

Retraction

Retracted: Design of Cloud Computing Platform for Large-Scale Multimedia Communication

Security and Communication Networks

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

- (1) Discrepancies in scope
- (2) Discrepancies in the description of the research reported
- (3) Discrepancies between the availability of data and the research described
- (4) Inappropriate citations
- (5) Incoherent, meaningless and/or irrelevant content included in the article
- (6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

References

- [1] X. Wu, "Design of Cloud Computing Platform for Large-Scale Multimedia Communication," *Security and Communication Networks*, vol. 2022, Article ID 6933942, 7 pages, 2022.

Research Article

Design of Cloud Computing Platform for Large-Scale Multimedia Communication

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In order to enlarge the scale of multimedia communication, based on the design of cloud computing platform, this paper makes an in-depth study on the design of multimedia communication platform. Firstly, we study from three methods: extracting high-quality content, broadening multimedia profit channels, and enhancing copyright awareness. Among them, the big data diversion system under the cloud computing platform is designed to optimize data clustering and pattern recognition. The traditional big data shunting system under the cloud computing platform adopts the open-source embedded system design method. The shunting system is connected to the switch of the cloud computing platform through the coupling coil, resulting in missing points and wrong points in the data in the shunting system. Using this method, it is concluded that the cloud computing platform cannot achieve the optimal allocation in terms of SLA violation rate, resource consumption, and power consumption. After experiments and research, the current development trend of media shows a deviation from this phenomenon. The development of media itself, that is, the self-appreciation of media, is gradually becoming the main purpose of media development. A power simulation cloud computing platform architecture with dynamic expansion, efficient computing, and convenient resource scheduling should be given to face large-scale multimedia communication.

1. Introduction

The concept of multimedia should include two layers of meaning and four forms. Two meanings: one is the use of text, pictures, sound, and images in information communication. Second, there are four forms of interaction: text, sound, image, and human-computer interaction. Let us call these the “four elements” of multimedia. It can be said that the presentation of multimedia greatly meets people’s sensory enjoyment such as hearing and vision, as well as the subjective initiative of communicating with people. Therefore, multimedia communication has also become the pursuit of diversified information communication. Cloud computing is an important product of the information revolution. Through cloud computing and cloud storage, we can realize the collaborative management and scheduling of massive big data. At present, cloud computing information system is widely used in the scheduling and allocation of big data information resources. Because cloud computing

adopts the method of distributed computing, the original data can be collected and transmitted wirelessly through sensor nodes. Under the cloud computing platform, a huge data information base is formed by connecting sensor networks with other networks. Figure 1 shows the cloud computing platform framework. Through cloud computing, massive network resource data are integrated into a resource data pool to realize timely, fast, and accurate computing and data scheduling. People gradually lose their understanding of convenience and happiness in the face of many media and all kinds of convenience provided by these media. The multimedia network public opinion in the big data environment is defined as the sum of the main body composed of the social public, the government, and traditional media, processing the views and attitudes towards the public opinion object into a diversified external public opinion ontology and interacting in the big data cyberspace through the multimedia communication channel. Among them, the traditional media is relative to the emerging network media

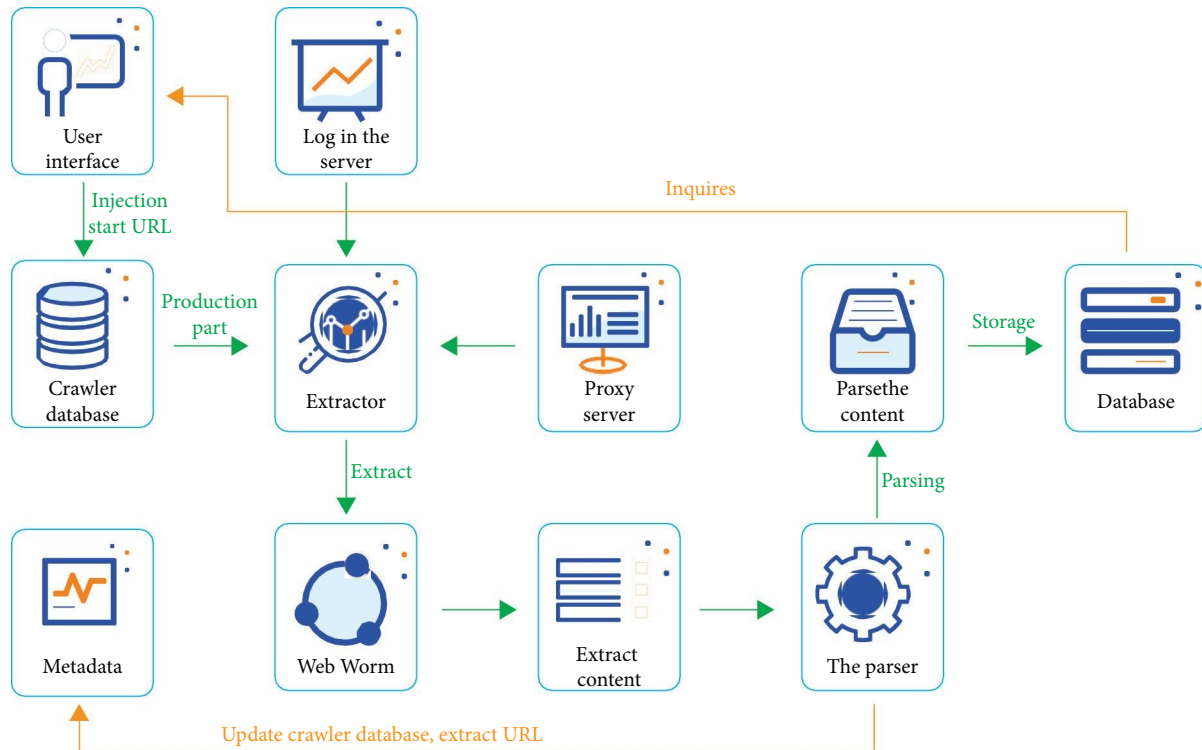


FIGURE 1: Cloud computing platform framework.

in recent years. Among them, traditional media refers to the network media that has emerged in recent years. Traditional means of mass communication, namely, media that regularly releases information to the public or provides educational and entertainment platforms through some mechanical devices, mainly including newspapers, outdoor communications, radio and television, and networks other than “we media” in the traditional sense. Under the influence of the existing environment and technology, it participates in the communication of online public opinions through various forms of multimedia communication and we-media. In the cloud computing environment, there are huge differences in the source of data and the service purpose of data, and there are great differences in the cloud computing interface and communication protocol. As a result, big data in cloud computing has different properties. In the cloud computing environment, the sources of computing resources, storage resources, and software resources have multiple attributes, forming cloud computing and cloud storage of multisource information resources.

2. Literature Review

Nur et al. said that multimedia communication came into being in the fierce competition in the media industry, adapted to the social and economic development, met the new needs of diversified and personalized audiences, and had social and commercial value that could not be underestimated [1]. Morillo et al. proposed that the development of Internet technology has enriched the mode of communication, the communication mode characterized by

multimedia’s “four elements” has become the mainstream, and the communication technology is no longer a barrier [2]. Luo and Yang proposed that due to the differences in the performance of physical nodes of the simulation cloud computing platform and the uncertainty of the change of simulation scale, the platform needs to dynamically allocate resources according to the simulation requirements, so as to ensure the service level contract, maximize the utilization of resources, and reduce the energy consumption of the platform [3]. Putra and Negara proposed that there are many nodes in the big data diversion system under the cloud computing platform, and the nodes are limited by the environment. The protocol design of each layer needs to consider the internal characteristics of big data information flow and extract the information characteristics of big data [4]. Babbar et al. said that the designed big data shunting system has the capabilities of data sensing, signal processing, and wireless communication and realizes the shunting operation of big data information [5]. Kurniawati et al. said that compared with the network media rising in recent years, the traditional way of mass communication is the media that regularly releases information to the public or provides an education and entertainment platform through some mechanical device [6]. Rahmadani and Taufina said that the big data streaming system is the infrastructure to realize the integration of multisource information resources under the cloud computing platform. As an open-source framework, the cloud computing information system can realize the wireless sending and receiving of data and data clustering through the streaming of big data under the cloud computing platform [7]. Pomytkina et al. proposed that in the

cloud environment, a large number of virtual machines should be reasonably placed on physical nodes and meet constraints. The static allocation methods include polling scheduling, minimum connection scheduling, first adaptation, best adaptation, descending first adaptation, descending best adaptation scheduling, target address hash scheduling, and source address hash scheduling [8]. Mesrega et al. said that from a very early time, the media have realized the disadvantages of single communication mode and seen the benefits brought by multimedia communication. Therefore, the practice of multimedia communication has always existed in various media [9]. According to Sedamkar, R. et al., during the migration process, reasonable scheduling of virtual machines during the operation of the power simulation cloud computing platform can be realized through hotspot prediction target node search and virtual machine migration selection so as to improve resource utilization and reduce energy consumption while ensuring the simulation efficiency [10].

3. Method

3.1. Extracting High-Quality Content. Any communication technology and means serve the content. We can make the communication technology and means more intuitive, simpler, and easy to operate. Even for the convenience of reception, we can reedit and process the content to be transmitted. However, good content always comes first, and the principle of “content is king” is still not outdated [11]. While pursuing various forms of communication modes, we must have high-quality content as support, which is beyond doubt. Figure 2 shows the growth rate of multimedia communication in recent years. A good radio and television program should always focus on high-quality content. Only with good content can it attract the audience and have communication power and influence [12]. Model innovation may bring users’ concentration and attention, but without high-quality content as a prerequisite, this attention will not last long. The Internet provides the audience with a variety of opinions to meet the audience’s desire not to be limited by time and space [13]. Multimedia communication requires various media forms to give full play to their respective advantages, innovate processes, and realize the linkage effectiveness between media. For the collection and production of multimedia content, its complexity obviously exceeds that of any traditional media. In addition to the multimedia of content, the integration of media business forms also requires media institutions to transform the production process and redivide the internal division of labor according to the needs of multimedia production. Multimedia communication has changed the process of traditional media news collection and production and gradually evolved into a news production mode with independent operation, complete process, and standardized operation, that is, different media are concentrated on one information operation platform should be strengthened, planning, command, reporting, and resources sharing should be unified, and each other should also be coordinated. Make different news products and finally spread them to specific audiences

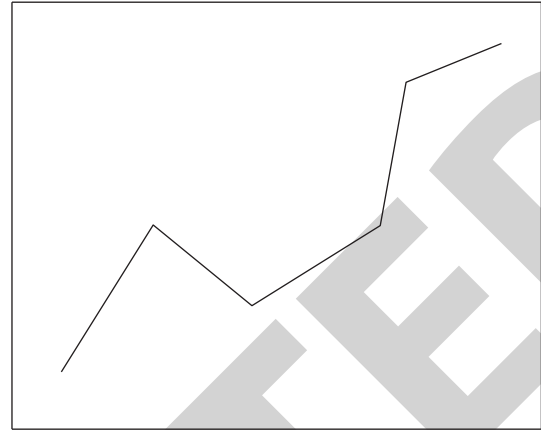


FIGURE 2: Growth rate of multimedia communication in recent years.

through different communication channels. As shown in Figure 3, in multimedia communication, various media complement each other, expand the depth and breadth of communication, and form the joint force of public opinion of three-dimensional reporting. Especially in the reporting of emergencies, multimedia communication can give full play to the advantages of media alliance [14].

3.2. Broadening Multimedia Profit Channels. From the reality of China’s media industry, the media rely too much on the single profit model of selling advertising, which increases the business risk of the media. Once the advertising is reduced, the media operation will lack funds. Multimedia communication increases the types of media products, innovates the operation and management mode of media, expands profit channels, and forms a reasonable industrial value chain [15]. In the big data environment, the high growth and mass of network public opinion information complement each other. Public opinion information itself has the characteristics of explosive communication, which is more clear in the big data network environment. In the big data environment, when the network public opinion information is transmitted through multimedia, the nonlinear reading mode of multimedia can enable the information receptor to quickly read the information of interest. Users can use the information according to their own needs, interests, task requirements, preferences, and cognitive characteristics and take any form of information expression such as graphics, text, and sound. Rapid reading and use accelerates the feedback and dissemination of information and also instantaneously produces a large number of new information. Therefore, the high growth of network public opinion information in the big data environment can be accelerated through multimedia communication. Today, the user platform with the largest user scale and the strongest stickiness already exists outside the territory of traditional media. This trend may further intensify in the future. In the future, professional media need to rely more on the third-party user platform to obtain large-scale users, conduct user analysis, and complete the distribution of news. Although it

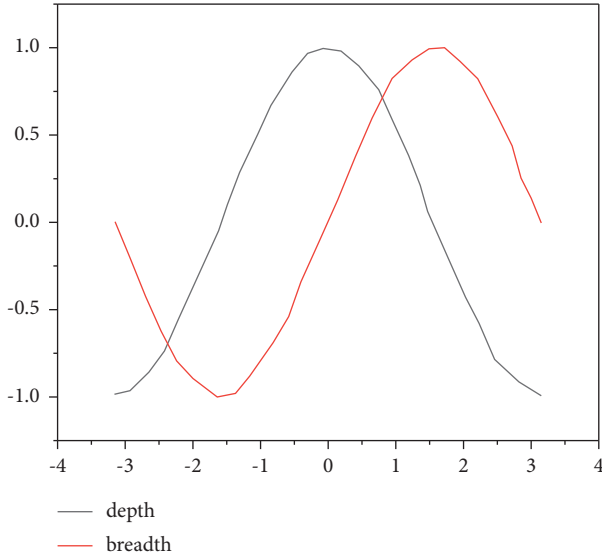


FIGURE 3: Depth and breadth curve of multimedia communication.

is a last resort, this multiplatform distribution method relying on a third party is bound to transfer the autonomy and control to a third party. This is also limited to professional production content, and for user production content with mixed content itself, it is more likely to have negative effects. Figure 4 shows the profit growth trend of multimedia. Revenue evidence shows that the revenue of IP TV, mobile TV, and other new media businesses of Shanghai Wenguang has increased rapidly, accounting for 2% of the group's total revenue. In the next five years, the revenue of new media business will account for more than 10% of the group's total revenue. Multimedia communication has brought bright future to broaden profit channels and adopt multiple profit models [16]. As shown in:

$$f_{SLA}(U_{cpu}) = \frac{1}{1 + e^{p_{ri} - U_{cpu}}}, \quad (1)$$

where U_{cpu} is the multimedia utilization rate of physical node and p_{ri} is its threshold. When the cpu utilization increases, the function value will increase rapidly [17].

3.3. Enhancing Copyright Awareness. Similar to the problem of checking, there is also the problem of copyright. In addition to some media's own Wechat, Weibo and client apps, Internet agencies infringe on news works and at the same time, in order to attract attention in the fierce competition, they arbitrarily refer to screenshots without marking the source of the works, and even distort the title to piece together the grafted content out of context [18]. It not only affects the overall reputation and credibility of news units but also has a significant impact on the safety of public opinion [19]. Figure 5 shows a broken line diagram of the recent decline in copyright awareness. The influence on the reputation and credibility of the media is the internal quality and strength of the news media that has been trusted by the public over time and cannot be damaged at will [20]. In the big data environment, the technology that multimedia

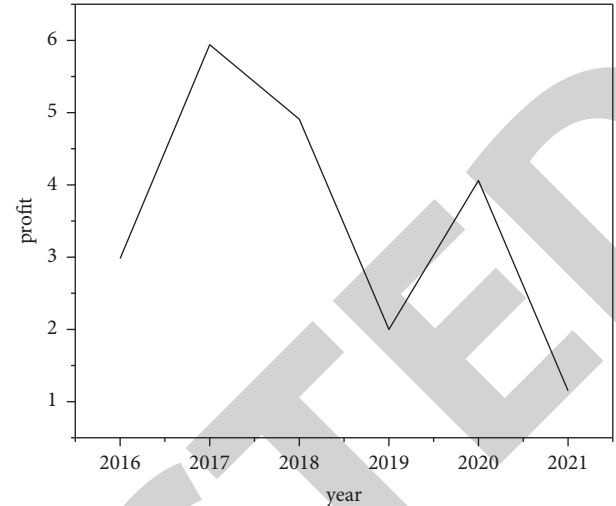


FIGURE 4: Multimedia profit growth trend.

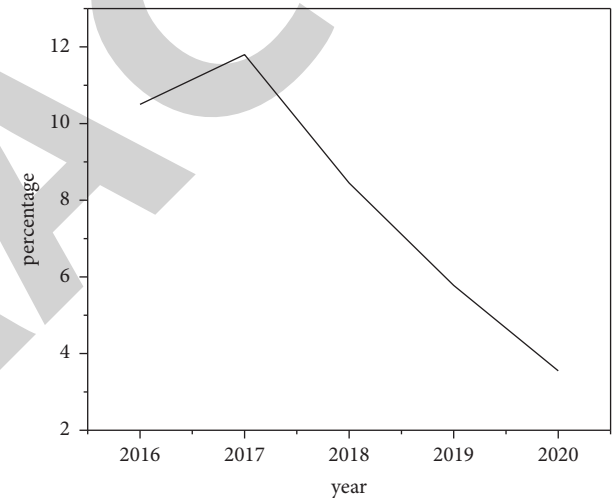


FIGURE 5: Broken line diagram of recent decline in copyright awareness.

network public opinion communication relies on has extremely high real-time interaction. The evolution rate of viewpoint aggregation in the communication process takes subtlety as the computational scale, and people with the same viewpoint begin to form clusters. If the model continues to evolve, new views may appear and some views will disappear. In theory, only one view will be retained. However, in the actual communication process, it may not have evolved to this stage, and the popularity of public opinion has been eliminated. The real-time and high interaction brought by multimedia technology greatly improves the viewpoint exchange rate of network public opinion subjects. Therefore, the viewpoint aggregation process of the main body of public opinion in multimedia network has been greatly shortened. The institutions or individuals that can provide news works in a short time should have copyright awareness. They should be held accountable for the phenomena of random citation, screenshots, not marking the source of works, or tampering,

patchwork, taking out of context, nonexistent, and so on [21]. The great drama of integration has gradually reached a climax. The multimedia communication channels discussed above are only formal means, but these means cannot be ignored in the process of media communication. Scalability means that the big data streaming under the cloud computing platform is open source, so it faces a wide range of objects. Through the big data streaming, it sends and receives the RF bytes of the upper layer of the notification to realize data serial communication and wireless transceiver. Reliability refers to the fractional processing method adopted in the cloud computing big data information diversion system. When one or several devices fail, it can notify the high-level active message components to carry out alternative work, including the later level data acquisition and processing system, which has expansibility and openness. Controlling the means of communication means means controlling the future. The future of multimedia communication of media is still tortuous, and we should cherish it [22].

4. Results and Analysis

In the cloud computing environment, the sources of computing resources, storage resources, and software resources have multiple attributes, forming the cloud computing and cloud storage of multisource information resources. It is necessary to shunt the multisource big data in the cloud computing environment to improve the accuracy of data clustering. In order to provide the basis for pattern recognition, the multimedia simulation cloud computing platform through simulation is used to compare the energy consumption, resource utilization, average SLA violation rate, and migration times of greedy migration algorithm, sequential placement nonmigration algorithm, and PSO algorithm ignoring search time [23]. Figure 6 shows the structure of PSO algorithm, and Figure 7 shows the SLA algorithm.

Since the standard SNMP agent exists in all traditional nodes and provides a standard MIB read-write interface, we use SNMP as the interface between traditional nodes and active processing platform [24], as shown in Figure 8. SLA violation rate is an important evaluation index for the performance of power simulation cloud computing platform, which can reflect whether simulation computing can meet the real-time requirements of simulation. The cloud computing platform cannot achieve optimal allocation in terms of SLA violation rate, resource usage, power consumption, and migration times. The algorithm with high resource utilization cannot achieve the best in consumption and migration. A big data shunting model based on random allocation of multihop nodes under cloud computing platform is proposed, which constructs a data-centric network and is applied to the sensor model of target tracking to realize data classification and pattern recognition, modularize the system functions, and improve the shunting performance. However, the system needs to use context conversion to support and operate, resulting in the interruption time process of the system, which is prone to

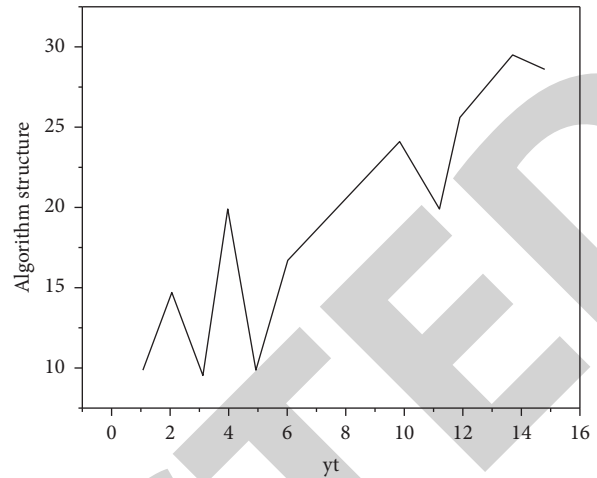


FIGURE 6: PSO algorithm structure.

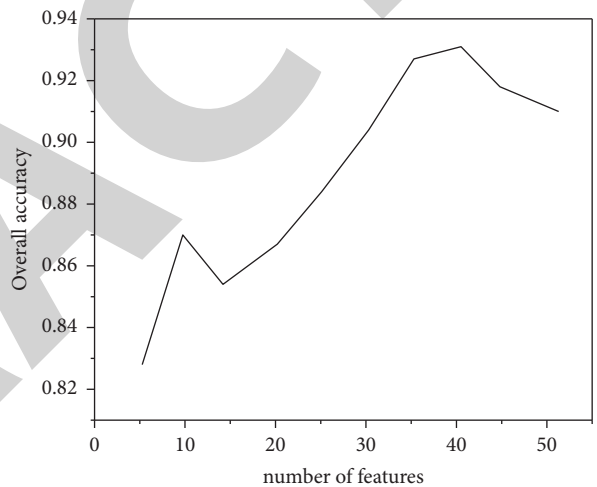


FIGURE 7: SLA algorithm structure.

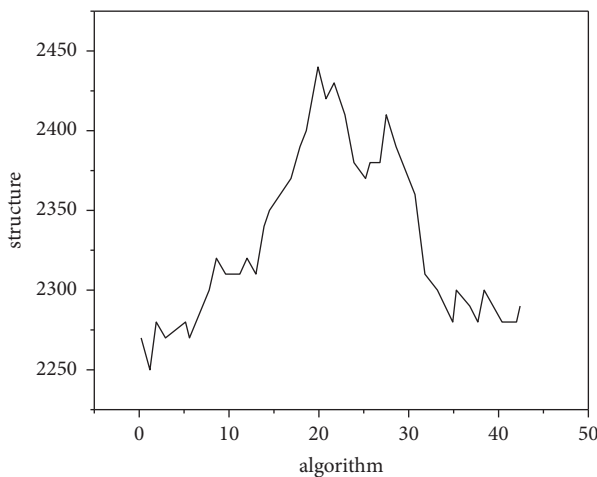


FIGURE 8: SNMP algorithm structure.

shunting error. The proposed big data shunting system under the cloud computing platform adopts the open-source Linux embedded system design method. The shunting

system is connected to the switch of the cloud computing platform through the coupling coil, resulting in missing points and wrong points of data in the shunting system. The proposed multiobjective PSO algorithm based on load forecasting has higher requirements for real-time performance and higher SLA weights in power system simulation. Therefore, during operation, SLA optimization effect is obvious, while the optimization effect of residual resource rate and energy consumption is poor, but it can ensure the rapid completion of simulation tasks [25].

5. Conclusion

At present, the purpose of media is to benefit mankind, but the current development trend of media shows a deviation from this phenomenon. The development of media itself, that is, the self-appreciation of media, is gradually becoming the main purpose of media development. Any communication technology and means serve the content. We can make the communication technology and means more intuitive, simpler, and easy to operate. Even for the convenience of reception, we can reedit and process the content to be transmitted. However, good content always comes first, and the principle of “content is king” is still not outdated. While pursuing various forms of communication modes, we must have high-quality content as support, which is beyond doubt. A good radio and television program should always take high-quality content as the core. Only with good content can it attract the audience and have communication power and influence. Although the development of science and technology has changed people’s aesthetic cognition, we should also see that the progress of science and technology has brought more positive significance to art and its education. It provides new content and media means for visual art, promotes the emergence of new art types and art forms, and expands the space of human spiritual creation. With the advent of information society, human society in the 21st century is brewing the birth of new art styles and art categories. It is a brand-new art based on modern science and technology. Our art education should keep up with the progress of science and technology and art, absorb new art concepts and forms with a positive and tolerant attitude, and penetrate into education and teaching. As a brand-new art, new media art conforms to the current situation and keeps pace with the times. At the same time, we should also recognize the positive role of traditional culture in the innovation and development of new media culture and strive to build a new pattern of contemporary art education in which traditional culture and new media culture are harmonious and prosperous. Model innovation may also bring attention to users. However, there is no high-quality content as a prerequisite. Firstly, a power simulation cloud computing platform architecture with dynamic expansion, efficient computing, and convenient resource scheduling is presented. Then, aiming at the problem that SLA, resource utilization, energy consumption, and migration times are not comprehensively considered in the resource scheduling of power simulation cloud computing platform, a multi-objective PSO algorithm based on load prediction is

proposed to optimize the dynamic migration of virtual machines and achieve relative balance among resource utilization, power consumption, and time on the premise of ensuring SLA. Simulation results show that the algorithm can make the platform achieve better computing speed, higher resource utilization, and lower energy consumption. In the next step, we will consider the occupation of cluster resources to further improve the scheduling mechanism and apply it to the power simulation cloud computing platform, so as to provide a new reference scheme for building a unified power cloud computing platform.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The author declares that there are no conflicts of interest.

Acknowledgments

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