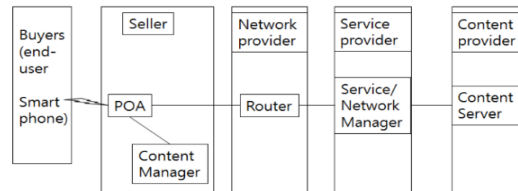


Figure 3. Point of access digital signage system [3]

Using this system users can access the results of ads that want to be displayed using a smartphone where from the user side is also able to change through the service contents that have been prepared through the server contents.

**3. Methodology**

Qualitative research is used for the study and production of design solutions. Because in this study focused on examining the object directly on digital signage. Data collection used interview and observation method, in this case, the author does a question and answer. Also to obtain data that is both real and convincing then the author does a direct observation on the question. Design method to control, monitoring, and broadcast video, audio, text with digital signage system based on cloud and IPTV built use desktop application with visual studio. Where the location of video files and ads that want to be displayed on a store in the cloud-based, it can be called through several players IPTV that have been registered on the server.

**4. Result and Discussion**

The digital signage system at the center of the system integrated from cloud-based and IPTV. Below set-top flow of design from this study. IPTV is a service that provides television programming services (sports, news, movies, etc.) and other interactive entertainment content (music, games, advertising) through an IP network broadband network. End terminals on customers may be desktop PCs or television monitors connected to the set-top box. Digital signage consists of 2 parts, CMS and Signage Player. Desktop-based CMS is installed on the cloud server and signage player on IPTV which is then used to display information.

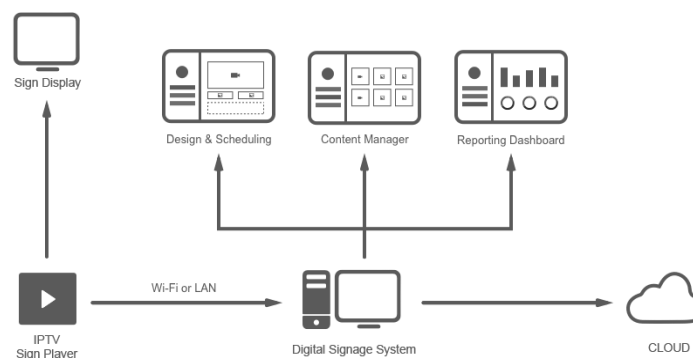


Figure 4. Result and discussion

The IPTV system receives ordinary users request, analyzes user requirements, and produces multimedia content for them. Then, the digital signage system streams or transmits the multimedia content to the sign players. On digital signage, you can make scheduling your content with the content management system. The content manager has broadcast streams a live feed or a video to the IPTV system, then the IPTV system integrates the stream into the program and streams to the cloud. With content management system can control and monitoring ads on multiple screen display, sign display integrated high-definition display, media player with an efficient processor with an option for touch screen and Wi-Fi or LAN network.

The content manager offers remote management of content files to be played on a digital signage system. The content manager on desktop-based software provides central management of content and automates design and distribution of a wide variety of multi-media file format into a playlist. From the design that was made then we will try to display result from design cloud-based digital signage. Where the produce on display advertising in the form of videos, RSS feed and also advertising in text form. Design of the system requires a cloud-based to work optimally. With available wireless connectivity and remote management, deployment is quick and locations are easily changed, also the display has been tested using a LED TV connect to the server.

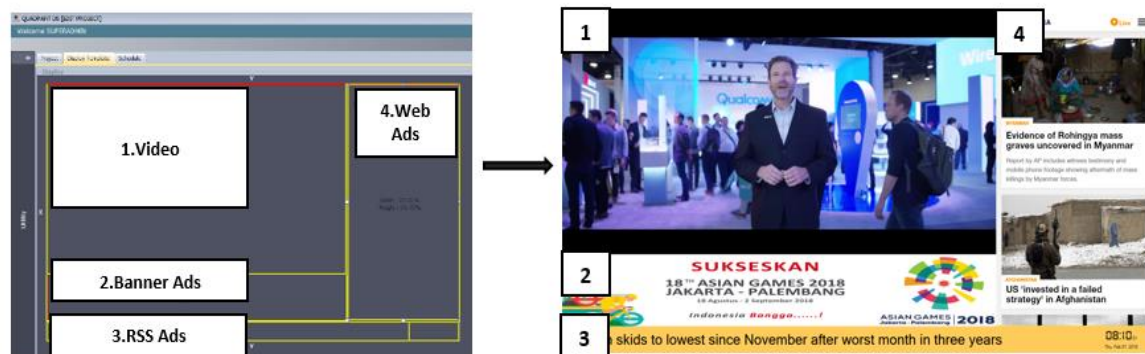


Figure 5. Design view of digital signage system

This design also includes text-based information with a little animation of the moving text flying from the left to right. Trials were conducted to test the capabilities of the digital signage on a cloud-based computer in windows to display the animation smoothly. In addition, the final look can also display pictures and also web pages that are connected to the internet. The above test results using the scheduling time, so each client is given a specific time slot to display certain information is also intended to test the responsiveness of the client and the server. Test scheduling on a desktop computer and a laptop running almost without delay.

## 5. Conclusion

Base on this study the result can be concluded are as follow: 1) digital signage system design has successfully showcased some the size of the display is divided into several sections according to the size of the client device and can provide ease in display ads, 2) digital signage can display the video offline as well as videos from streaming media. Also, can ads with many variations of an image and video, 3) digital signage can make ads more easily controlled and control the display quality of the image resolution is getting a nice image that will be displayed.

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