



Design of Interactive Teaching System for Remote Conference on Cloud Platform

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Abstract. In the economic development of our country, commercial behaviors are becoming more and more frequent in operation. This research has developed a new web conferencing collaboration system that allows people to work and collaborate on the web. The remote video conference collaborative cloud platform is the most critical part of the video conference service system. It is a comprehensive service platform that integrates terminal customer orders and server-side servers. The main functions of the system include: user-oriented ordering, remote video conference collaboration based on Red5 architecture, and data analysis of back-end maintenance tracking services and customer data.

Keywords: Remote conference · unified collaboration · WebEx system · Red5 video distribution · billing processing · cloud platform

1 Introduction

This project is based on TCL's "Double+" strategy of "Intelligence + Internet + Products + Services" in 2014 [1]. Based on the world-class cloud computing architecture and technology, TCL will jointly build a public cloud service for video conferencing with Cisco of the United States. With the support of TCL's local resources and Cisco's technical strength, we will do our best to build China's top commercial cloud computing service platform [2]. In order to realize the high availability of commercial cloud computing SaaS business, data centers have been built in BGP core nodes in Beijing and Guangzhou [3]. This will support Cisco's WebEx teleconferencing collaboration product and deploy more cloud computing services in Greater China, laying a solid foundation for future operations [4].

"Cloud" is essentially a kind of Internet [5]. In a broad sense, cloud computing is a network that can provide users with various services [6]. Users can obtain any information from the "cloud" at any time, and they can It can be used without restrictions, and the "cloud" is equivalent to a water supply factory, which can pay the corresponding fees according to the needs of users [7].

Cloud computing is a business related to information technology, software, and the Internet. It is called "cloud". Cloud computing concentrates a large number of computing resources and uses software for automatic management [8]. With the help, various information can be obtained quickly [9]. In other words, a computer is a product that

can be traded over the Internet, just like water, electricity, and gas. It is easy to obtain and relatively cheap [10].

Cloud computing is not a brand-new network technology, it is more like a new concept of network. The core concept of cloud computing is to provide fast and secure cloud information and data storage for the network on the network around the network, so that everyone on the Internet can use the vast amount of computers and data on the Internet [11].

Cloud computing is a revolution after the Internet and computers [13]. Cloud computing is a huge progress [14]. In this new world, the concept of cloud computing is varied, but the connotation of cloud computing is the same, that is, cloud computing is a kind of Powerful scalability and demand, it will bring a new feeling to users, while cloud computing integrates a large number of computer resources, so that users can obtain endless resources online, and Not bound by space and time [15].

This collaborative remote video collaboration platform is centered on meeting the needs of external customers and internal business, with products, customers and platforms as the core, supporting business development, operation management, and multi-party collaboration. It can realize cross-regional collaboration under complex business, convergence and complex network environment, provide high-quality business and effective SLA standards, thus effectively improve business efficiency and support, and maximize the Guarantee the use of internal and external customers. Cisco's video, audio, whiteboard, desktop projection, instant messaging, PSTN phone, cloud-based services, to achieve real-time access to the network, and use of conventional browsers to achieve good use and management.

Reached the free application. As the most critical part of the video conference system SaaS, it will become the main content of this article.

2 Development Status Analysis of Conference Collaboration Cloud Platform

In recent years, domestic conference systems have been developing, but most of them remain at the level of video conferences. Except for large multinational companies and banking organizations using IBM Lotus Notes, there is no cloud computing cooperation platform like Cisco WebEx. Instead, it is connected by traditional hardware and dedicated lines. According to the current rapid changes in the IT level of Chinese companies and the increasing frequency of business between companies, we can be sure that this collaborative application will soon be popularized in all walks of life. According to the video conferencing solutions of 42% of small and medium-sized companies in China, it can be seen that the current user behaviors and habits have basically taken shape. I think that in the future telemedicine and online education will be more in-depth. In the future, the company will have higher and higher requirements for remote cooperation and communication, so its development potential is also relatively large [16].

3 Cloud Platform Database Design

Based on the domain-driven idea of DDD, the database model of the cloud computing platform is divided into customer domain, account domain and product domain.

BB_USER_PRODUCT_INFO_T (<B S S>)	
F_PRODUCT_SEQ	NUMBER(12)
F_CITY_CODE	VARCHAR2(8)
F_USER_ID	NUMBER(10)
F_SITE_ID	NUMBER(10)
F_PRODUCT_TYPE	NUMBER(2)
F_PRODUCT_ID	VARCHAR2(8)
F_FEE_KIND	NUMBER(2)
F_STRING_INFO	VARCHAR2(32)
F_STRING_INFO2	VARCHAR2(32)
F_MONTH	NUMBER(4)
F_BEGIN_DATE	DATE
F_END_DATE	DATE
F_BEG_REG_NUMBER	VARCHAR2(20)
F_END_REG_NUMBER	VARCHAR2(20)
F_CREATED_DATE	DATE
F_BILL_START_DATE	DATE
F_BILL_END_DATE	DATE
F_PRODUCT_STATUS	NUMBER(2)
F_CONTRACT_ID	VARCHAR2(32)
F_CUSTOMER_ID	NUMBER(10)
F_PROD_TOTALFEE	NUMBER(12, 2)
F_PROD_FIRSTMONTH	NUMBER(12, 2)
F_PROD_ECPREPAID	NUMBER(12, 2)
F_PROD_AUDIOPREPAID	NUMBER(12, 2)
F_AUDIO_AVAILABLE	NUMBER(2)

Fig. 1. Portal module data table relationship subgraph

The customer area is mainly responsible for customer information registration, service contract management and other aspects of information, providing good support for customer access and market activities. The account field refers to a lot of usage behaviors during the operation of the system, and the account field refers to the next calculation and extraction based on the fees caused by the operation of the customer account in the cloud. At the same time, it also provides a large amount of data basis for the production of CDR documents. In the service field, including site services and tariff configuration, set service access methods, concurrency times, additional function options, etc. according to users' needs, formulate differential price policies and charging models for users, and provide users with accurate information support and effective Service management [17].

The product type is mainly PM_PRODUCT_T, which records product identification, business type, expense category, product identification, channel type, life cycle status, etc.; BB_USER_PRODUCT_INFO_T, which records product identification, company code, authorization effective time, authorization expiration time, whether to activate PSTN and operating status; it includes unit name (full name), abbreviation, business license number, organization code, salesperson, industry, customer code, customer id (system), login account, login password, etc. (Fig. 1).

BB_CONTRACT_INFO_T (<B S S>)	
CUSTOMER_ID	NUMBER(10)
CONTRACT_ID	VARCHAR2(32)
REGISTER_NUMBER	VARCHAR2(20)
PAY_PERIOD	NUMBER(2)
FIRST_MONTH	NUMBER(12, 2)
AUTHORIZE_BEGIN_DATE	DATE
AUTHORIZE_END_DATE	DATE
BILL_BEGIN_DATE	DATE
BILL_END_DATE	DATE
DATAM_FEE	NUMBER(12, 2)
SITES_FEE	NUMBER(12, 2)
PRE_FEE	NUMBER(12, 2)
EC_PREPAID_FEE	NUMBER(12, 2)
TOTAL_FEE	NUMBER(12, 2)

Fig. 2. Management module data table relationship sub-diagram

4 Management Modules

Here, BB_BUS_INFO_T is the acceptance overview, which includes the acceptance number, binding ID, ID card type, ID card number, acceptance items, source of application form, acceptor and other information. When the customer establishes an order, the relevant data Enter into the temporary table BB_BUS_TEMP_T of this form. BB_CONTRACT_INFO_T is a contract information table, which corresponds to each accepted contract information corresponding table. Contains contract id, acceptance number, payment cycle payment method, etc. BB_CONTRACT_BASEINFO_T is a contract details table, which records the generation and generation details of the contract. Including basic contract information, contract signing date, contract number, order quantity, contract status and other information (Fig. 2).

5 Conference Module Design

This solution fully takes into account the characteristics of loose coupling, can achieve separate docking with other components, and can work independently, which is convenient for distributed deployment. From the composition, it can be divided into Flash Client and Service, Html Client and Service, WebApi interface, LibreOffice document conversion service, Red5 video distribution, Redis cache cluster, Freeswitch Software Freeswitch Software and other components to complete (Fig. 3).

Based on BS, this paper builds a conference collaboration cloud platform based on BBS. On this basis, the development of the client is realized by using Adobe Flash

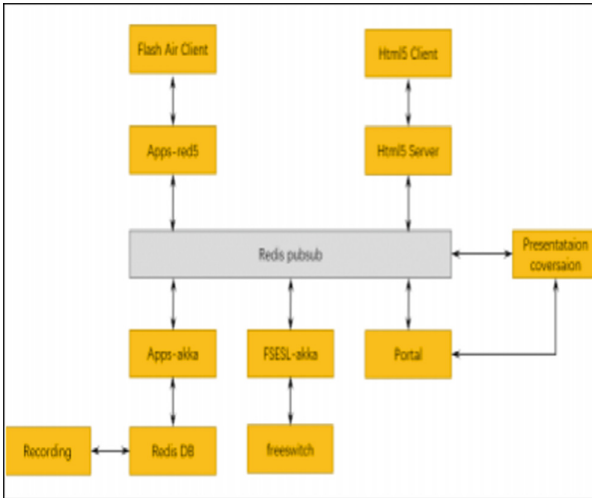


Fig. 3. Component diagram of the conference module

technology. The final client can be directly accessed and run in the browser, without the need for users to download and install, which greatly reduces the user's threshold for use and maintenance costs. The client uses RTMP (port 1935) or RTMPT (port 80). If there is video demand, multiplexing can be performed through the Red5 server. If you need an RTMPT connection, you can connect its Nginx reverse proxy with Red5. The core of the server-side processing architecture is based on the Actor model, and uses RPC to achieve mutual scheduling. The specific architecture is shown in Fig. 5. The model software model of B/S + cloud computing is gradually emerging. Now, many big cloud computing providers provide a variety of services to their customers and developers, some companies integrate them with their business activities to form new services, developers can use APIs to Obtain applications that match the business logic that uses them. With the development of information technology, the packaging of software will become simpler and simpler, allowing more companies to provide more services, and enterprises and enterprises only need to focus on their own careers. Now, the practical application of cloud computing is to give developers a self-management tool, which can specify a suitable own test environment, such as a dedicated cloud, ordinary IaaS cloud or PaaS. Application software based on cloud computing is also a good software agile development tool. If you split the job into many pieces and you don't want to be slowed down by manual configuration, then we want to test it, deploy it, and work on it. We often have a pre-installed application server, workflow tools, resource monitoring, and requirements for certain resources. It not only allows you to learn to use cloud computing developers, but also to create meaningful applications that better serve the company's business needs. Cloud computing enables developers to save time in deploying software and spend more energy on technology research and development.

6 Conclusion

Cisco's "collaboration platform" strategy and huge competition from Internet conferencing providers such as Microsoft, Adobe, IBM, etc. In order to maintain the product advantages and market profits of its teleconferencing synergy brand, Cisco has a deep historical relationship with TCL Group in China, and has achieved remote collaboration in China through joint operations and other methods to achieve all-round localization. In the end, he successfully built a cloud-based remote video conferencing platform, and at the domestic development speed, he continued to maintain the world's mainstream technology and became a domestic leader. Thanks to cloud-based operations, user satisfaction, rapid response, and improved business management can play a key role in the most basic user habits. In the fierce competition of various industries, using this platform can effectively cross the dimension of time and space and improve the competitiveness of enterprises.

Effective communication and cooperation. Only by establishing a more complete cooperation platform to protect the rights and interests of customers to the greatest extent can we truly stand out in the market. This paper analyzes the remote conference collaborative cloud computing platform through the development of it, and analyzes it in detail and verifies it. At the same time, the following research results and conclusions are also drawn:

- (1) In-depth analysis of the business process of the remote conference collaboration cloud platform, from the entrance to the conference collaboration, to the final settlement, users can self-order goods on the web page, and open and use, and the background operation and maintenance personnel Carry out operations and effectively guide customers to carry out the whole process of business opening and use.
- (2) The core function of the teleconferencing collaboration module is designed, and it has certain application experience in video processing and remote synchronization.
- (3) Using a heterogeneous system structure, it has a comprehensive understanding of the entire process of billing collection, approval and settlement, and can effectively work with the upper application system. In short, the compatibility of the remote conference collaboration platform needs to be enhanced, because the collaboration requirements of each industry are different, and the office platforms of each enterprise are different, so collaborative management cannot be achieved. According to the company's future development plan, the next step will be to integrate with the telepresence system to establish a complete hardware and terminal platform to interconnect the entire series of data. At the same time, mainstream technologies such as VR virtual reality, AR augmented reality, and 3D stereo projection can also be applied to the conference collaboration cloud platform.

Cloud computing is a network-based computing method that provides software and software resources and data to computers and other devices as needed. Gartner consultant firm believes that cloud computing is a computing method that utilizes Internet technology to achieve scalability and flexibility of IT resources. Google believes that when we use cloud computing, a large amount of data will be stored in the cloud, and

applications in the cloud will transfer computing functions to the cloud, and at this time, our browser will become our operating system.

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