Construction of Converging Media Platform in All Media Times

Jinbao Song, Xiaoya Zhu and Yiming Ma

September 4, 2019

Construction of Converging Media Platform in All Media Times

Jinbao Song, Xiaoya Zhu, Yiming Ma
Communication University of China, , Beijing, P.R.China
songjinbao@cuc.edu.cn, 1843705850@qq.com, mayiming0903@qq.com

Abstract—**This paper mainly discusses the construction scheme of the converging media platform, and expounds how to converge the production of video, audio, text, image and other media such as the Internet and mobile client, especially how to concentrate and present news materials. How to integrate Weibo, WeChat and mobile client to construct the integrated media is researched at the same time.**

Keywords-converging media; all media; radio and television

I. INTRODUCTION

With the development of new technologies such as the Internet, big data, artificial intelligence, media integration, 4K, the media industry has also developed rapidly in recent years. At the national conference held in 2018, President Xi pointed out: "We must do a solid job in building a county-level media center to better guide and serve the masses." This is the first time that China's county-level media has been paid attention by top national leaders at a national conference. Promoting the integration and development of county-level media and building a "county-level media center" have become a major measure for the central government to deploy and push forward the reform of the cultural system. It also means that the focus of media integration efforts will be extended from the provincial level to the grassroots level, which will promote the full activation of the national media system[1]. The effective integration of the media resources can be completed successfully in the county with the establishment of the county-level media center, The efficient use of the media resources and the centralized convergence of the media at the county level will be realized.

A. Current Situation

At present, the operational systems of various news program production units in TV stations are isolated. The systems are independent of each other and lacking a comprehensive resource interconnection mechanism. Through the media asset system, the film exchange at the end of the program production process is realized, while news production can't be realized.Resources can't be fully shared, and production dispatching is inefficient. With the development of emerging business such as integrating media, new requirements have been put forward to reuse the media resources. Therefore, the existing system can't meet the requirements for the production and dissemination of news programs in the media environment[2].

B. Construction Objective

This paper aims to build the all media converging platform across regions, departments, media, and terminals. Based on the principle of real-time interaction, efficient and practical, safe and reliable, flexible expansion, a media command and dispatch system is built on the basis of integrating various TV channels, WeChat, Weibo, APP,5G, UGC and network subscription to achieve the unified deployment and overall resource dispatching for media communications. In view of the rapid dissemination of all-media news and the flexibility of business production, a collaborative production platform is setup and business process is optimized to improve the production efficiency of news services and seize the priority ability of news release. Based on a new generation of IT technologies such as cloud computing and big data, we can develop interactive program planning, multi-screen production and release collaborative work and hot topic fermentation. Under the isolated environment of internal and external network, rapid and efficient convergence, screening, auditing and multi-channel communication can be achieved through high security strategy and the Internet, office network, production system docking to meet the controllable real-time interaction needs. In the end, a converging media production method including one acquisition, multiple generations, and multiple transmissions can be achieved[3].

II. INTEGRATED DESIGN OF MEDIA PLATFORM

The "Converging Media Center" is not only the hardware foundation and technology platform, but also the brain and the nerve center. It should have the basic functions such as centralized command, acquisition , dispatching, efficient coordination and information communication. The "Converging Media Centre" is generally divided into the following sections:

- Command and dispatch platform: It includes command and dispatch system, large screen monitoring and so on. Command and dispatch platform is the hub and brain of the whole process dispatching. It is responsible for the overall planning of various media propaganda tasks, the planning of major topic selection, and the command for collecting and editing[4].

- Omni-channel information convergence: The ability of "WeChat" communication and multiple functions such as single chat, group chat, voice, video connection can be provided in the platform. All departments and topic groups can discuss in groups to achieve convenient communication. Meanwhile, external correspondents can join at any time to improve communication efficiency and reduce communication costs.

- Media convergence platform: It is responsible for fully connecting various content channels and obtaining internal and external resources in an all directions. It also provides tools for media resources to support the integration of various media resources into the content

library according to the established interface specifications.

- Converging media content production and release: It includes collaborative production and release system, various production tools. All media content production and distribution is to build a unified production and distribution platform for converging media on the basis of traditional production platform. The platform has integrated production capacity, which can be used for all media editing of documents, video, pictures, H5 and can be distributed to multiple channels[5].

III. IMPLEMENTATION OF CONVERGING MEDIA PLATFORM SYSTEM

The new media converging production platform should have the basic functions of centralized command, editing and dispatching, efficient coordination and information communication. It includes the converging media command and dispatch center, the editing and distribution platform, the technical support system, the all-media resource library, the all-media distribution and operation platform. The converging media platform system is shown in the Figure 1.

A. Command and Dispatch System

The command and dispatch platform is the hub and brain of the whole process dispatching, which consists of news topic planning, command and dispatch module, personnel command and resource dispatch module, and data visualization module. It is responsible for the various media propaganda tasks, major topic selection planning, editing and directing. It can receive various types of clues to generate selected topic. The topic selection information is provided to the editing and distribution platform, which is convenient for subsequent content interviews and production release[6].

1) Information selection planning and command and dispatch module

The news topic is the core in the command and dispatch system. All the release planning and production work are centered on the topic selection. In order to facilitate the rapid sharing of related resources and the collaborative work of personnel, the command and dispatch system can be linked with the integrated resource platform. A topic directory folder corresponding to the selected topic is established to save all the clues, materials, and film-related content resources related to the topic. Thus the business barriers of various channels and platforms are opened up to help media convergence. Users with different permissions can create, edit, review and assign tasks to the topic selection[7].

2) Personnel command and resource dispatch module

In order to facilitate the user to understand the real-time operation of the current personnel, equipment and vehicles and better resource dispatching, the command and dispatch system can display the location information of various resources on the map and even the orientation of the vehicle by means of the geographical location information system. Users can zoom the map according to their needs, and the system can automatically list the resources within the map display range. After selecting the resources, the detailed information of the resources can be viewed[8].

3) Data visualization module

The information of various production planning, production processes and production resources in the command and dispatch system can be displayed through the integrated media command and dispatch business visualization system (referred to as the large-screen system). The large-screen system improves the readability of business data through the data visualization, which facilitates users to understand the progress of various work more intuitively and to more clearly grasp the production efficiency and release.

B. Converging Media Content Production and Distribution

The command and dispatch platform is the decision-making place. The production and release of integrated media content is the execution unit, the decision made from the command and dispatch center is transmitted downward to the reporters in station, network, terminal and micro terminal to achieve converging media production and release. The platform has an integrated production capacity for all media editing such as documents, video, pictures, H5, Meanwhile, it can be released to multiple channels. The system is equipped with a mobile editing platform, which can realize mobile production and remote program returning anytime and anywhere. After the GPS is turned on, the location can also be transmitted to the command and dispatch platform[9].

1) All-media manuscript editing system

The all-media manuscript editing system supports the writing and publishing of TV manuscripts, website/APP manuscripts, Weibo manuscripts, and WeChat manuscripts in a software system. And it supports unified management and mutual copy conversion of different types of manuscripts.

2) All-media production tool

This section covers document editing tools, traditional physical non-editing tools, B/S non-editing tools, mobile production tools and so on. All media reports need to be more flexible in organizing text, images and video to release a news event in multiple batches. Through traditional tools, media reporters can achieve all kinds of manuscripts, videos and mobile office applications.

3) Program review system

The review system adopts the mode of central end plus client end in the design architecture. The central end provides an open standard interface to add tasks and provide feedback of audit results. The configuration management module is used to configure user permissions, rules, and interface parameters and it can complete task distribution dispatching management through the dispatching engine The trial client includes a variety of terminal forms and can meet all kinds of audit business scenarios[10].

4) Omni-channel content release and operation

The all media distribution management module is mainly responsible for dealing with all resource distribution or pushing oriented to new media channels. A release review can be conducted before distribution. It can only be released after the review is approved. The distribution management module has already interfaced with Weibo and WeChat, and the resources after the approval can be released to the designated account, which can be seen by the public on the Weibo and WeChat. When it is released to mobile APP, network TV station and other platforms, it will provide the CMS of the other party with audio and video files, metadata, program portraits and so on after the approval. And then the other party will release it for real.
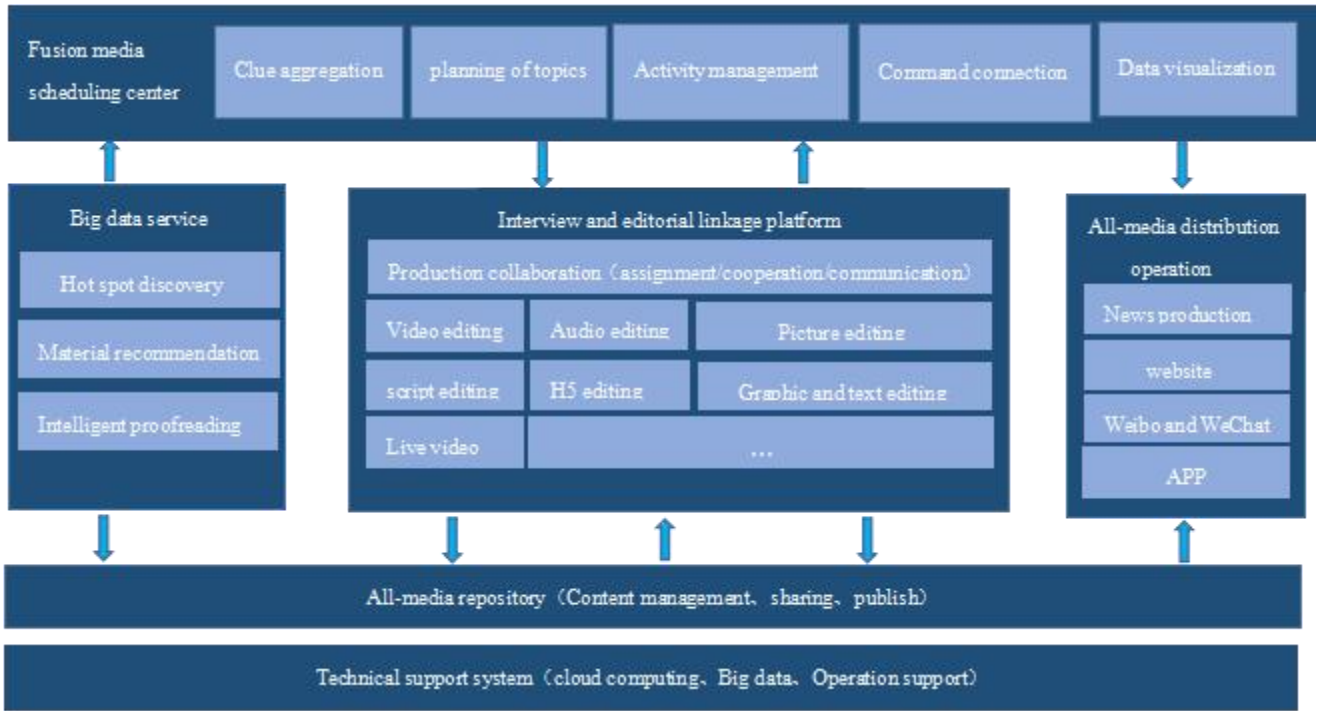
Figure 1. Converging Media Platform System

Through the release module of all media manuscript, we can achieve rapid release between WeChat, Weibo and new media. The type manuscript of Weibo supports standard Weibo editing and writing function including text input, insert expression, picture, video link, topic. The manuscript can be directly released to Weibo accounts, it can also support multi-account management one-click release. WeChat type manuscript not only supports text, image, video (link) insertion and mixed editing, but also provides a rich WeChat manuscript cloud template. At the same time, all media manuscript also integrated third party editing plug-in. WeChat manuscript can be directly released to the public platform of WeChat. It also can support the combined release of multiple WeChat articles, multi-account management and one-click release[11].

C. Media Resource

The media resource library is a public all media content library that is collaboratively produced by the new media integration production platform. All materials, finished products and manuscripts involved in the collaborative production process need to be aggregated into the media repository. Then the business personnel can see the contents in the library and the contents of library can be used centrally after the user logs in. The resource library supports the display of corresponding content and layout according to different users and permissions , and realizes the separation of resources and persona. Similarly, the materials, the finished product, and program of the media library can also use machining tools of collaborative production platform after selection, to make the high-quality goods for the use of different channels[12].

D. Basic Technology Support Platform

Technical support platform provides technical capabilities for the whole industry. Through this platform, the hardware technology support system can be provided for the whole converging media platform. The converging media technology foundation support not only provides a unified computing and storage platform, but also provides a computing platform for deplorable applications. Then databases, middleware and industrial application software can be deployed on it. The big data services and live broadcast services of converging media platform use the public cloud services platform to effectively meets the demand of quantity purchase. At the same time, it integrates with the integrated media platform, the public cloud and the local system, effectively realizes the safe and reliable on-demand purchase of the public cloud, and the local system deployment ensures the security of production data.

IV.   RESEARCH ON SECURITY OF CONVERGING MEDIA

A. Network Boundary Security

   1) Zone isolation
   The firewalls is deployed. The users can only access the application and content that have been clearly authorized. Meanwhile, the isolation between the office network and the Internet can be realized.
   2) Deep border security monitoring
    Since regional isolation only realizes isolation, the protocol ports that must be opened cannot be deeply checked at protocol level, so the intrusion protection function and the gateway anti-virus function are added[13].

B. Integrated Security Design

   In the design of network structure, the existence of single failure collapse point is strictly eliminated. By balancing the network load and backing up the key equipment to theoretically eliminate the possibility of local fault.
   1) The security of the network connection link

The configured switch adopts redundant setting, the site is scattered link and the core service are redundantly connected to ensure that the service will not be affected.

2) The security of server

According to the design of corresponding security for different servers, the key application equipment part adopts dual-machine or load-balanced cluster working mode.

3) Security of workstations

The system has a complete backup strategy, which can backup the whole station data both locally and off-site. All editing data and operation steps are stored in the database server and the local hard disk array, the failure of one workstation will not cause the whole network to be paralyzed[14].

C. Studio Security

1) Studio control security

The 422 serial port control mode is adopted. The workstation and the server are connected by the 422 control line. In the event of a problem, there will only be a control problem with the controller and the server, the other group will not be affected at all, avoiding the problem of large area of the entire network.

2) Security design of studio network outage

The control machine and the server adopt 422 control technology. The broadcast series single real-time backup to local and the broadcast program material need uploaded to the video server locally in advance. Since the main and backup video servers has each program and material that the broadcast required, even if the network is disconnected, it can continue to broadcast under the dispatching of the 422 control command as usual[15].

V. CONCLUSION

Through the construction of converging media, it effectively solves the problem that each system is independent of each other and lacks an all-round mechanism of resource interconnection. The stations, newspapers, networks and micro-terminals in the converging media center are be integrated in a centralized manner, fully realize the integration of hot-spot information gathering, all-media mobile editing, resource content management, multi-channel distribution and dissemination effect analysis. The collection, processing and release of all kinds of media and news products belonging to the center are perfectly realized on a unified platform, which greatly improves the operational efficiency of the center and saves resources and manpower and material resources[5]. After integration, combing and re-engineering a new all-media production process, the command and dispatch, theme planning, interview organization, processing and production,

multi-channel release are all-round and unified, forming a seamless connection mechanism for the integration of editing knitting and man-machine. It really achieves a new converging media environment that "integrated planning, one-time acquisition, multiple generation, multi-distribution"

REFERENCES

[1] Wei Hu,"Discussion on the Construction Path of Omnimedia Convergence Technology Platform[J]," China Cable TV, (01): 20-22,2019.

[2] Yan. Wang ,"Design and Practice of County-level Convergent Media Platform Based on Omni-media Collaborative Production[J] ,".Radio and Television Technology, 45(11): 18-24,2018.

[3] Zhijian Song ," Research on model of omnimedia converged production platform construction in Wenzhou Radio and Television Media Group[J] ,"Television Technology, 41(Z4): 115-118,2017.

[4] Media Project Technical Book on Dayang.

[5] Lihua Ding,"Construction of Convergent Media System in Small/Medium Radio and TV Station[J],"Radio and Television Technology, 45(12): 63-67,2018.

[6] José M. Arrieta, Esperanza Santamaría,"Distance of attractors of reaction-diffusion equations in thin domains[J]," Journal of Differential Equations, 263(9),2017.

[7] Aiguo Xiao, Shoufu Li, Hongyuan Fu et al.," Extending convergence of BDF methods for a class of nonlinear strongly stiff problems[J]," Journal of Computational and Applied Mathematics, 126(1),2000.

[8] M. R. Trummer,"Reconstructing pictures from projections: On the convergence of the ART algorithm with relaxation[J],"Computing, ,26(3),1981.

[9] Jun Li, ZhengLin Li , Yun Ren et al.,"Horizontal-Longitudinal Correlations of Acoustic Field in Deep Water Supported by the National Natural Science Foundation of China under Grant Nos 11434012 and 11174312.[J],"Chinese Physics Letters, 32(6),2015.

[10] M. Yan, C. A. Chan, W. Li, L. Lei, A. F. Gygax, and C. I, "Assessing the Energy Consumption of Proactive Mobile Edge Caching in Wireless Networks," IEEE Access, vol. 7, pp. 104394-104404, 2019.

[11] M. Yan, W. Li, C. A. Chan, S. Bian, C. I, and A. F. Gygax, "PECS: Towards Personalized Edge Caching for Future Service-Centric Networks," China Communications, vol. 16, no. 8, pp. 93-106, Aug. 2019.

[12] M. Yan, C. Chan, A. Gygax, J. Yan, L. Campbell, A. Nirmalathas, and C. Leckie, " Modeling the Total Energy Consumption of Mobile Network Services and Applications," Energies, vol. 12, no. 1, 184, Jan. 2019.

[13] Yan Bai ,"Thinking on the Construction and Development of County-level Media Center in Radio and TV Stations[J],"Western Radio and Television,(15):181-182,2019.

[14] Mengxi Lu ,"The Status Quo and Thinking of County-level Fusion Media Construction[J],"Journal of Propagation and Research,(22):84,2019

[15] Qi Zhang,"On the Construction and Development of Radio Programs in the Age of Media Convergence[J],"Media Forum, 2(16): 49+51,2019.