

Construction of Weather Convergence Media Broadcast Studio Platform Based on Clouds

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Abstract: The Convergence media as the concept of the media industry development are changing the media structure and technical route of every media units under the new media ecology. This paper makes an Innovative Study of the mixed media broadcasting architecture and structures a platform of the live broadcast studio based on the cloud platform, which can effectively solve the problems of the heterogeneous multimedia and multiport live broadcast technology. Through the process engineering of multimedia and multi-source and multiport, The China weather channel live weather news as an example of converging Source, Interaction and multi screen Distribution. This research has opened up a new era of weather convergence media broadcast based on cloud Technology.

Keywords: Converse Media, Studio based on clouds, REengineering, Multisource and multiport

0. Introduction

Broadcast is the most important form of Meteorological Service News Report on TV channels. 2017 Beginning with NetEase, One live, Tencent and other websites, App Multi-media live together, but more "Point-to-Point" Pattern. The traditional technology restricts the fusion media multi-source convergence, New Business Requirements for multi-source distribution. This research is based on the existing channel webcasting technology platform, through further design and construction of webcasting cloud platform "Multi-source Multi-Terminal", "Cloud on the studio" Live in the fusion Media Studio/Webcasting/Carousel function to better meet "Live on the cloud" The integration of media business needs.

1. Cloud Studio Technology

1.1 Traditional Studio

The studio was filmed by television, Basic workplace for recording and broadcasting programs. The traditional studio needs a large area and height

There are also high technical requirements for acoustic decoration and lighting layout. There are usually many video cameras in the studio, Documentary video recorder, Switcher, Tuner, Word Machine, Monitors and other professional equipment as well as ancillary Refrigeration, Fire Fighting System.

The traditional studio uses the serial interface of digital components (SDI) Video Interface. Camera, Word Machine, Outfield video and other signals

SDI Video interfaces converge to the switcher, see photo 1. Switching Stations, Top key, After processing, the signal is output to the VCR for recording or output to the channel broadcast end for TV broadcast. The traditional studio mainly produces and broadcasts programs for the TV media. If the integrated media news report is carried out, it also

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needs to add the appropriate network video streaming codec device and push streaming device..

1.2 Cloud Studio

The cloud studio is based on the traditional studio broadcast mode and function as the reference, the traditional studio switching station, Tuner, Subtitle wrapping, The hardware features of specialized devices such as stunt processing are migrated to the cloud and implemented in the form of cloud computing storage resources and cloud services, as shown in figure 2. Program makers can access and control the cloud-based studio platform via web remote login, achieving cross-Terminal, Multi-Channel Video and audio broadcast signal source switching and scheduling across the region, and at the same time realize the overlay of wrapping subtitles on the live stream, Ad insertion, Special effects rendering and other studio Program Production Functions. The cloud Studio supports multiple terminal push stream access, which allows real-time Transcoding of video stream and playback of the standby Gasket, Media File posting, Users can also manage the services of the multi-layer studio through the management module..

Because the cloud Studio supports multiple network flow protocol source aggregation and multi-end address distribution, it is easy to complete all-media programs. "Make on the cloud" And "Cloud Distribution" Greatly improve the efficiency of integrated media news reporting.

2. Analysis of meteorological media broadcasting demand

In the field of meteorological service media, although television has been established, Broadcast, Website, Mobile Phone mobile client and many kinds of release channel but each channel are in accordance with the service object of different dispersion of the information processing and program of Production. All media in show content planning, Show production link also relative independent there the business chain Dispersion, Resources intensive low, Spread effect is not strong and so on. Main Performance in^[1]:

(1) All media in meteorological service products processing from data source analysis to processing Processing again to foreign release the whole process lack of interoperability, Lack of unified management.

(2) In Media Products Internet, Mobile phone APP, Micro-blog, WeChat, Mobile Terminal and new media resources can't in show in get rapid application show distribution channel single at the same time lack for user behavior of collection and analysis.

(3) Studio meteorological show production link weather anchor and weather graphics, Micro-blog, WeChat, Website Information of real-time interaction function to further perfect.

(4) Service resources and service task in Media Unit between can't achieve unified polymerization and management lack of unified platform on the meteorological news program resources sharing and task scheduling command.

So implementation "Multi-source Multi-Terminal" Live Process Reconstruction is decided to traditional media can real implementation media fusion of key. Through the establishment of cloud studio platform can effective solve the media business platform overall service ability, System Interoperability, Information sharing, Target User resources such as problem implementation all media effective polymerization Implementation Network Interaction.

3. Meteorological financial media mixed system on Architecture Design

Meteorological financial media mixed system on overall technology architecture is cloud financial media live studio design of technology route. It of concept is "Fusion Technology multi-source convergence multi-source distribution". The Platform extension financial media material together, Mixed show live and multimedia show Distribution Function^[23] Formation the cloud Traditional TV of three-dimensional Multi-terminal live construction the cover national of meteorological financial media field live technology platform see Figure 3.

3.1 Heterogeneous platform between the multi-source convergence[4]

The establishment of a National Integration of News Live Network Platform Implementation LIVEU4G, Mobile phone APP, Maritime Satellite, New Media IP Streaming media and many kinds of heterogeneous platform between the

field report of source convergence. Channel program receive system compatible IP Streaming media and traditional radio and television signal channel traditional studio and cloud studio Internet Exchange, With". Studio can will signal coding push flow to cloud at the same time can be Will video and audio flow push to studio call.

(1) Optimization 4G Mobile Internet Live Broadcast System.

Improvement 4G Mobile Internet broadcast terminal and receiving server point-to-point mode, the National and Provincial 4G The live terminal and the receiving server are deployed in the unified platform, and the sharing and scheduling of live broadcast signals of all terminal nodes in the country are realized through the resource control module. Receive server in legacy SDI Additional configuration based on output module IP The two-level broadcast signals of China and provinces will be directly sent to the cloud studio platform for multi-terminal aggregation..

(2) R & D mobile live App.

R & D based IOS And Android Mobile webcasting on Dual-System Platform App And seamlessly connect to the cloud studio Platform. Live App Features designed to be safe, Simple, Based on the principle of practicality, the simple and easy-to-use operation interface is designed to ensure the safety of live broadcast information., Shooting format, Video rate setting. Live App Give full play to the smart phone light and flexible, portable snapshot characteristics, to achieve rapid response to meteorological news live coverage.

(3) New Media IP Stream access.

New Media IP Circulation over RTMP, FLV And Hls And other mainstream network Streaming Protocol into the cloud studio, extensive and rich in China

Deployment of China Meteorological channel broadcast program distribution module in the cloud, according to the total demand of China Meteorological channel financial media news broadcast business, to the national broadcast Point Distribution, Number of concurrent live points, Number of financial media distributors, Live image quality as the basis to determine the cloud platform Storage, Computing, Resource scale like bandwidth. Also deploy cloud in national TV channel Platform IP The stream receiver can decode directly from the cloud IP Live streaming signal, conversion output SDI The signal is provided to China Meteorological channel for live TV, achieving live news broadcast to China Meteorological channel., State-level provincial TV stations and websites, Full coverage of new media and other media in mobile client.

3.3 Financial media interactive live

Content interaction and material exchange between cloud studio and channel news production and broadcasting. The news-making and broadcasting system can download video files directly in cloud storage.

Server the TV end news program of production broadcast also can by meteorological channel of all media distribution platform push to website, Mobile phone APP, WeChat public, and other screen Release Channel.

In content interaction design on cloud studio platform can from Internet, Mobile served by need to grab the audience interaction related data and have simple express of video and audio processing function can for convergence of audience interactive content real-time the Data Screening, Data Statistics, Content Audit and content distribution at the same time also support editor by office network or internet pre-Data Screening. Processing after the multi-channel data source into traditional studio Graphic System data embedded to studio large screen packaging template implementation in studio background Large Screen of fast real-time display. Host can PAD Control Screen Play content and support in PAD Complete material your files of edit work. Host also can in the opposite direction will studio interactive content share to cloud studio platform and user interaction.

4. Cloud studio Function Design

In the cloud studio function design on fully reflect "Multi-source convergence, Multi-source distribution" Of financial media spread concept layout see Figure 4., China Meteorological channel in the major weather news event live when often to convergence provinces of on-site video picture and sound Cloud live Platform Design Support at least 10 Road more than mobile phone APP And professional 4G Mobile Terminal to cloud of field signal concurrent

Routing. In cloud switch scheduling distribution objective end and program source of live Flow. For assurance live video resources of secondary call also have field live at the same time can will material in the cloud of temporary file storage, Management Function.

4.1 Cloud Director Module

No matter is the same site in different angle of camera live picture^[6]Or cross-regional, Cross-Terminal, More perspective real-time collection of video source can "with deployment in the cloud of all media cloud Director test-picture switch Scheduling. Overall Design Concept is reference traditional Studio video and audio matrix switching principle in the cloud deployment live Flow Switch module live current source end address can be through cloud switch module the any scheduling will live flow distribution to objective end address. Development cloud Director interface can be monitoring all online of live flow picture and objective end output picture and pre-monitoring picture. Interface function button assurance studio director can rapid convenient of WebPage Style The live flow scheduling Switch.

The cloud Director also includes a variety of studio programming tools, such as: picture-in-picture video Layout, Cloud video switching Scheduling, Cloud Tuner, Packaging Production, Ad insertion, Transitions, Master monitoring and multi-channel input monitoring, Delay broadcast Control, Chetaka, Multi-channel signal output, etc., can quickly achieve the cloud program content production and broadcast services.

4.2. Cloud collection module

The included module is mainly used to collect all kinds of video and audio material sources gathered in the cloud. The included module is the material provider of the post program re-editing, which is based on the Service-Oriented Architecture (SOA) Architecture, modular, Loosely Coupled design thought, support IP Included, Support UDP, HTTP RTSP Various kinds of protocols, and can classify the source management. Support the working mode of editing while collecting, saving the waiting time of late program editing. Included module can also be connected to the existing meteorological Channel 4G Return system to realize the application of wrong time broadcast.

In order to ensure that the live material included in the cloud will be re-edited in the center's follow-up media program report as soon as possible, In the deployment of the cloud studio system, the existing News Broadcast System of the channel is fully considered. Post-Production System, File Format of material collected in the cloud by file-based production system, Encoding requirements, including: file Encapsulation Format, Encoding format, Video and Audio Encoding Rate. At the same time, to avoid excessive useless material download, the cloud included module has the function of automatically collecting material timing cut. The length of material cut can be arbitrarily set according to the length of the later program. To facilitate material management, the new source must include: name, Live Stream address, Daily program start time, End Time of daily program, Key information such as program retention days.

4.3 Real-time packaging Module

The module mainly through the deployment of live streaming subtitle software, the China Meteorological channel Platform, Host's Name Bar, The news headlines and other subtitle information are superimposed on Live streaming screen, so that the audience can more quickly interpret the scene Information. Subtitles available, Barrage, Overlay function such as cloud angular mark, support for Barrage, Font size of caption, Color and other parameters are set to support Customized settings of video corner position and desktop capture.

4.4 Program broadcast Control Module

The broadcast control module can monitor each video stream in real time, and can start and stop any video stream broadcast at any time. All live streams are synchronized with the standard network timestamp, and the error is controlled in 1 s. Within, the video synchronization switching fully meets the requirements of webcasting. The main Broadcast Channel of the broadcast control module can undertake safe and stable 7x24. It also has a real-time equipment operation monitoring mechanism. When a sudden situation occurs, it can start the emergency delay broadcast

function.RTMPThe network stream is pushed to other video cloud platforms in real time or the third party cooperation broadcast platform..

4.5 Cloud Management Module

The management module can manage the Administrator's permissions at different levels, and can customize the administrator accounts with different levels of permissions..The platform operation management background should have the following management functions: User Management,Resource management,Feature Management,Monitoring Alarm,Content Audit,Operations Management,Portal Management.

4.6 Cloud transcoding Module

The video and audio file format conversion is realized by transcoding module, and the video and audio file format that meets the requirements of content publishing platform system is generated..Transcoding needs to meet routine program Sizing,Clustering,Customized business requirements, and ensure that a single transcoding can correspond to multiple target format output, to meet the requirements of multi-screen integrated Publishing.

To improve transcoding efficiency, the goal of the cloud studio platform is"Extensible,Scalable,Stable" In addition to the excellent software coding algorithm, the transcoding workload is effectively distributed through centralized management and reasonable scheduling of tasks, and the cloud computing resources are fully utilized, ensure that the system transcoding service can achieve large-scale transcoding cluster work, support multi-task parallel work, and intelligently select idle transcoding Service.Transcoding software supports most common audio and video formats in the new media industry, and supports multi-channel,Transcoding with variable bit rate can meet the needs of various business platforms.

5. Integrated media multi-screen scheduling and collaborative process

Go to cloud storage for on-demand after transcoding and auditing in the cloud.The cloud-based studio and channel local studio are connected through the network to facilitate the overall scheduling of live TV and network media..

5.1. Integrated media news Arrangement

In the preparatory stage, the financial media center must distribute tasks and distribute tasks to all relevant departments.[8.],Selection and distribution of the direction and angle of the report.In conventional of all media more screen release or major and special significance show of reported in auxiliary leadership decision-making of each department,Media between Resources Optimization Configuration Implementation Task of the distributed and reported task of global monitoring.

5.2 New Media Information aggregation and Interaction

Material and information of convergence and studio live of financial media interaction is live of flesh and blood.First news information of convergence is by WeChat,Micro-blog,Website and field meteorological News Direct collection to Studio.Then will meteorological data graphics,Big Data Analysis,Field news video and pictures resources one-click of distribution to video display.Meteorological anchor by interactive Large Screen of all media information of desktop of matrix interaction and scheduling select on meteorological service content Interaction explain and show.

5.3 All media more screen collaborative release

All media more screen release of collaborative full use the various broadcasting platform improve the column or event reports of influence in Show System on all process in when line all kinds of information of release including: on before preheating on multi-screen with on finishing again advertisement and formation the set media content production,Director,In an of complete link.

6. China Meteorological channel financial media live instance

6.1 323 World Meteorological Day theme live

2018Years3Month"Zhi guan wind and rain Hui know warm"World Meteorological Day the theme reports, China Meteorological channel inThe 《 The millennium meteorological password looking around wisdom meteorologicalOfSpecial Program in First Success Application"Cloud Studio"Platform Implementation continuous5A hours"Multi-source Multi-Terminal"Financial media live reports.In live the whole in Fujian,Xinjiang,Hubei,, Hunan,Guangxi and other9A province of reporter by Mobile Phone Mobile End installation of liveAPPWill field live flow signal push"Cloud Studio"Platform rear studio edit production personnel from cloud receive live flow signal, the graphic packaging after will live flow signal secondary cloud.Final by cloud To Netease,A live,Tencent,Sina,Today headlines,Love fantastic art and six home Internet media live Distribution.Live reported the whole get the large number of users of positive access and browse many user also positive and meteorological anchor the topic Interaction.Cloud studio platform in improve World Meteorological Day theme of propaganda the to key role.

6.2 Typhoon"Kanu" Meteorological Disasters News Live

In Typhoon"Kanu"Landing emergency service in, China Meteorological channel unified scheduling reports power unified planning,Unified topic,Unified scheduling

5Of Meng Beijing such as: based on cloud of meteorological financial media live studio Platform Construction 57

Today headlines,Sina micro-blog,WeChat public,Tencent news,Netease news,Sina"A live"And Multi-Channel News social media of push TV and new media of combined with live reported and in short time in network flow broken300Of.In addition in the live in channel also for the first time and Central Meteorological Observatory,Guangdong weather and Officer micro-the interaction two official micro-forward and like reporter wind forecast and original short video made the quite good of Spread Effect.

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