

## Research Article

# Data Sharing and Online Political Education Based on Edge Computing Network Optimization

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The rapid development of Internet of Things services and the rapid growth of new broadband services have promoted the ever-increasing computing demands of mobile devices. As an emerging mobile computing technology, mobile edge computing is an important key technology to improve computing services for mobile devices. Mobile edge computing technology provides an important way for users to provide computing services with low latency and high computing performance. At the same time, it also provides technical means to develop online education. Online education called E-learning is an education model that uses the Internet as a medium. Through the Internet, students can conduct educational activities thousands of miles away from the teacher. In addition, students can learn at any time by referring to and downloading network code resources, thereby breaking the space and time constraints. The development of informatization of university education is an important part of the development of informatization, and it is the adaptation and combination of the application of information technology in the education field. At present, the informatization of universities at home and abroad has ushered in the era of digital campus construction, and most of its focus is on the reorganization of functional departments and the integration of independent systems. By analyzing the needs of data sharing and exchange, this article plans to use existing mature technologies, such as data warehouse, data synchronization update, and data security, based on DataX to design the data sharing and exchange plan of the public data platform, including data standards, coding standards are designed to achieve uniform rules, formats, and codes to build an online political education platform.

## 1. Introduction

With the rapid development of Internet of Things services and the rapid growth of new broadband services, the intelligent Internet of Things that integrates communication, caching, and mobile computing technologies are an inevitable trend for the next generation of Internet of Things [1]. In recent years, the high user experience business has gradually risen, and it has continued to develop rapidly at a speed beyond expectations [2]. The remote computing task loading method based on cloud computing technology will face severe challenges due to long communication delays and high operating costs [3]. At the same time, the rapid growth of mobile terminals and the rapid development of sensor-based smart cities, smart homes, smart grids,

intelligent transportation, health care, and other areas of the Internet of things urgently need to solve the problems of limited computing power and long-term sustainable enjoyment, and the contradiction between delay and high user experience service requirements [4]. As an emerging mobile computing technology, the mobile edge computing (MEC) network places edge computing servers close to users who need to perform computing tasks, shortening the computing task loading distance, reducing communication delays, and improving computing, the important key technology of efficiency has received extensive attention from academia and industry since its introduction [5, 6]. The continuous construction of digital campuses and “smart campuses”, as well as the continuous increase of management platforms and all-in-one card service platforms for universities, and

the accumulation of data in the information environment of universities are gradually increasing, forming a more comprehensive big data environment [7]. How to effectively share and exchange management of big data in colleges and universities, improve the management model of teachers and students on campus through big data mining and analysis ideas and methods, and use the results of big data analysis to provide clearer and more detailed services for campus life, which is now a college service issue that cannot be ignored in system construction [8]. In order to adapt to the requirements of the development of the times and follow in the footsteps of the times, more and more universities have begun to pay more attention to the construction of information [9]. With the development of today's society, in the modern university education management, the level of informatization has maintained a trend of increasing year by year, the widespread use of the campus card and the accumulation of data from the office system of various business departments over the years have formed campus online political education [10]. The large amount of university data are mainly reflected in a variety of types and large-scale teacher and student data [11]. The rational and effective unified management of teacher and student data and the intercommunication with business departments are the key to the data management of universities. If a data sharing and exchange platform can be established within the university, various departments can share data safely and quickly, and this will not only improve the utilization rate of data but also provide the most effective assistance for the integration of campus online political education.

The literature points out that mobile edge computing can provide mobile devices with low-latency and high-performance computing services. Mobile edge computing has two working modes, namely partial computing loading mode and binary computing loading mode [12]. In part of the computing loading mode, computing tasks can be split, some are performed locally, and the other part is loaded to the mobile edge computing server to perform calculations; in the binary computing loading mode, computing tasks cannot be split, and mobile devices can only choose to execute local calculations or all load to the mobile edge computing server to perform calculations [13]. The literature shows that a multi-user MEC system considering wireless charging is proposed, and a wireless energy transmission MEC design is proposed, in which a multi-antenna access point (integrated with the MEC server) broadcasts wireless power to charge multiple users, and each user node depends on the collection energy to perform computational tasks [14]. The literature shows that the report "Promoting Teaching and Learning Through Educational Data Mining and Learning Analysis: Problem Introduction" issued by the Office of Educational Technology of the U.S. Department of Education clearly deploys the development path of educational big data, focusing on the prediction of data mining and learning analysis technologies [15]. It uses students' learning behavior to optimize teaching strategies and evaluate teaching effects. The literature shows that online education platforms can support teachers, students, and policy analysts to make better decisions, use data facts as the

basis for their own decisions, and be more convincing and able to propose education in a more targeted manner [16]. The literature pointed out that the time delay optimization problem in the single-user MEC system was studied in the study of minimizing task delay optimization [17]. All unloading modes include the task unloading decision, that is, whether all tasks are executed locally or unloaded to the MEC server execution target [18, 19].

## 2. Research on Collaborative Optimization of Task Scheduling and Data Sharing in Edge Computing Networks

*2.1. System Model and Problem Description.* The goal is to design a joint coordination mechanism for online scheduling and allocation. The main idea is shown in Figure 1. Different colors represent different types of services or tasks, and the numbers on the squares represent the corresponding deadlines of users. The user arrives at the system at any moment, and submits a heterogeneous housing request through the associated access point; considering the difference in load and resource costs of different edge clouds, MEC provider determines whether to admit the newly arrived task, if it is admitted, then charge it for services and offload tasks to the appropriate edge cloud; due to limited storage capacity, each edge cloud must wisely decide which services to configure. The task urgency is modeled as a dynamic priority weight, and perform priority-based edge cloud processing and discard control. Here, "discard" only means that tasks are not processed at the edge of the network, and the lost tasks will be offloaded to resource-rich ones. Remote cloud processing will incur more painful costs.

In order to balance the system load, it is necessary to design effective resource allocation and pricing strategies. On the one hand, network resources have a greater impact on the quality of uninstillation. If more network resources (such as spectrum resources) are allocated, the offloading quality provided by the edge cloud will increase. Therefore, a reasonable configuration of network resources is essential to improve resource utilization and offloading efficiency. On the other hand, pricing can effectively increase users' willingness to participate. Generally, lower service prices can attract more users to access, while excessive prices will push users to other edge clouds.

- (1) Offload quality: it is assumed that each edge cloud provides offload services for users with constant transmission power as

$$\Gamma_{i,n}[t] = \frac{P_{i,n}^r[t]}{\sum_{n \in N_i[t]/\{0,n\}} P_{i,n}^r[t] + P_i^{\text{noise}}[t]}. \quad (1)$$

Based on the current network conditions, MEC providers first need to configure resources. Obviously, an inefficient configuration strategy will further aggravate network congestion and reduce offloading efficiency. The uninstillation quality obtained by user  $i$  from edge cloud  $n$  is

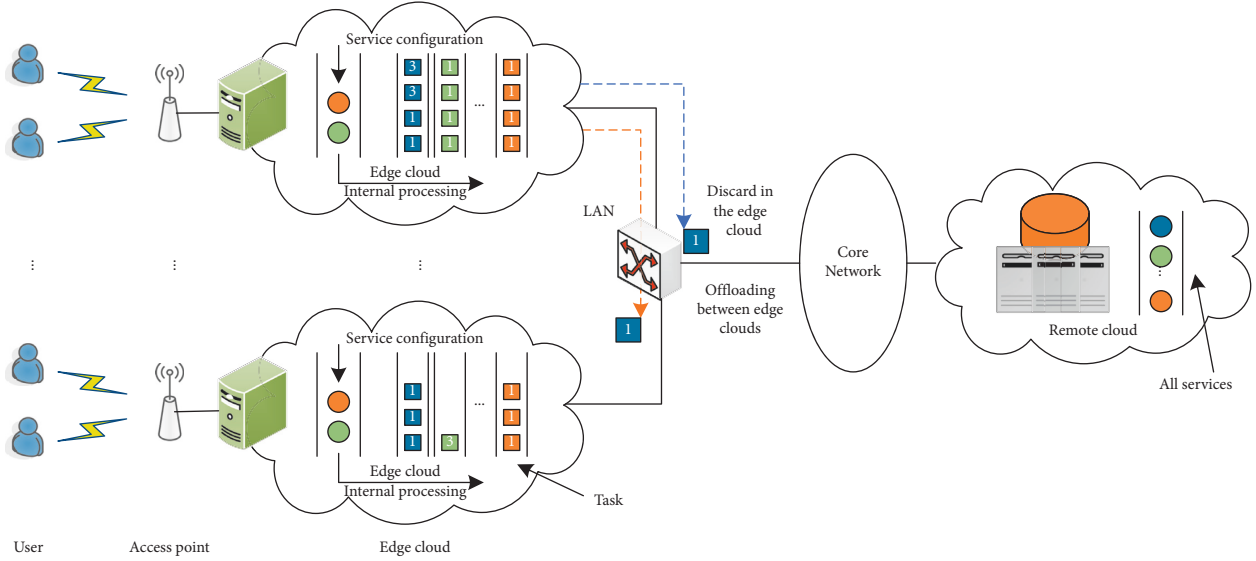


FIGURE 1: Schematic diagram of mobile edge computing network and service type based on peer-to-peer offloading.

$$r_{i,n}[t] = s_n[t] \log_2(1 + \Gamma_{i,n}[t]). \quad (2)$$

- (2) Offloading and congestion constraints: due to user mobility, the edge cloud can only provide intermittent network connections. At any moment, each task can only be offloaded to one edge cloud or remote cloud at most, then the offloading constraint is

$$\sum_{n \in N} x_{i,n}[t] = \sum_{n \in N_i[t]} x_{i,n}[t] \leq 1, \forall_i \in U. \quad (3)$$

Based on the task uninstal strategy, the uninstal quality obtained by the user is

$$r_i[t] = \sum_{n \in N} x_{i,n}[t] \cdot r_{i,n}[t], \forall_i \in U. \quad (4)$$

In the congestion-aware edge computing system, each resource-constrained edge cloud has a limited offload capacity. Edge cloud congestion constraints can be characterized as

$$\overline{X}_n \leq a_n, \forall_n \in N, \{0\}. \quad (5)$$

- (3) User satisfaction function: A satisfaction function is introduced to describe the degree of user satisfaction with uninstalled services.

$$V_i[t] = \ln(1 + \theta_i r_i[t]). \quad (6)$$

Queue dynamics plays a key role in characterizing the time-varying network environment and controlling decision-making. Use  $Q[t]$  to represent the queue backlog, that is, the amount of unprocessed tasks waiting to be unloaded at the beginning of  $t$ . Assume that the task queue is initially empty, that is,  $Q[0] = 0$ . Therefore, the queue dynamics can be characterized as

$$Q[t+1] = \max\{Q[t] - r[t], 0\} + A[t], \forall_t \geq 0. \quad (7)$$

A queue is strongly stable if and only if its time average queue backlog is bounded, that is

$$\overline{Q} = \limsup_{t \rightarrow \infty} \frac{1}{t} \sum_{\tau=0}^{t-1} E\{Q[\tau]\} < \infty. \quad (8)$$

For the obtained uninstal quality  $r_i[t]$ , user  $i$  needs to pay the service fee  $\pi_i[t]$  to the MEC provider. The value of uninstal service perceived by user  $i$  is defined as a user satisfaction function. Therefore, the utility function of  $i$  can be modeled as

$$U_i[t] = wV_i[t] - \pi_i[t]. \quad (9)$$

**2.2. Maximization of User Collaborative Loading and Optimization of Computing Energy Efficiency and Resources.** The mobile edge computing network based on OFDMA transmission studied in this chapter, the system model is shown in Figure 2.

During the time slot  $t1$ , the amount of data loaded by user  $U1$  to the MEC server and user  $U2$  are, respectively, expressed as

$$R_1^{t_1}(t, p) = t_1 B \log_2 \left( 1 + \frac{p_1 h_1}{\sigma^2} \right), \quad (10)$$

$$R_{co}^{t_1}(t, p) = t_1 B \log_2 \left( 1 + \frac{p_1 h_{co}}{\sigma^2} \right). \quad (11)$$

It represents the relevant time and power variables. During time slot  $t21$ , the amount of data that user  $U2$  transmits the decoded loading task of user  $U1$  to the MEC server is expressed as

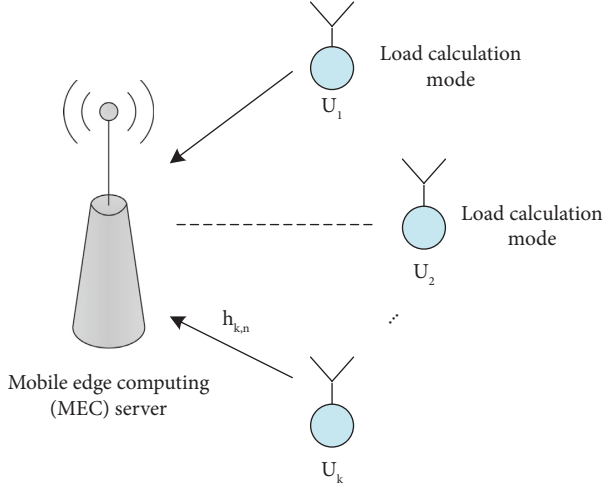


FIGURE 2: System model.

$$R_1^{t_{21}}(t, p) = t_{21} B \log_2 \left( 1 + \frac{P_{21} h_2}{\sigma^2} \right). \quad (12)$$

According to the DF protocol, the size of the loaded data of the user  $U_1$  performing remote calculations on the MEC server should be the smaller value between the size of the decoded data at the MEC server and the size of the decoded data at the user  $U_2$ , namely

$$R_1(t, p) = \min \{ R_1^{t_1}, R_1^{t_{21}}, R_{co}^{t_1} \}. \quad (13)$$

The amount of data loaded by user  $U_2$  is the amount of data transmitted by user  $U_2$  to the MEC server during the time slot  $t_{22}$ , expressed as

$$R_2(t, p) = t_{22} B \log_2 \left( 1 + \frac{P_{22} h_2}{\sigma^2} \right). \quad (14)$$

In this mode, the energy consumption of user  $U_1$  and user  $U_2$  are, respectively,

$$E_{\text{off},1} = t_1 (p_1 + p_c). \quad (15)$$

$$E_{\text{off},2} = (t_{21} p_{21} + t_{22} p_{22}) + (t_{21} + t_{22}) p_c. \quad (16)$$

Thus, the total loading energy consumption of the system is

$$E_{\text{off}} = \begin{matrix} \zeta(p_1 t_1 + p_{21} t_{21} + p_{22} t_{22}) \\ \text{partial loading} \end{matrix} + \begin{matrix} (t_1 + t_{21} + t_{22}) p_c \\ \text{fixed circuit consumption} \end{matrix}. \quad (17)$$

**2.3. Implementation and Application of Data Sharing and Exchange.** Storage capacity constraint: this chapter focuses on the finiteness of edge cloud storage capacity, and assumes that edge cloud  $n \in N$  provides at most  $S_n$  types of services at the same time at any time, namely

$$\sum_{r \in R} \alpha_n^r[t] \leq S_n, \forall n \in N. \quad (18)$$

Conservation constraints: the total amount of offload tasks (including local reserved tasks) of each edge cloud

must be equal to the amount of tasks allowed to enter the system at the current moment, namely

$$\sum_{i \in A_m^{r,t}} \sum_{n \in N} \beta_n^i[t] = O_m^r[t] + D_m^r[t], \forall r \in R, m \in N. \quad (19)$$

Stability constraint: the number of  $r$ -type tasks offloaded to edge cloud  $n$  at each moment does not exceed the maximum service rate,

$$\sum_{m \in N} \sum_{i \in A_m^{r,t}} \beta_n^i[t] \leq f_n^r, \forall r \in R, m \in N. \quad (20)$$

Incentive constraint: This constraint is mainly aimed at the resource consumption problem in providing shared offloading services.

$$\frac{1}{T} \sum_{t \in T} e_n^r[t] \leq E_n^r, \forall n \in N, r \in R. \quad (21)$$

Priority constraints:

$$R_n^r(i) \begin{cases} < R_n^r(j), \text{ if } d_i < d_j \\ > R_n^r(j), \text{ if } d_i \geq d_j \end{cases}. \quad (22)$$

Under the assumption of best-effort, the online joint collaborative control problem can be modeled as

$$\min \frac{1}{T} \sum_{t \in T} C[t]. \quad (23)$$

Without considering the user deadline tolerance, users are promised that once they are admitted to the system, they can get services at the edge of the network, which means that there is no task discarding. In order to support the promised service, previous related work usually highlights service locality constraints:

$$\beta_n^i[t] \leq \alpha_n^r[t], \forall i \in A_m^{r,t}, r \in R, n, m \in N. \quad (24)$$

First, study the collaborative optimization problem of scheduling and configuration (sDO-JCPS) that does not consider the user deadline tolerance in a single slot, and model it as an integer linear programming (ILP).

$$\min \sum_{n,m} \sum_r \left( c_n^r[t] \alpha_n^r[t] + \sum_{i \in A_m^{r,t}} c_n^{i,o}[t] \beta_n^i[t] \right). \quad (25)$$

Under the constraints of stability, the limitation of service capacity makes the offloading decisions of different tasks coupled.

$$\min \sum_{n,m} \sum_r \left[ (1 - \sigma) c_n^r[t] \alpha_n^r[t] + \sum_{i \in A_m^{r,t}} \beta_n^i[t] \left( \frac{\sigma c_n^r[t]}{f_n^r} + c_n^{i,o}[t] \right) \right]. \quad (26)$$

Suppose the total configuration and the scheduling cost of the optimal solution of problem (26) are  $C_{\text{place}}^{(9)}$  and  $C_{\text{schedule}}^{(9)}$ , we can get

$$\frac{\gamma_s C_{\text{place}}^{(9),d} + C_{\text{schedule}}^{(9),d}}{\gamma_p} \leq \gamma_p \frac{\gamma_s C_{\text{place}}^{(9)} + C_{\text{schedule}}^{(9)}}{\gamma_p} \leq \gamma_s \cdot \text{OPT}. \quad (27)$$

When extracting source data, due to years of storage of data, inconsistent standards, and no fixed maintenance personnel in various business systems, the source data may have problems such as incomplete data, data duplication, data errors, or data irregularities. At this time, data correction, duplicate elimination, and standardization need to be completed through data cleaning. The main types of data that need to be cleaned are as follows: input or input incorrect data (missing values, slack metadata definitions, inconsistent allocations, inappropriate definitions or application of consistency constraints, etc.). For example, the student basic information table may contain data that needs to be cleaned, such as the student's contact phone number, hometown, and transfer major, and there are irregular formats that need to be cleaned. The time format field is written as a string, whether in public data management or subsequent. All data mining and analysis needs to clean the data first, that is, complete data, remove duplication, standardize time, and unified format.

Data cleaning includes the following steps: data analysis, actual situation analysis, mastering the basic information, and constraints of metadata, mining data without matching constraints and manually input or input data. Define cleaning rules and mapping relationships, define cleaning rules based on analysis results, map contradictory metadata, deal with missing data based on actual conditions, and try to correct data or input incorrect data. Before and during data conversion, the data that needs to be converted will be cleared according to the defined cleaning rules.

First, establish a data type mapping table (Table 1), find out various data types and possible correspondences that are missing in the central database of different databases, and put the correspondences in the mapping table in advance. Then, in order to eliminate the inhomogeneity of the data type, the extracted data is compared with the preset standard of the data type mapping table for conversion and repair.

Then use the data naming rules (structure such as Table 2) to place the source data name and the converted execution data name, database name, table name, and other attributes. If the extracted data exists in the table, then change the source data name to a standard data name, and then compare the database name and table name given in the table to get the standard data value, if it does not exist, add a new record. The data name is established according to the standard. The structure of the source operation table is shown in Table 3.

**2.4. Analysis of Simulation Results.** Figure 3 shows the relationship between the user's safe computing energy efficiency and the user's maximum transmission power under the three scenarios. Three different schemes are proposed in this chapter, the partial loading scheme based on OMA and the global loading scheme only. Observing it, we can see that the scheme proposed in this chapter can achieve better energy efficiency of safe computing than the other two

TABLE 1: Data correspondence table.

Field name	Type of data	Allow empty	Description
ID	Integer	No	Mark a record
DB_Type	Character type	No	Type of database
DB_Ver	Character type	No	The version number of the database
Type	Character type	No	Type of data
Des_Type	Character type	No	Default mapped data type
Fun	Character type	No	The name of the conversion function to be called for type conversion

TABLE 2: Data correspondence table.

Field name	Type of data	Allow empty	Description
ID	Integer	No	Mark a record
Name_Src	Character type	No	Original data name
Name_Des	Character type	No	Data standard name
DB	Character type	No	The name of the database
Table	Character type	No	Table name

TABLE 3: The structure of the source operation table.

Field name	Type of data	Allow empty	Description
ID	Integer	No	Mark a record
Data_Key	Homologous table field type	No	The primary key value of the record
Name_column	Character type	No	Modified field name
Data_column	Homologous table field type	No	The modified field value of the field
Oper_Type	Character type	No	Type of operation
Update_time	Character type	No	Update time

schemes. The reason is that compared with OMA technology, the user's loading efficiency is higher when using NOMA technology. In addition, in the safe calculation energy efficiency of all schemes, the safe calculation energy efficiency first increases as the user's maximum transmission power increases. When the user's maximum transmission power is large enough, the safe calculation energy efficiency will remain unchanged. And it can be clearly seen that under the same network mechanism, the partial loading scheme based on OMA achieves higher energy efficiency for safe computing than the OMA-based global loading scheme. Through analysis, it can be seen that the reason is that in the case of using partial computing loading mode, users can flexibly allocate resources to computing loading, local



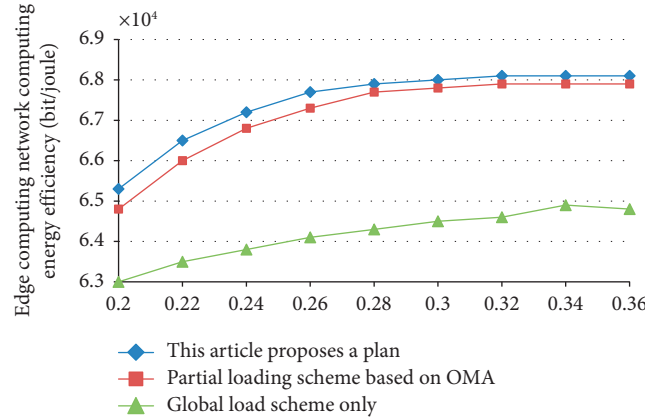


FIGURE 3: Safe calculation of energy efficiency and user's maximum transmission power under different schemes.

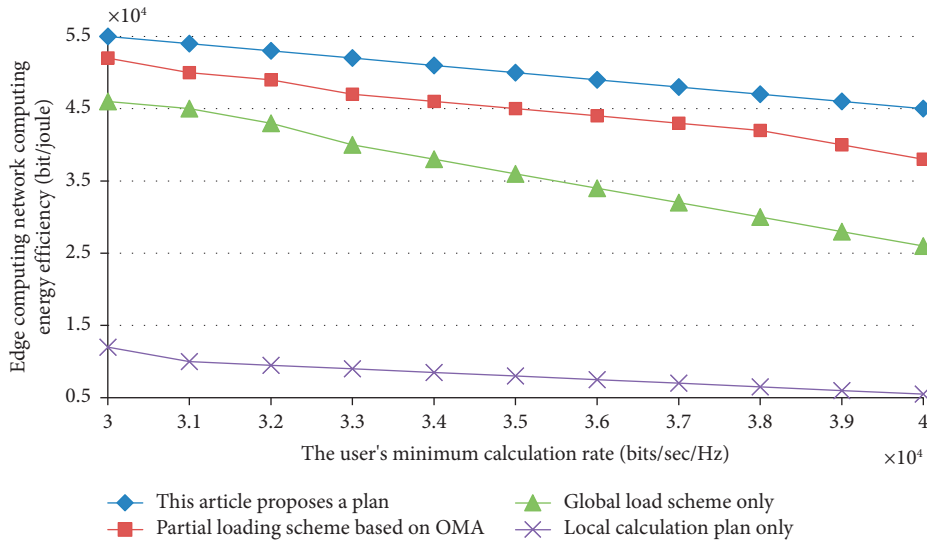


FIGURE 4: Safe computing energy efficiency and user's minimum computing rate under different schemes.

computing, and achieving good resource allocation. Figure 4 shows the comparison between the user's safe computing energy efficiency and the user's minimum computing rate under the four scenarios. The three schemes are the schemes proposed in this chapter, the partial loading scheme based on OMA, the global loading scheme only, and the local calculation scheme only. Observing it, we can see that the safe computing energy efficiency maximization scheme proposed in this chapter is better than other schemes. Moreover, it can be seen that the safe computing energy efficiency obtained by the scheme proposed in this chapter or the other three schemes decreases as the minimum calculation rate required by the user increases. This shows that the growth rate of the required computational energy is faster than the growth of the corresponding calculation rate; that is, the growth rate of the calculation rate is less than the growth rate of the energy consumption to achieve the calculation rate.

Figure 5 shows the relationship between the safe calculation energy efficiency and the user's maximum

transmission power using the calculation energy efficiency maximization scheme and the calculation bit maximization scheme proposed in this chapter. As shown in Figure 5, when users have the same maximum transmission power, the traditional calculation of bit maximization to obtain safe calculation energy efficiency is lower than the safe calculation energy efficiency obtained in the scheme proposed in this chapter.

Figure 6 illustrates the convergence of computing edge, computing network security, and computing energy efficiency based on the iterative algorithm of SCA proposed in this chapter and compares it under different user maximum transmission powers. As shown in Figure 6, the safety calculation efficiency obtained by our proposed SCA-based iterative algorithm first increases rapidly as the number of iterations increases, and then reaches convergence after several iterations. Moreover, the safe calculated energy efficiency achieved by the maximum transmission power of three different users matches the trend of energy efficiency values in the figure.

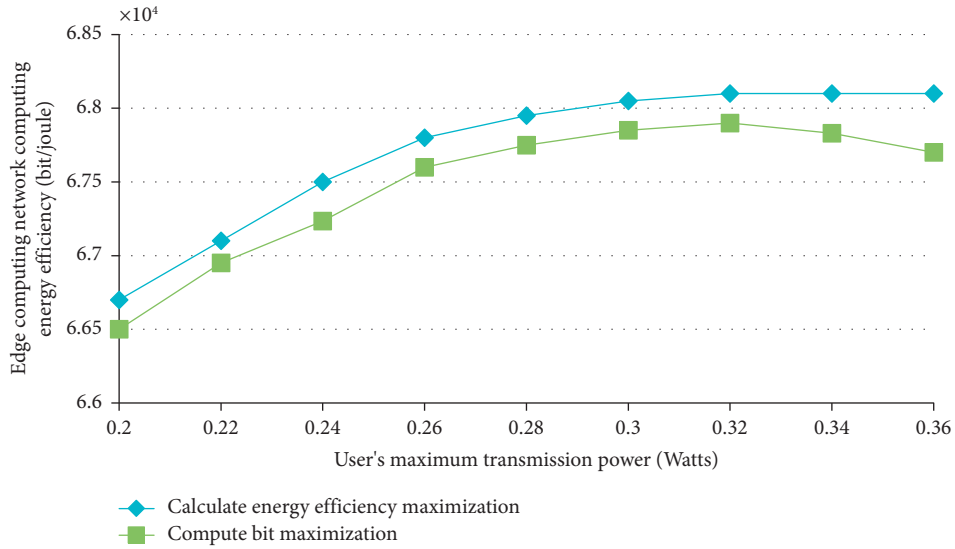


FIGURE 5: Safe calculation of energy efficiency and maximum transmission power under different optimization goals.

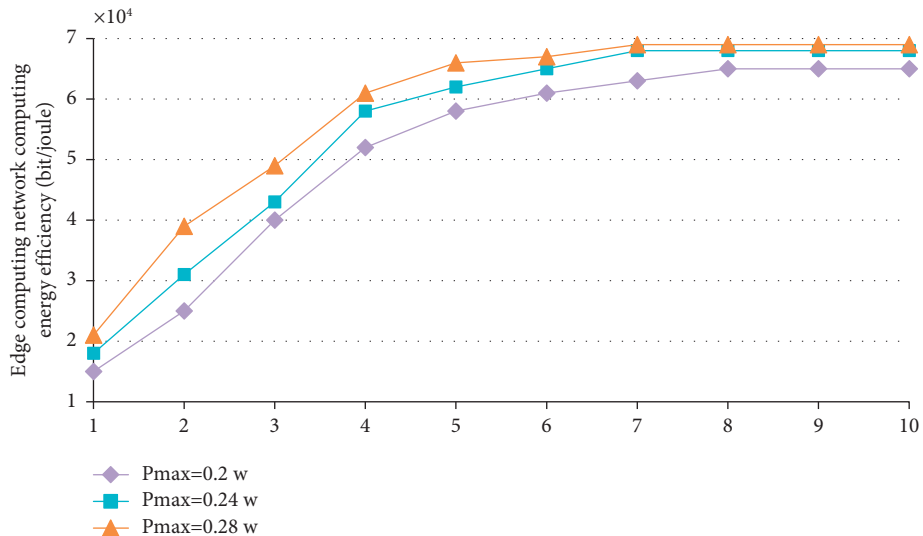


FIGURE 6: Safe calculation of energy efficiency and optimization algorithm iteration times under different maximum transmission powers.

### 3. Research and Implementation of the Online Political Education Platform Based on Resource Sharing

**3.1. Technical Architecture of the Online Political Education Platform.** The design of the educational resource sharing platform is also designed in accordance with a three-tier architecture. The interface of each functional module of the platform is responsible for the interaction with users and is the presentation layer. Some tasks and stored procedures that perform data preprocessing in the database of the business logic layer of the platform also belong to the scope of business logic. In the data layer, SQL Server 2008 is used for data storage and persistence. SQL Server can store various types of data such as XML files, text files, and binary files and provide efficient query and processing capabilities.

**3.2. Database Logical Structure Design.** Through the overall ER diagram of the system and the relationship between each entity, the database tables of the system can be designed mainly including student table, teacher information table, course information table, department information table, professional information table, course selection information table, grade information table, and credit information table. The teacher information table is shown in Table 4.

The student information table is shown in Table 5.

The teaching videos of teachers and the learning materials of students are stored in the material information table. The table structure of the data information table is shown in Table 6.

**3.3. Strategies for the Development of Online Political Theory Teaching.** First, people use big data thinking for teaching

TABLE 4: Teacher information table.

Column name	Description	Types of	Remarks
TeacherNum	Numbering	Char (10)	Primary key
DeptNum	Department number	Char (10)	Not null
TeacherName	Name	Varchar (20)	Not null
TeacherSex	Gender	Varchar (20)	Male or female
TeacherBirthday	Birthday	Varchar (20)	Not null
TeacherTitle	Job title	Varchar (20)	Not null

TABLE 5: Student information sheet.

Column name	Description	Types of	Remarks
StudentNum	Student ID	Char (10)	Primary key
MajorNum	Department number	Char (10)	Foreign key
StudentName	Student name	Varchar (40)	Not null
StudentSex	Student gender	Varchar (20)	Not null
StudentBirthday	Date of birth	Varchar (30)	Not null
StudentPassword	Login password	Varchar (20)	Md5 encryption

TABLE 6: Data information sheet.

Column name	Description	Types of	Remarks
ResourceNum	Resource number	char (10)	Self-incrementing primary key
TeacherNum	Upload teacher ID	char (10)	Available
FileType	File type	Varchar (30)	Not null
FilePath	File path	Varchar (30)	Not null
FileContent	File introduction	Varchar (30)	Not null
UploadTime	Upload time	Date and time	Not null

design. Teaching goals are scientifically formulated. Teaching design is based on the further development of teaching objectives. The teaching objectives of ideological and political theory courses have not changed from a large level. However, with the development of time, we have many different needs for many detailed content. How to scientifically and accurately determine the teaching target of each knowledge point after refining the teaching target is a key step to improve the teaching quality of ideological and political theory courses. The teaching goals determined through personal subjective consciousness, experience, and lessons are not supported by data, and to a certain extent are unconvincing. Analyze the complex big data information and use the results reflected by the data to formulate

teaching goals based on the data, so that teaching is more scientific and accurate. Apply the principle of big data accuracy to the teaching of ideological and political theory courses. By tracking the teaching trajectory of the teacher, the learning trajectory of the student and the interactive data between the two, the teaching characteristics of the teacher, the learning characteristics of the students, and the psychology of the students are obtained. Features accurately present the characteristics of different objects, and then implement teaching decisions, scientifically determine the teaching goals of ideological and political theory courses, promote the formulation of teaching goals more scientifically, and better meet the needs of current student development, and better realize the ideological and political theory courses. Accurate teaching: The second science chooses teaching content. Big data technology is a product of the development trend of informatization. Its wide application promotes the transformation of the teaching thinking of ideological and political theory courses in colleges and universities from perceptual qualitative analysis to rational quantitative analysis. In traditional ideological and political theory courses, teachers often teach courses based on long-term teaching experience. Now the application of big data technology in ideological and political theory courses has greatly improved this situation. Using big data to transform teaching thinking, change the qualitative analysis teaching thinking based on teachers' perceptual cognition and form a rational quantitative analysis teaching thinking based on student needs, which is conducive to enhancing the effectiveness of ideological and political theory courses.

Secondly, in traditional ideological and political theory teaching, teachers' teaching judgments are basically based on their own years of teaching experience. However, students of different ages and different age groups are different in their mental thinking and knowledge reserves. Using previous teaching method to carry out teaching, the teaching effect achieved is not particularly significant. The wide application of big data in ideological and political theory courses in colleges and universities have changed the way teachers perceive students. It is no longer judged by experience but judged by accurate data analysis results, thus changing the way teachers choose teaching methods. Using big data to analyze students' dynamics in real time, grasp first-hand information, and promote the transformation of teachers' teaching situation; using big data to promote teachers' cognitive style from their own empiricism to rational data judgment that will be a new era of ideological and political lessons. Teachers better choose teaching methods to provide a basis for judgment. There are unified teaching standards and requirements for the teaching of ideological and political theory courses, and the teaching materials are used uniformly throughout the country, but the teaching resources and teaching methods of each school are full of flowers. The balanced development of big data technology in the ideological and political theory courses of Chinese universities will promote the transformation of the current scattered teaching status to the direction of teaching resource sharing. Through the establishment of university alliances or led by national government departments and



local education management departments, the integration of regional big data technology application resources, so that big data technology can be exchanged and shared, and jointly promote the transformation of the scattered state of ideological and political theory teaching to agglomeration and sharing, which is truly realized in order to promote the teaching reform and innovation of ideological and political theory courses in colleges and universities in the new era. Through online education, the best teachers can also be directly displayed in front of students. Excellent public teachers can often summarize the learning rules and application rules of the teaching objects, and can grasp the key points of subject learning and integrate with the classroom, and effectively help students acquire knowledge in order to achieve good teaching results. At the same time, the unique personality charm of outstanding public sports teachers can also be spread to more people through online education, attract more students to pay attention to ideological and political theories, and increase their interest in learning.

#### 4. Conclusion

The advent of the Internet age has brought great convenience to online education. Now, many schools have begun to adopt the method of online education, and the learning of online education has also been accepted in various schools and has become an important part of the evaluation of students' university studies. Although there are already some universities that gradually carry out online education, they are basically fighting alone without forming a system. Nowadays, college students have a wide range of interests and hobbies, and different teaching methods may bring great differences in learning knowledge. Therefore, breaking the threshold of online education among universities, increasing the sharing of educational resources, and promoting information exchange and resource sharing between schools and students have become a development trend. This paper studies the weighted computing bit and maximized resource allocation strategy of the edge computing network of the online political education platform to improve computing performance and energy collection efficiency; and in the mobile edge computing network based on non-orthogonal multiple access, the resource optimization strategy is proposed to maximize the energy efficiency of safe computing improves the energy efficiency and security of computing.

#### Data Availability

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

#### Conflicts of Interest

The authors declare that they have no conflicts of interest.

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