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Retraction

Retracted: Construction of Teaching Management Platform for Universities Based on Big Data

Advances in Multimedia

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1].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] G. He, "Construction of Teaching Management Platform for Universities Based on Big Data," *Advances in Multimedia*, vol. 2022, Article ID 3468797, 9 pages, 2022.

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Research Article

Construction of Teaching Management Platform for Universities Based on Big Data

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The construction of the teaching management platform for colleges and universities needs to actively embrace information technology, change the problems existing in traditional offline teaching through technical innovation, make full use of massive educational resources, and improve teaching efficiency. However, no research has yet discussed how to handle the increasing scale of online teaching resources, leading to the hindrance of building teaching management platforms in universities, which requires the use of big data technologies and thinking to build new platforms. We propose a dynamic compression method to compress the data file backup in the database based on the dynamic adjustment of the system workload, and optimize the data file backup model of the database to reduce the total cost of ownership, which provides a basis for managing massive online education resources and building a teaching management platform for universities.

1. Introduction

Since 2010, the global online education has been developing rapidly, and domestic experts, scholars, and educational institutions have recognized and given great hope to the Internet + education development model. The country has also been advocating the reform and innovation in the field of education. With the further reform of the teaching field and the development of information technology, it has become an inevitable choice for most universities to establish a perfect teaching management system. In universities, improving teaching quality is the eternal theme, and in order to strengthen teaching management and optimize the means of talent cultivation, online teaching management and learning is very significant. In schools, teaching is the basic platform to serve students. It serves both teachers and students and provides a strong guarantee for teachers' teaching and students' learning. Academic affairs work needs to organize all the major educational and teaching activities of the school and ensure that the teaching work of the school is completed with high quality and efficiency [1, 2]. Therefore, the academic affairs administrators hope to strengthen the development of online teaching management and online teaching by continuously improving the rules and regulations and taking practical measures, so as to actively promote and facilitate the exploration of improving teaching quality in universities.

Online education services are the fastest growing area of education informatization in China. In the contemporary education market where the demand for personalized education is growing, national curriculum requirements and standards are constantly updated, and local investment in education infrastructure and virtual campus construction is increasing; online education is widely recognized by the public as a field with vast room for development. Meanwhile, the Ministry of Education (microblogging) is also actively promoting the construction of MOOC course content, and requires all 985 universities to start offering such courses with corresponding subsidies for course production [3].

In the context of the rapid development of big data technology, how to effectively use the technical advantages of big data in the college teaching management platform to efficiently store and process the huge online education resources of huge scale has become the key to the integration and development of big data and college education at present. However, so far, few studies have discussed how to

deal with massive online teaching resources, which greatly hinders the information construction of the college teaching management platform and restricts the application of big data technology in the college teaching management platform. Therefore, this paper puts forward a new optimization strategy for big data storage space of the college teaching management platform accordingly around the logic of big data storage technology, in order to provide technical support for improving the resource storage and processing efficiency of massive teaching resources in colleges and universities.

2. Literature Review

The big data-based university teaching management platform is an online education management platform designed and implemented based on the Internet education model. Through the networked online teaching management system, it not only meets the teaching work of the school but also realizes the online teaching function of students and the online teaching function of teachers, as well as creates a knowledge base platform of teaching-shared resources based on big data. The academic affairs management system in higher education is a combination of education and practice exploration and innovation launched under the education reform, and the good education and teaching results will also explore the way forward for the continued reform in the field of education.

2.1. Big Data and University Teaching Management Platform. Science is the fundamental driving force behind the progress of human society, and as society continues to evolve and change, education and the education system are also changing with the times. Traditional education has undergone radical changes from education mode to teaching mode to teaching content. Various digital technology processing systems and operating software in the information age have significantly improved the management and updating of information in the education system. In the context of the information explosion, the education sector is still in the process of exploring big data technologies for the modern management of education and the construction and improvement of informatization of education management.

The traditional teaching model lacks a personalized training model, and the educational resources are docked and used in a single way, lacking attention to the micro and individual level. The technology of big data has changed the teaching management mode and built a diversified online teaching platform to share information resources more effectively and provide more resources and space for students' learning, such as the online learning platform created by MOOC and Cloud Classroom, which promotes a freer, more flexible, and more targeted teaching management level in universities [4]. Similarly, with the influence of big data technology, online teaching can dynamically provide corresponding online education resources for different types of students and analyze the data content features to form a large database of teaching, which provides support for scientifically mining education resources, optimizing classroom teaching mode, and improving teaching quality.

The teaching management platform needs to be developed closely around big data technology, using the characteristics of big data technology, for example, making full use of the important role of big data in students' personalized education, providing corresponding online education resources according to students' individual traits, and reducing the cost of information docking. The integration of big data technology and education, and the corresponding educational management platform for universities can not only process data efficiently and quickly, but also provide support for current personalized education needs. In conclusion, along with the deep penetration of big data technology into all aspects of society, the technological update of college education management platforms is imminent, and the traditional data processing methods cannot satisfy the current demand for personalized education, while big data can handle such problems [5].

To date, the demand for information and complex application-oriented talents has been expanding. Universities are responsible for training high-quality professionals and need to use modern technology and information-based education to cultivate innovative talents, and constantly adjust and optimize the structure of the teaching system. Big data technology is gradually involved and applied, which has an important guiding significance for the direction of teaching and talent cultivation in universities [6]. In terms of top-level design, colleges and universities should currently focus on establishing a big database around online education resources, collecting, archiving and analyzing, and evaluating online education resources, so as to develop training programs that meet the needs of various types of students and provide data support for cultivating all-round innovative talents. In addition, the diversified processing of big data can fundamentally improve the methods and measures of teaching management. The massive storage of online education resources can help colleges and universities realize the educational concept of teaching according to students' needs, optimize the traditional mode, and provide a new technical path for educational resource management in colleges and universities.

2.2. Teaching Management Platform. The identification of the type of online educational resources is the initial stage and core of big data analysis technology, and the acquisition and analysis of the content of educational resources by technical means is the core of the application of big data technology in the teaching management of colleges and universities, which is also an important data basis for the teaching process of tailoring the teaching to the material. The initial stage of big data application is mainly to collect and process online education resource data on a large scale [7] and adopt suitable data processing and mining techniques for different types of data [8] to provide technical support for subsequent online education. Data collection and acquisition is done by capturing, sensing, and implementing perceptual technologies that help teachers and students collect

data in different contexts and at different stages. In the process of data collection, the university teaching management platform should reasonably adopt big data technology and target online education resources according to the development level of its own information technology and the feasibility of the program.

Under the guidance and support of big data technology, the teaching management platform should be fully integrated with the teaching system, and the construction of data platform should be the goal to promote the construction of a teaching management information system. Universities should integrate resources according to the current situation, carry out characteristic structure adjustment and data project analysis, put data resources into the system to the maximum extent, and effectively ensure the open construction of the information platform. Teaching management departments should fully collect online education resource data from a wide range of channels and accumulate enough data resources. At the same time, it is also necessary to form a unified platform of school data through data work, improve the convenience of college teaching managers to actively understand the development of the education field, reduce the learning cost of the platform, and focus on the combination of online and offline, which can guide the situation or mainstream development of each teaching class and student through the college teaching management platform, and teachers can use data software for effective teaching management in the classroom [9].

On the contrary, colleges and universities should also actively promote the innovation of the curriculum teaching system around big data technology, focus on the fit between the curriculum system and online education resources, and realize the wide application of the teaching management platform based on big data. Therefore, teachers not only need to strengthen the learning and mastering of big data theory and technology, improve the teaching quality and professional level, and focus on the cultivation of students' innovation ability, but also need to pay attention to the personalized elements of the curriculum system, focus on teaching according to the material, and pay full attention to students' individuality, so as to provide corresponding cultivation plan using big data technology. In addition, teachers should also take classes as a unit, use big data technology to dig out the corresponding characteristics of the class, and build reasonable training objectives and scientific training systems. Finally, the popularization of big data technology among colleges and universities can also provide technical support for communication among colleges and universities, so as to actively use the potential of big data to explore the advantages, pain points, and potential future development discoveries of current education, thus providing technical support for updating teaching content and teaching mode, and providing data basis for optimizing the college education management platform [10].

At present, more and more high university teaching management platforms begin to try to adopt big data technology and establish the teaching management platform, but most universities' teaching management platforms are relatively independent and lack communication, and there are many "information silos," which restrict the integration and sharing of educational data [11, 12]. Therefore, colleges and universities need to build a scientific online education resource exchange and sharing mechanism through mutual communication to promote the intermingling of big data and build a data integration platform. In other words, the introduction and technical update of big data in the teaching management platform of colleges and universities need to have a unified standard to provide the basis for subsequent information sharing. However, most of the college education management platforms so far are commissioned by third-party companies, with large differences in the underlying technical logic and lack of a basis for information interoperability, which not only greatly restricts the construction of the data platform, but also limits the possibility of further mining of big data, and creates obstacles to the integration of big data and college education. Therefore, one of the main directions for the future in this field is to unify the underlying technical framework of college education management platform in order to facilitate the standardization and scientific development of college education management platform construction.

In addition, the most important issue is the unification of data storage technology. In order to meet the new storage needs and improve competitiveness, how to reduce data processing costs has become one of the research directions, and therefore has received the key attention of domestic and foreign experts and scholars. At present, data storage, especially for big data, still lacks unified technical standards, and the integration of university education management platform and big data technology requires low-cost data processing, which proposes higher requirements for data storage, but most data processing technologies cannot dig into the content characteristics of data, which means that big data technology cannot provide targeted educational services for personalized education in the field of education, so the discussion on data storage and processing technology has become the most important aspect of updating big data technology.

Although a large number of studies have started to discuss the integration of big data and the university teaching management platform, given the nature of big data, how to deal with massive online teaching resources is still a major difficulty in the construction of all university teaching management platforms, which is one of the problems expected to be solved in this paper.

3. Methodology

This paper discusses the database data files hosted in the university teaching management cloud platform and analyzes the problems and shortcomings of the database file storage in the cloud platform. Starting from the read-write separation architecture of database, we study the data reading and writing characteristics in the context of university education, analyze the database data storage characteristics, propose a database file storage optimization strategy method, and prove the effectiveness of the method through experiments.

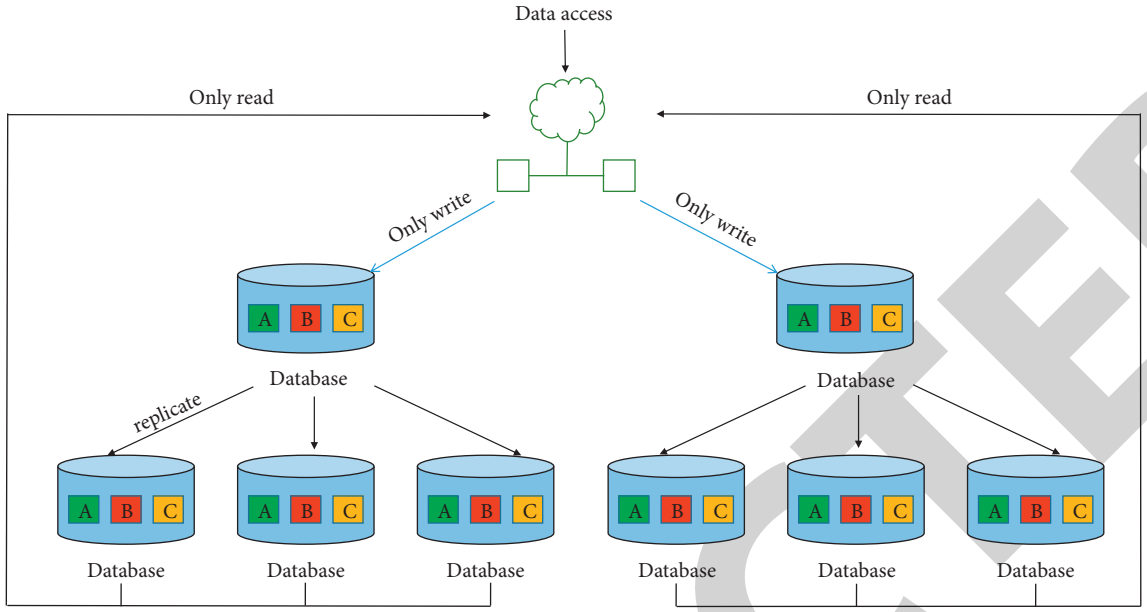

Figure 1: Database infrastructure diagram.

3.1. Design of Data Compression Strategy. As the data volume of online education resources is increasing, there is a need to improve the efficiency of data utilization while protecting the data operation and maintenance costs of online education resources. In a database system, the architecture is divided into application layer, logical layer, and physical layer [13]. For the online education management platform, the database infrastructure is widely used, as shown in Figure 1.

As shown in Figure 1, the database of online education resources nowadays adopts the architecture model of read-write separation, i.e., read-only processing of each data. However, in a practical scenario, most of the data writes of online educational resources are less than 1 kB in size. Therefore, this paper discusses the data storage optimization method in the database of online educational resources and finds that data processing not only includes read-only but can be stored through digital logs, i.e., through text, which in turn achieves storage optimization [14]. This approach can not only reduce the delay in downloading online educational resources, but also reduce the learning cost of users [15]. In this paper, we propose a high relevance mode of access data compression method, which effectively circumvents the previous complex requirements for storage formats and instead allows dynamic optimization of data storage in a simplified way to achieve storage and processing of big data, as shown in Figure 2.

We set the corresponding time thresholds in the storage ports of online educational resources, and when the conditions are not satisfied, the data will not be stored simply, but will be dynamically adjusted according to the changing situation for the purpose of optimization, and then stored on the server. When the conditions are met, the data will be directly and continuously accumulated into the server and automatically entered into different categories as required for users, i.e., teachers and students, to download and use [16, 17]. This compression method uses a new data compression formula as shown in the following formula:

$$\begin{aligned} \overline{Q} &= D \times \overline{R_x}, \\ \overline{K} &= \overline{T_{cx}}(D), \\ \overline{V} &= a \cdot \overline{C_{cx}(D)}, \\ \text{Level}(D) &= \overline{Q} + \overline{K} + \overline{V} + \beta \overline{M_{cx}}(D). \end{aligned} \tag{1}$$

For the data that meet the conditions, this paper uses a different way of data processing, i.e., using multiserver interactive processing to improve storage efficiency. However, if the multiserver processing performance does not match each other, there is a possibility of high latency of data storage, which reduces the storage efficiency and negatively affects the online education resource management. Therefore, a data processing model is proposed in this paper, as shown in Figure 3.

When the number of activated servers exceeds the condition, the excess servers are automatically put to sleep to reduce energy consumption. In addition, the redundant servers do not go to sleep completely, but are always on standby to meet the dynamic changes in data storage. For example, when a server receives a data request and the amount of data reaches the condition, the sleeping server is activated to automatically join the data processing sequence and create a new data processing activation condition for the next data storage to increase the overall data storage efficiency [18].

Since the database of educational resources in schools is often in read-write separation mode, the data are stored in a single way, which leads to insufficient classification capability for data storage. Therefore, in this paper, we use the parallel replication method to replicate binlog logs as shown in Figure 4.

When the read-only node's storage engine commits data, the first holding lock is released and the transaction's holding interval ends. When the last held lock is acquired, the transaction's held lock interval begins to count.

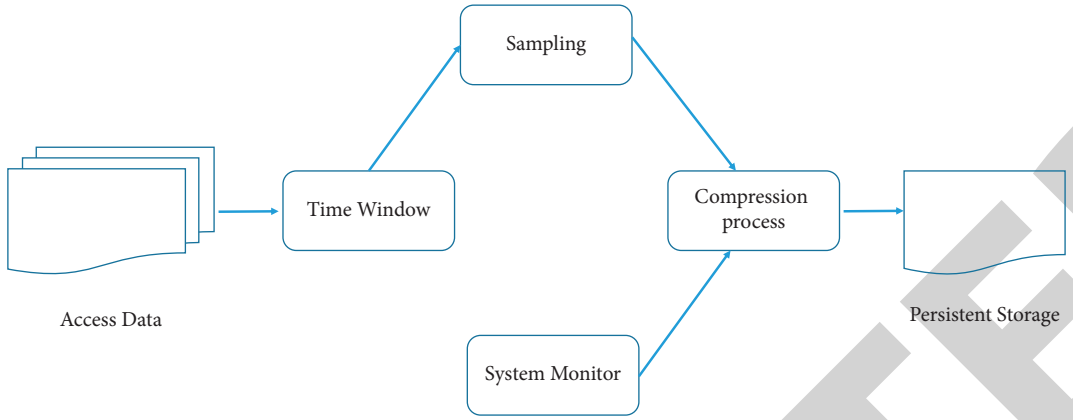

Figure 2: Schematic design of data compression strategy.

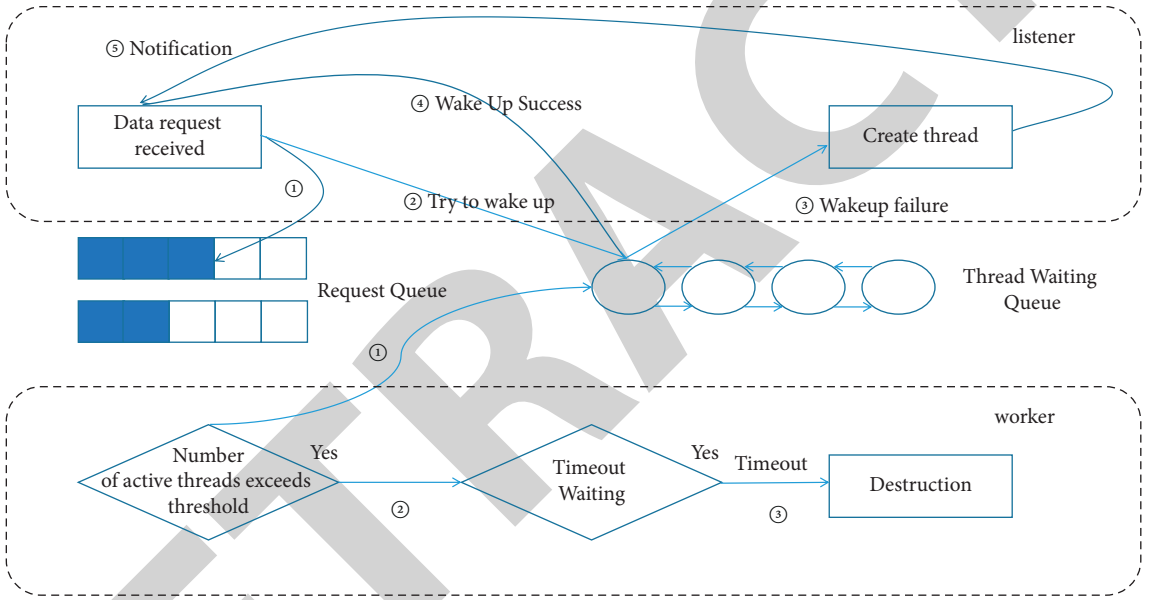

Figure 3: Schematic diagram of the data processing thread model.

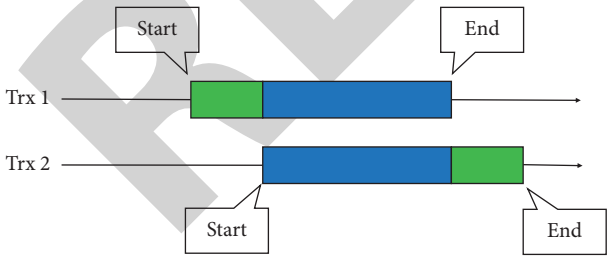

Figure 4: Data parallel replication schematic.

3.2. Database File Backup Optimization Algorithm. Database backups are often prepared for disaster recovery, but they can also serve business scenarios such as data rollback, application testing, and internal auditing. For small databases, logical backups can be used, but real-life scenarios often involve databases of tens or even hundreds of gigabytes. If logical backups are used, the business processing speed is greatly reduced and the error frequency is high, so cloud service providers often use physical backups for the database services provided by the cloud platform. The database services provided by cloud service providers are not shut down for a short period of time due to database backups, and often use hot backups to back up data, that is, without affecting the data backup of the database services [19].

When the database backs up the data files, it is always listening to the redo logs and continuously replicating them, and while listening, it replicates the data files stored in the database. Because the data backup is a hot backup, there may be data writes while backup, and data loss may occur if only data files are copied, so redo logs are used to record data modification or insert records, and to complete data when data are restored. When the data file replication is finished, a global read lock will be applied to the database and other data files will be replicated. After replication is complete, the global read lock is released and the backup ends.

Most of the database backup files in university education management scenarios are not stored directly on the local server, but often need to be transferred to other servers for storage. If the backup is performed without any processing of the data files, the data backup transfer will consume a lot of network bandwidth and take a long time to backup, which affects the upper-level operations of the database. Therefore, a dynamic compression coding method called dynamic compression is proposed to process and store the data according to the data type while the database files are copied. Since data compression is often a computationally intensive service, synchronizing data compression while replicating data would cause extremely high latency in data replication, so this paper uses a multithreaded asynchronous processing model for data compression operations [20].

In this paper, we use a data copy file thread to copy multiple files at the same time, each thread corresponds to a data file, a data buffer is used to store the copied data files, and then, multiple threads are opened to process the data in the buffer. The data are compressed according to the fixed data length, and after the final processing, it is written to the buffer queue and another thread writes it to the target file, which can reduce the queuing time of threads for writing. The database provides many types of fields for data storage, such as int, long, and other field types. The data of these field types will take up as many bytes as the field needs when it is created. For example, an integer of type int uses 4 bytes and 32 zeros or ones to represent it. Yet, often the actual values of fields of type int stored in the database are very small, so these numbers will have many leading zeros, while for negative numbers, there may be no leading zeros. These leading zeros can be compressed using a common compression algorithm, but it is necessary to find consecutive zeros and then write the meta information of the data in front of the number. If the data stored in the database contain a large amount of int-type data, which itself represents a small number, general-purpose data compression methods can become extremely time-consuming for such data. Therefore, the dynamic compression method proposed in this paper identifies and processes such data, as shown in Figure 5.

The number to be processed in Figure 5 is of type long, which consists of 8 bytes and 64 zeros or ones. We segment the numbers in groups of 7 digits, and the extra digit is the sign bit to determine whether the number is positive or negative. After the segmentation, a flag bit is added after the last bit of each group, which represents whether the current number is the last one. If the last bit of a group is 1, then the group is the last group of numbers to be processed and the encoding is finished. For example, in Figures 2–8, the last group of data 0000100 becomes 00001001, which means this group is the last group of data to be processed. According to the above segmentation rules, each group of data will be better processed, and the extra digit can determine whether the number is positive or negative. To increase the number of leading zeros in the number, we shift the number by placing the sign bit at the last bit, then invert the other bits, and finally process the number using the processing method in Figure 5. In this way, we can effectively solve the problem that numeric variables in the database take up more storage space because of their small values. The smaller the numeric value is, the more data storage space can be saved.

In addition, the total cost of ownership of data is calculated using equations (2)–(4).

$$\text{Cost} = a \times \text{Size}_{\text{comp}} + b \times \frac{\text{Size}_{\text{comp}}}{Bw}, \tag{2}$$

$$\text{Totalcost} = \text{cost} + x \times \text{Time}_{\text{comp}} + x \times \text{y.Time}_{\text{decomp}}, \tag{3}$$

$$\text{Totalcost} = \times \text{a.Size}_{\text{comp}} + \times \text{b} \frac{\text{Size}_{\text{comp}}}{\text{Bw}} + \times \text{x.Time}_{\text{comp}} + \times \text{y.Time}_{\text{decomp}}. \tag{4}$$

$Size_{comp}$ represents the size of the compressed backup file, a represents the weight of the compressed backup file in the total cost of ownership, Sizecomp/Bw represents the average transfer rate of the compressed backup file and bandwidth, b represents the weight of the average data transfer rate in the total cost of ownership, x and y are parameters set according to the business scenario, and $\text{Time}_{\text{comp}}$ and $\text{Time}_{\text{decomp}}$ are the data file compression time and decomp time, respectively.

We also use an asymmetric extremum-based data chunking algorithm and a duplicate attribute-based deduplication efficiency optimization algorithm to improve the efficiency of the data deduplication technique, in which if the data content is $b_0, b_1, b_2, \ldots, b_b$, the polynomial is defined as follows:

$$\text{Rabin}(b_0, b_1, b_2, \ldots, b_b) = \left(\underbrace{\sim}_{x=0}^{m} a \; b_0 p^{b-x} \right) \text{modr}. \tag{5}$$

We find that the data chunking process of the Rabin-based data deduplication algorithm depends on the previous and subsequent contents of the data, as shown in (5). The next data node can be found only after waiting for the previous data block content to be calculated.

$$\text{Rabin}(b_0, b_1, b_2, \ldots, b_b) = [\text{Rabin}(b_{i-1}, b_i, \ldots, b_{i+b-2}) * p - b_{i-1} p^M + b_{i+b-1}] \text{modr}. \tag{6}$$

In the algorithm based on the above, the smaller the variance between the data sizes, the better the deduplication rate results. If the data length is larger, then the variance is higher. In this paper, we analyze the probability of anomalous data blocks. In this paper, we set *Size* as the baseline and the average data block size as 2Size + 1, and we get formulas (7)–(9):

$$\text{Probability} = \begin{cases} \dfrac{1}{(w+i)} \\ \\ \dfrac{1-1}{(w+i)} \end{cases}, \tag{7}$$

$$P_i = \overset{size}{\sim} O_{i=1} \left(\frac{1-1}{(w+i)} \right) = w/(w + Size), \tag{8}$$

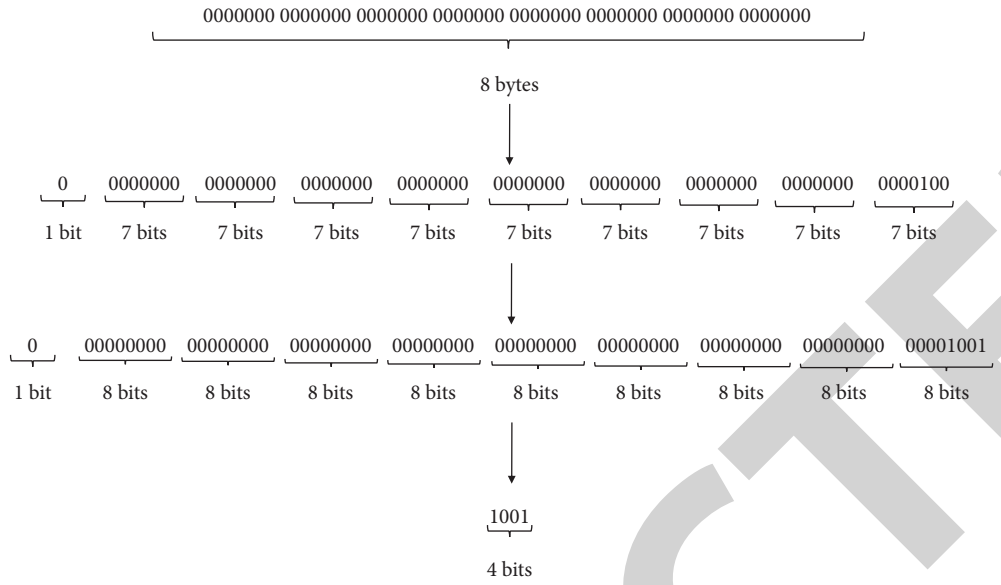

Figure 5: Flexible coding schematic.

$$P_j = \overset{2N}{\frown}O_{j=1}\frac{1}{j} = \frac{1}{2N!}. \tag{9}$$

Therefore, this paper optimizes the storage efficiency in terms of both the internal characteristics of the data in the storage space and the location properties of the duplicate data. More importantly, the data storage optimization strategy in this paper achieves a good balance between energy consumption and performance, which is a potential optimization direction for previous data storage technologies. The performance comparison of the storage space optimization strategies proposed in this paper is discussed in detail below. More importantly, we tested the performance and energy consumption of our proposed model on different server load levels.

4. Discussion and Results

The experimental environment in this paper is based on the server provided by Kingsoft Cloud, which consists of an 18-core, 36-thread Intel Xeon Gold 6240 with 378 GB of DRAM memory, equipped with Intel's Ardent series solid-state drives. The workloads of the high-relevance mode access compression strategy are from the workloads of the university education management scenario, and the experimental validation is tested based on the real scenario. The data sets used in the database file backup optimization algorithm are from the database backup data in the real scenario of university education management, and the data types are business data of big data platform, audit data, and log data, and the size of each data set is 424 GB, 164 GB, and 70 GB, respectively. The experiments are based on the real requirements of university education management platform construction.

Figure 6 shows the 2-hour workload of a college education management platform server collected in this paper. Figure 6(a) shows that the system workload CPU may have a sudden increase at a certain time, and the memory utilization does not change greatly in most of the time. In Figure 6(b), the memory utilization rate is generally around 70%, which fluctuates to a certain extent, but the fluctuation is not significant. In the high-load state, the algorithm proposed in this paper fluctuates more in energy consumption, and the performance shows a higher peak and a larger gap in the lowest value, which proves that the model still has some room for adjustment in the high-load state.

In Figure 7, a smooth task workload is shown with relatively smooth CPU and memory utilization over a 2-hour period, with low CPU utilization and memory utilization close to the memory utilization of the burst task workload. It is noteworthy that the data storage technique proposed in this paper not only tends to be smooth in terms of performance but also tends to be below the average standard in terms of energy consumption in the low-load state. In other words, the data storage technique proposed in this paper can effectively achieve a high level of performance and energy consumption balance.

In Figure 8, we can see that using the algorithm proposed in this paper not only optimizes data storage efficiency but also reduces energy consumption compared with the baseline model that does not use the algorithm proposed in this paper for data processing. In addition, due to the exponential explosion of online educational resources, our proposed algorithm can also process data dynamically to maintain the performance advantage and achieve a dynamic balance between performance and energy consumption.

In sum, we propose a database file storage strategy for university education management platform. Firstly, we analyze the data access pattern of database infrastructure hosted in cloud platform, and propose a high relevance access compression strategy for data stored in write-only instance, which can reduce the storage space of data files in write-only instance by compressing data without taking

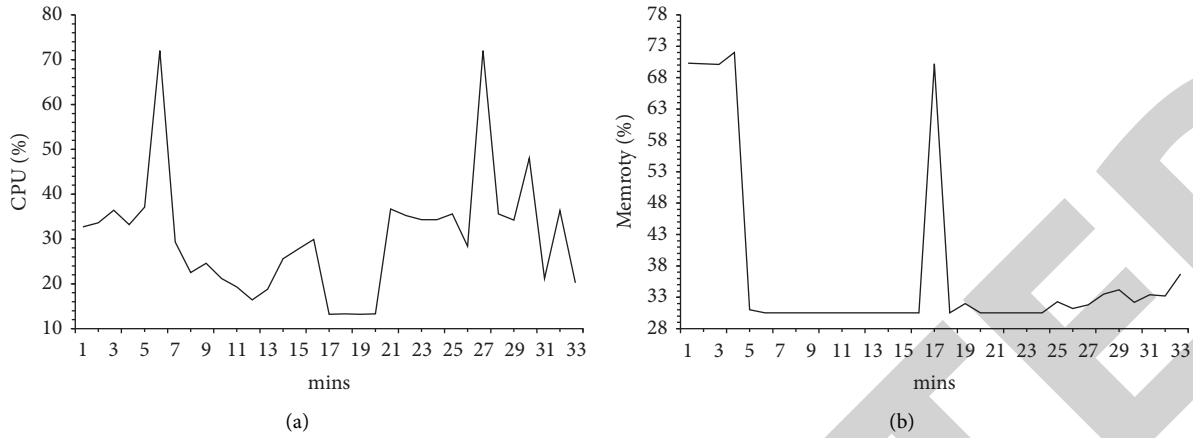

Figure 6: Burst-type task workload schematic.

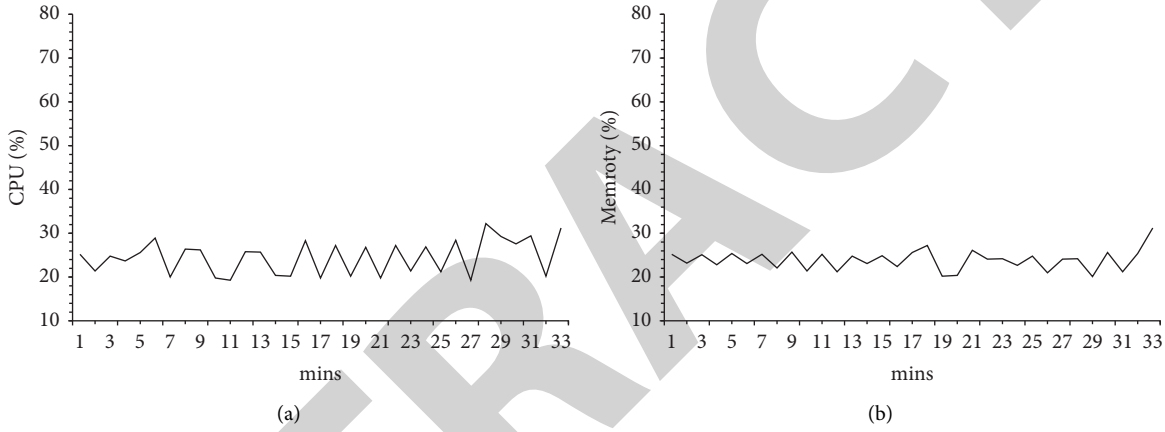

Figure 7: Smoothed task workload schematic.

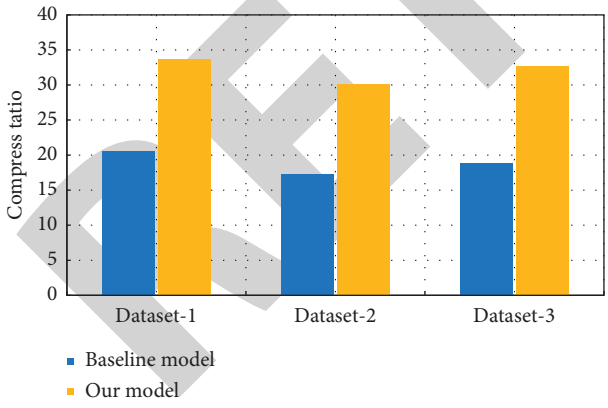

Figure 8: Write-only instance storage space data compression comparison chart.

system resources. In addition, to address the problems of long backup time of database files, low data transfer rate, and excessive storage space occupied by the backup data, this paper proposes a database file backup optimization method, optimizes the data file backup model, and compresses the data files using the dynamic compression method proposed in this paper. Finally, the effectiveness of the database storage optimization strategy proposed in this chapter is proved through a series of experimental validation.

5. Conclusion

In recent years, a large number of new technologies have been widely used in the field of teaching management, which has improved the level of information construction of teaching management in colleges and universities. Particularly with the development and popularity of big data technology, big data will certainly accelerate the integration with education, and in the face of massive online education resources, big data can also better help to deal with data resources, and the current nationwide trend of integration of big data and education is the best evidence. However, it is undeniable that there is still great room for discussion on how big data technology should be integrated with education. One direction is the construction of college education management platform based on big data. How colleges and universities can collect online education resources extensively and handle these data appropriately with a view to providing students with personalized education and training is the key to the construction of the college teaching management platform and college education management information construction at present.

How to better use big data information technology to improve the efficiency and quality of teaching management in colleges and universities is an important direction for colleges and universities. However, with the continuous expansion of big data scale, the traditional server storage technology can no longer meet the current needs of teaching management in colleges and universities. The traditional database not only has long deployment period, complex use, and high maintenance cost, but also is difficult to be managed by users. Therefore, this paper addresses the problem of inefficiency of online education resource database in the college teaching management platform, optimizes the database data file backup model, then elaborates the internal characteristics of database data files, and uses the proposed dynamic compression method to compress different types of data to speed up data storage, processing, and transmission, thus supporting the construction of the big data-based college teaching management platform. More importantly, the model proposed in this paper achieves a good balance in performance and energy consumption, which is of great value in promoting the construction of university education platforms. However, it should also be noted that the data set in the experimental analysis part of this paper has a small sample size, and there is still a need to further expand the sample set and adopt more different types of data sets to test the scientific validity of the proposed strategy in this paper. In addition, the method proposed in this paper is based on the storage space itself, which is not only applicable to the data management of university education resources, but also applicable to other fields, so we expect that the strategy proposed in this paper can be tested and supported by the data sets of other fields.

In conclusion, the database storage optimization strategy based on big data proposed in this paper provides a technical path to solve the processing problem of massive online educational resources, and also provides a basic storage solution for the construction of university education management platform based on big data, which provides a corresponding foundation for the subsequent technology development.

Data Availability

The data sets used during the current study can be obtained from the author upon reasonable request.

Conflicts of Interest

The author declares no conflicts of interest.

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