

A Study on Real-time Web Collaboration Communication (UC & C) Function using Next Generation Web (WebRTC) and Electronic Document (PDF) Technology

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Abstract. Electronic document technology is increasingly demanding unified communications solutions that provide real-time connectivity in a business environment where collaboration and mobility are highlighted across diverse industries. Currently, there is a limit to the infrastructure that needs to build a dedicated HW and SW for mutual use of UC between business channels. In order to secure real-time connectivity for all business channels, technology that is not dependent on the terminal OS and Web Browser such as PC / laptop / mobile phone is needed.

Keywords: VoIP, Cloude, UC&C, Time Stamp

1 Introduction

Next-generation standards-based (WebRTC, PDF) technology is required for instant access and utilization of UC-specific HW or SW without realizing the need for UC-specific HW or SW for all business channel real-time connectivity [1,2].

Recently, WebRTC technology, which is promoting standardization in Google and others, is emerging as a suitable integrated communication technology in such a smart device environment.

The development of web-based SW web collaboration technology and the convergence of telephony functions will increase the demand for convergence technology. 1: n Develop technology capable of voice and video communication, acquire technology for image conversion and mutual sharing of collaborative documents, And secure transmission and reception technologies.

This is a technology that enhances the preservation and authenticity of final documents such as time stamps in order to activate the smart document-based electronic document collaboration market that replaces paper documents and to

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maintain the authenticity of the final document through document cooperation and to prevent damage. Because it is necessary.

2 Related Works

2.1 Implementation of Electronic Document (Form PDF) Structure for Document Collaboration

The structure of the electronic document includes an XML Transport Scheme area for automatically extracting and publishing the input information, a Presentation area for enabling the same expressive power as the paper document environment, an arithmetic operation, an average, an input value You need to implement the structure into the Business Logic area.

2.2 Web (Browser) -based Evolution to UC & C

Currently UC market in Korea is composed of dedicated H / W and S / W base, and it can be evolved into next generation UC & C through development of services that can collaborate with Web (Browser) based on all devices without infra restrictions. Do. [3].

It is possible to respond to various smart devices, and it is absolutely necessary to secure real-time connectivity to the business environment of the company where mobility is emphasized. [4],[5].

3 Next-generation WebRTC Technology

3.1 WebRTC Video Conferencing Technology

Based on a web browser, 1: n (maximum 20 people) video conferencing and document collaboration should be developed on PC, Tablet, and Smart Phone.

It is required to create a secure communication channel (SSL) between the image collaboration server and the document collaboration server and the user to perform user authentication and encrypted transmission to the data packet.

In addition, Figure 2 it is necessary to develop a technology that can improve the quality of the conference (1: n voice or video conference) and broadcasted MCU, and make it possible to make wired / wireless communication between UC and corporate wired (soft phone) or enterprise mobile based on collaboration. [6],[7].

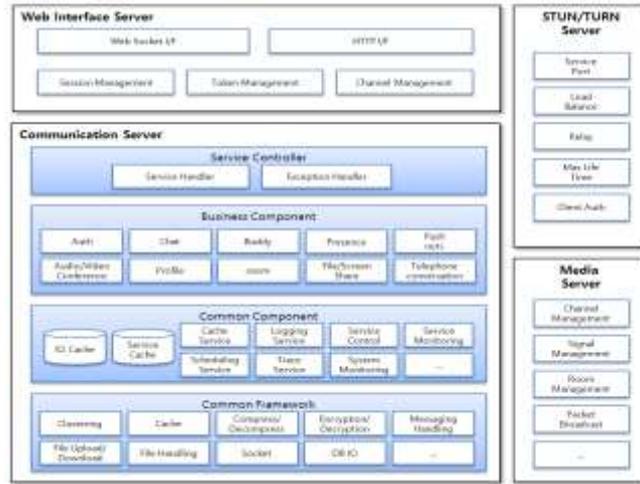


Fig. 1. Web-based real-time communication diagram.

3.2 PDF to HTML5 Conversion Technology

It is necessary to develop HTML5 conversion technology for collaborating on various electronic documents in common Windows environment on WebRTC.

Figure 2 shows the conversion technique for outputting the format that maintains the layout of the original electronic document during HTML5 conversion. [3],[8].

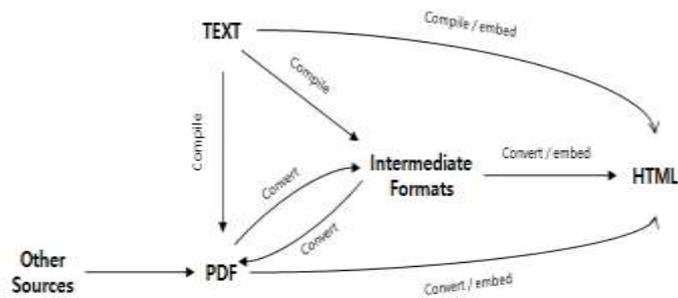


Fig. 2. PDF to Html5 Conversion Concepts

4 Utilization of Technology Development

4.1 Enterprise Business Solutions

The integrated communication means for the optimization of enterprise business process enables to manage various communication means in terms of enterprise productivity and establish business process of enterprise by integrating communication means.

In the case of on-site work based on paper documents in the existing company, the part of the work process that directly handwrites each other manually and inputs the data separately is transmitted from the remote place to the site through the introduction of the PDF-based solution. Simplification of work through utilization in areas where affluent work can be done and strengthening immediate cooperation process.

On-site support services are in place to process the on-site inspection, inspection, and result input process for patrol services such as construction, automobiles, shipbuilding and forest fire, and fire facilities at once. In addition, when various journals about the field management duties are made, it is required to keep records in accordance with related laws and regulations.

However, as the mobile service has expanded, the convenience and efficiency of information processing using mobile have been strengthened, but the requirements of the record preservation aspect have not been satisfied at present.

When using mobile field inspection and supervision service using PDF form, individual processing tasks can be stored / managed as a unit document and can be easily managed as a document.

4.2 Mutual Collaboration System

With the development of knowledge networks, communication requires collaboration between individuals and individuals, individuals and groups, groups and groups.

Figure 3 shows the increase of collaborative activities in the workplace, the time and space constraints for information sharing and sharing, the risk of external leakage of original files due to shared information, In order to cope with increasing demands and obstacles, it is necessary to provide an efficient work management method for the distribution of knowledge information and the utilization of knowledge information through the mobile-based collaboration service and to overcome the limitation of users' Innovation can be achieved.

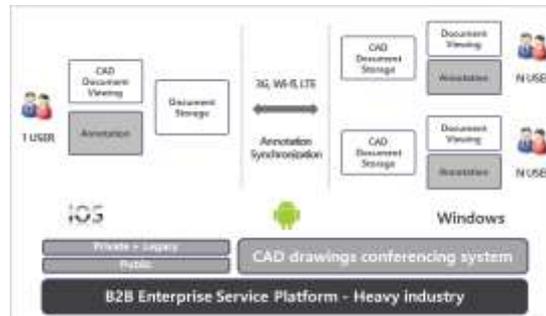


Fig. 3. Collaboration among companies

5 Conclusion

It provides communication function as a next generation UC and provides contracts, subscriptions, applications, and services using Smart Electronic Forms that incorporate electronic signatures, time stamps, and collaborations with electronic documents and mobile devices against other solutions and services in the world through WebRTC, PDF to HTML5 technology. Issuance, and so on.

Next-generation web collaboration service is able to secure company's competitiveness through rapid response and cooperation in business environment where real-time response is required. Various business models considering user devices are being implemented and used in every industrial field, and PDF format Are being activated

Acknowledgment: This study was conducted with the support of Gwang-ju University Research Fellows in the 2018 academic year.

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