Technical Advantages and Development Trends of Networked Digital Broadcast Television in the New Context: A Postprint

Authors: Zheng Jianbin

Date: 2023-10-08T00:00:00+00:00

Abstract

In the information age, as Internet technology matures progressively, the broadcasting and television industry has also experienced rapid development, yielding substantial achievements. Under these circumstances, digital information equipment has been gradually deployed in broadcasting and television, the convergence of broadcasting and television technology with computer communication technology has become an inevitable developmental trend, and network digital broadcasting and television technology has already become the cornerstone for the sustainable and stable development of the broadcasting and television industry. In light of this, the author of this study, drawing upon personal professional experience, focuses on analyzing the advantages of network digital broadcasting and television technology and investigating its developmental trends, thereby providing better guidance for practical work.

Full Text

Preamble

Exploring the Advantages and Development Trends of Network Digital Broadcasting Technology in the New Era

Abstract: In the information age, internet technology has matured considerably, driving rapid development in the broadcasting and television industry. In this context, digital information equipment has been gradually integrated into broadcasting and television operations, making the convergence of broadcasting technology with computer and communication technologies an inevitable trend. Network digital broadcasting technology has become the cornerstone for sustainable and stable development of the broadcasting industry. Drawing from professional experience, this study analyzes the advantages of network digital

broadcasting technology and explores its development trends to better guide practical applications.

Keywords: network digital broadcasting technology; advantages; development trends

2. Advantages of Network Digital Broadcasting Technology

2.1 Rational Sharing of Information Resources

The application of network digital technology to broadcast television programs effectively promotes the sharing of information resources. This development not only meets the requirements for conventional broadcasting development but also satisfies the diverse viewing demands of the general public. Compared with traditional information transmission, network digital broadcasting breaks through geographical limitations and reception range restrictions. While traditional television broadcasting suffers from incomplete signal reception in many regions due to geographical constraints, network digital broadcasting technology effectively compensates for these deficiencies. Users can access any information resources of interest and effectively expand their viewing options. The technology ensures high-quality audio and video, providing viewers with superior visual experiences.

2.2 More Stable Data Storage Formats

A key reason network digital broadcasting technology is highly regarded lies in its unparalleled advantages over traditional analog broadcasting. Conventional broadcasting relies on analog signal transmission, which is deeply susceptible to external interference, making it difficult to provide high-quality broadcasting services. However, network digital technology transmits television signals as digital information, which is not affected by external interference factors. This ensures signal stability and quality while effectively preventing disruption from various external factors. The technology significantly enhances the audience experience by providing high-definition images and stereo sound effects. By converting vast amounts of data into corresponding digital signals, network digital broadcasting improves transmission efficiency and ensures more stable, clearer images.

2.3 Real-Time Data Processing

Network digital broadcasting technology enables real-time processing of information transmission data, effectively guaranteeing television image quality. Unlike analog systems with limited capacity, resulting in poor sound and image quality, network digital technology can process large-scale information in real-time. This approach offers larger information capacity and higher quality compared to traditional methods. Users can independently select information resources of interest, and the system can quickly organize and retrieve them based on user

preferences. This not only allows the public to rapidly obtain valuable information but also significantly improves data transmission efficiency and resource utilization.

2.4 Network Customized Services

Digital network technology enables users to independently select programs of interest, providing personalized services. The broadcasting industry is increasingly deploying cloud computing technology, which allows for the collection and organization of content based on user preferences. By leveraging internet connectivity, users can search for and watch their favorite programs directly online. This customized service model improves broadcasting service efficiency and meets individual user needs. As living standards continue to rise in the 21st century, the demand for personalized, high-quality media content has grown substantially.

---

3. Development Trends of Broadcasting Technology in the Digital Context

3.1 Multi-Platform Content Transmission and Distribution

The video industry has gained increasing favor among consumers, with more viewers watching television through mobile smart terminals. The market penetration of smartphones, tablets, and computers continues to rise globally. While network digital broadcasting technology will face various challenges in future applications, comprehensive utilization and continuous improvement of related technologies will be essential. The industry must seize opportunities for scientific development and achieve deeper transformation to provide higher-quality services and promote sustainable development.

3.2 IP Networking and Content Transmission/Distribution

A significant global trend is the transformative shift in television broadcasting technology toward IP-based systems. This transition aims to develop more business models while improving service efficiency and operational effectiveness. In the coming years, IP networking will become a crucial factor in the transformation of broadcasting technology systems, enabling more efficient content transmission and distribution.

3.3 Cloud Computing Platform-Based TV/Video Services

The broadcasting industry is undoubtedly benefiting from cloud computing technology, which offers improved security and scalability. Cloud-based architecture allows flexible deployment of resources based on business attributes, significantly

accelerating channel and program production while improving resource utilization. Current program production often relies on fixed non-linear editing stations that remain idle at times, making resource sharing difficult. By deploying cloud-based systems, production methods become more extensive and flexible, enabling global network resource sharing and enhancing system elasticity and agility to meet evolving demands.

References: [1] Wang Chunguang. Analysis of Network Digital Broadcasting Technology [J]. Electronic Technology and Software Engineering, 2014(8): 55. [2] Chen Zhongpeng. Advantages and Development of Network Digital Broadcasting Technology [J]. Technology Communication, 2017, 9(1): 289. [3] Tao Hengjie. Development of Broadcasting Technology in the Network Digital Era [J]. West China Broadcasting TV, 2017(16): 209. [4] Wang Hairong. Research on Development of Broadcasting Technology in the Network Digital Era [J]. West China Broadcasting TV, 2016(20): 218. [5] Cheng Tianni, Liu Ronghuan. Research on Broadcasting Technology Development in the Network Digital Era [J]. New Media Research, 2016, 2(8): 39, 42. [6] Yao Zhitian. Discussion on Network Digital Broadcasting Technology [J]. Technology Communication, 2017, 9(7): 12, 22.

(Author' s Affiliation: Lanxi Broadcasting and Television Station, Zhejiang Province)

Note: Figure translations are in progress. See original paper for figures.