Research Article

Financial System Design for High-Tech Enterprise Based on Cloud Service and Task Scheduling Algorithm

Yi Zhang, Zhiyong Fang, Yanling Xu, and Zhao Bao

School of Business, Wuchang University of Technology, Wuhan, Hubei 430223, China

Correspondence should be addressed to Yi Zhang; 201812210201008@zcmu.edu.cn

Received 17 July 2022; Revised 1 August 2022; Accepted 16 August 2022; Published 30 August 2022

Academic Editor: Shadi Aljawarneh

Copyright © 2022 Yi Zhang et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

So far, with the development of the network, a new era of cloud computing is gradually advancing. Cloud services based on cloud computing technology have long become a new business model with broad application prospects. Cloud services provide customers with cloud computing servers such as hardware configuration equipment, software, and information content as services, thereby generating the core concept of IT services [1]. In recent years, with the rapid development of various electronic information technologies and the continuous increase and improvement of the basic theories of automatic control systems, we have become more aware of the practicability, stability, coordination, high frequency, and low cost of automatic control [2]. Until the emergence of the CAN network technology, this provides a good solution for many traditional automatic control systems and solves the problems that traditional integrated automatic control systems cannot solve [3]. We all know that the CAN bus is not like other simple system buses, and it is a field device level. In various fields, especially the industrial control system industry, the CAN bus has many advantages and characteristics that different types of field buses do not have compared with other types of field buses [4]. In addition, in the core technology of the entire process of data collection in the scientific research distributed system, a solution to increase data collection was obtained, a database query incremental recognition system was introduced in detail, and a special analysis tool for fully automatic acquisition of incremental data was developed and designed [5]. In view of the increase in the amount of data information, combined with the characteristics of the online financial system in the work, we added online financial audit early warning information and an online approval control module to improve the efficiency of the online financial system and reduce financial risks [6]. With the emergence of cloud computing technology and network big data, mobile network technology service platforms, financial accounting instant information management systems, network databases, online network platforms, and applications, the quiet penetration of cloud computing technology has made traditional financial auditing difficult [7]. The new cloud computing financial audit system software method is slowly becoming a research hotspot on the internet and will also

1. Introduction

So far, with the development of the network, a new era of cloud computing is gradually advancing. Cloud services based on cloud computing technology have long become a new business model with broad application prospects. Cloud services provide customers with cloud computing servers such as hardware configuration equipment, software, and information content as services, thereby generating the core concept of IT services [1]. In recent years, with the rapid development of various electronic information technologies and the continuous increase and improvement of the basic theories of automatic control systems, we have become more aware of the practicability, stability, coordination, high frequency, and low cost of automatic control [2]. Until the emergence of the CAN network technology, this provides a good solution for many traditional automatic control systems and solves the problems that traditional integrated automatic control systems cannot solve [3]. We all know that the CAN bus is not like other simple system buses, and it is a field device level. In various fields, especially the industrial control system industry, the CAN bus has many advantages and characteristics that different types of field buses do not have compared with other types of field buses [4]. In addition, in the core technology of the entire process of data collection in the scientific research distributed system, a solution to increase data collection was obtained, a database query incremental recognition system was introduced in detail, and a special analysis tool for fully automatic acquisition of incremental data was developed and designed [5]. In view of the increase in the amount of data information, combined with the characteristics of the online financial system in the work, we added online financial audit early warning information and an online approval control module to improve the efficiency of the online financial system and reduce financial risks [6]. With the emergence of cloud computing technology and network big data, mobile network technology service platforms, financial accounting instant information management systems, network databases, online network platforms, and applications, the quiet penetration of cloud computing technology has made traditional financial auditing difficult [7]. The new cloud computing financial audit system software method is slowly becoming a research hotspot on the internet and will also
become a key application method in the next sales market [8]. At this stage, risk research under the cloud computing audit mode appears urgent and necessary. At the same time, with the continuous development of big data mining technology, a new audit procedure is provided for electronic computer financial audit [9]. Using big data mining technology to solve the massive amount of information in the financial audit industry can help financial auditors quickly grasp the overall status of the audited enterprise, gain insight into the relationships and standards in data information, and provide financial auditors with clues to financial audit cases.

In financial management, improving the efficiency and accuracy of information processing is the goal of high-tech business managers. Through continuous research and practice, domestic financial management software has become more mature and can carry out detailed system design, including system architecture design, database design, and detailed design of the core module dynamic model, showing some screenshots of the system and main modules and some code implementations. Finally, the operability and performance tests of the developed system are carried out. The test results show that the developed high-tech enterprise financial management system has complex functions, clear permissions, sufficient permissions, strict data planning, strong security, strong versatility, and good operational stability. It has high requirements for system software design. The ultimate goal of the project is to enable high-tech enterprises to use this system so that the financial staff of high-tech enterprises can understand what is happening in the financial business.

2. Related Work

The literature introduces the research results and main uses of clusters at the level of data and information parallel computing, integrates the current financial audit industry's regulations on massive information analysis, and proposes a technical route that combines database clusters and audit applications [10]. The literature introduces the technical aspects of building intelligent audit system software, including the application of big data mining technology in internal control auditing, text mining technology, basic elements of financial audit analysis methods, basic elements of entity models, data management systems, and classification status [11]. It mainly describes the expert diagnosis system. The literature introduces the reliability design of the power supply circuit of the acquisition control module, and analyzes the key links in the design scheme from the consideration of pulse signal interface, analog switch, and A/D acquisition power circuit. The literature describes the entire detection process of the CAN bus temperature acquisition system, and the role of the system has been certified [12]. Through a large number of tests and statistical analysis of data, it is proved that the design of the CAN bus acquisition system can meet the requirements of the task. The literature introduces the advantages and characteristics of the distributed system automatic control system, combined with the necessary functions of the handling robot and the modular design concept, derives the CAN-based distributed system handling robot control system structure diagram bus, and clarifies the program modules [13].

The literature shows that in recent years, with the rapid development of financial informatics and information technology, computers and education have become indispensable things in everyone's life. The world economy is gradually converging. The requirements for using computers in the financial management solutions of high-tech companies are getting higher and higher [14]. The competition among high-tech companies is becoming more and more fierce. The financial department plays a central role in the activities of high-tech companies. The financial department is an important functional department for the operation and development of high-tech enterprises, and its role in the operation of high-tech enterprises is irreplaceable [15, 16]. The task of the financial department is to strengthen financial supervision, control financial risks, and improve profitability. The finance department is responsible for the capital transactions of high-tech enterprises and provides funds for various departments of high-tech enterprises [17]. The literature points out that with the rapid development of China's economy and the deepening of financial system reforms, domestic high-tech companies are facing increasing competitive pressure in the developing market economy. In the new economic environment, the key to the sustainable development of high-tech enterprises lies in whether they can change their business philosophy, improve service methods, deepen service content, and increase their competitiveness in an increasingly competitive market [18]. These changes will inevitably lead to changes in the development of high-tech enterprises, and breakthroughs have been made. At present, most high-tech enterprises in China are implementing financial information system management to improve the quality and quality of customer service. This article studies the financial management information system of high-tech enterprises based on the actual work of the financial department of high-tech enterprises [19].

3. System Design

3.1. Task Assignment and Problem Research. The node periodically reports its heart rate to the node through the RPC protocol. Whenever the node receives a control signal, it determines whether the node has an idle time slot or an idle time slot. If there is a free slot, the corresponding task is assigned to the free node. When assigning slots to tasks, priority will be given to the location of the data, that is, to schedule tasks on the node where the data are located as much as possible. In addition to searching, it also considers unfinished tasks, the scheduling sequence of backup tasks, etc. For tasks, the tasks in the unfinished task list simply pass through the queue, regardless of the performance of its nodes, indicating that the task is running.

Table partition number is PartitionNum, a number represented by ReduceNum. In this case, the data restored each time will be evenly distributed. In a homogeneous environment, the processing power of each node is basically the same. Therefore, it is meaningful to use the standard hash function to evenly distribute the matching results in the
partition step to reduce the matching results, and better performance can also be obtained. However, in an unbalanced environment, due to mismatches in network bandwidth, processor frequency, memory size, hard disk read and write speed, etc., the performance of each node will greatly vary. In this case, if the standard hash function is used to allocate data, the data are recovered in the splitting phase to reduce the nodes with poor performance.

The WebDocs database is a comprehensive data mining database, which is created based on real-life web hypertext files. The experimental results are listed in Table 1.

Using the information indicated by the last element in the table, we construct the basis of the condition template of element A and then construct its FP-tree condition. Then, the frequent dies containing element A can be split in the FP-tree condition. Then, the header A in the DLC list is deleted. Another appropriate DRL is used to cover the transaction of deleting the header to form a new DLC list group based on the differences in its subsequent members.

### Table 1: Test results of Algorithm 1 on the WebDocs database.

| Support (%) | The total number of items in frequent 1-itemsets $L$ | Total frequent itemsets | Running time (s) |
|-------------|-------------------------------------------------|------------------------|------------------|
| 50          | 5                                               | 13                     | 267              | 305              |
| 40          | 10                                              | 23                     | 45               | 295              | 367              |
| 30          | 23                                              | 218                    | 45               | 311              | 442              |
| 20          | 67                                              | 2,393                  | 5,214            | 443              | 478              |
| 10          | 278                                             | 199,627                | 3,875            |                  |                  |
| 1           | 2,900                                           | 845,761,472            | —                | 67,512           |

3.2. Overview of ASP. The financial information system discussed in this article is based on ASP.net, and ASP software is a standard platform for developing distributed applications. An important function that distinguishes ASP from other job development platforms is that it provides a more flexible design and development method. It is a component design and development method. With the development of ASP, it greatly facilitates the financial management information system. The ASP server provides ready-made external services in the form of components, which components can be installed to achieve the required functions, and the ASP block diagram is shown in Figure 1.

4. Design and Optimization of a Distributed Online Financial Audit System Based on Cloud Services

4.1. Design of Database System. In order to solve the shortcomings of the traditional C/S system structure, ASP was designed and constructed. Compared with other architectures, C/S architecture programs require many user roles, so information management is advanced. Every time the C/S architecture program is updated, it becomes very problematic, and the system continues to grow. At the same time, the support for other software systems and the scalability of C/S itself cannot meet the requirements. Its internal logical data relationship must also be handled by many different entities, which components can be installed to achieve the required functions.

With the rapid development of modern science and information technology, the traditional C/S architecture program can no longer meet the needs of today’s high-tech enterprises for information management systems. The detailed design is shown in Figure 2.

It can be seen from the dataflow in Figure 2 that when developing an information system for high-tech enterprise financial management, the entire internal design process is that HTML first receives user operation requests on the
high-tech enterprise financial management client. Then, the user operation request is sent to the ASP server, and then, the server passes the user operation request to the logical processor. The processed data are sent to the client through the view and then displayed to the user.

The system requirement analysis reference introduces the user’s business requirements for the system in detail. The requirement analysis is the basis of the system function design. When designing a high-tech information system for company financial management, a secure network environment must be created first, and the existing information system should be fully utilized as a development requirement. The basic design principles to be followed include the following:

The principle of system openness: in order to ensure that the system can easily connect to higher-level equipment and expand service functions, it must comply with industrial standards.

System compatibility principle: the realization of the system must have a good system operating platform, which can be effectively combined with the existing information system. System compatibility is very important. If the compatibility problem cannot be solved, this leads to severe system limitations.

System scalability principle: the scalability of a system determines its ability to adapt to future development, and the system must be scalable in many ways. Through effective expansion, the system can be continuously optimized to achieve higher cost performance.

There are many database tables in the financial management information system. Only a few are listed here. The system data tables are shown in Table 2:

The deployment methods of the online financial system include private cloud storage, public cloud, and hybrid cloud. Private cloud storage is a natural cloud environment built by an enterprise or other enterprises for its own applications. It uses an intranet to provide IT capabilities as a service to the internal employees of the company or organization within the server firewall. A cloud computing platform is a natural cloud environment created and shared by related companies or enterprises to create and share resource applications. According to the role of network IT and business processes, it is usually given to many external customers as a service item. Public clouds are generally constructed by a single third party (i.e., cloud service providers). Customers charge for applications without high-tech authoritative experts or mastering obscure technical expertise, and they can obtain cloud services after obtaining authorization. The cloud computing platform is a natural cloud environment formed by organic chemical integration of private cloud storage and the service items provided by the cloud computing platform. Customers consider business process requirements and limiting factors (including current IT equipment and security factors), and choose the appropriate integration methods: it is essential to formulate current policies or standards for cloud computing platform applications.

4.2. Optimization of Distributed Cloud Service Distributable Load Scheduling Problem. We consider a very simple situation, that is, the system software contains only one RCC and one RPv. The amount of input information and the estimated workload of the total computing task are denoted by S and F, respectively. The free resources of RCC and RPv are denoted as CC and Cv, respectively. It is supposed that $S = V C v$, where $\gamma$ is the balance factor. If RC only uses its own resources to calculate the daily task, then the time of the daily task is $T1 = V / C C$. Assuming that the wireless channel information content between $c$ and $v$ is known to each other, the wireless network transmission speed between RCC and RPv is as follows:

$$R_{cv} = \log (1 + \text{SNR}) = \log \left(1 + \frac{p_c |h_{cv}|^2}{\sigma^2}\right).$$  

(1)

Among them, $p_c$ is the push output power, and SNR represents the signal-to-noise ratio of the wireless channel. $h_{cv} \sim \text{CN}(0, 1)$ represents the attenuation index of the wireless network link, and $\sigma^2$ is the additional Gaussian white noise output power of the receiving wireless antenna.

If RCC and RPv perform the total estimated daily tasks together, we use $0 < \beta < 1$ to indicate the proportion of the subtasks assigned to RP in the total amount of calculation to better reduce the minimum task completion time, and $\beta$ needs to reach the following:

$$\frac{(1-\beta) V}{C_c} = \frac{\beta S}{R_{cv}} + \frac{\beta V}{C_v}.$$  

(2)

The solution is as follows:

$$\beta^* = \frac{R_{cv} C_v V}{SC_c + R_{cv} C_v V + R_{cv} C_v V}.$$  

(3)

In this case, the completion time of the total task can be expressed as follows:

$$T_c = T_1 + T_p = \frac{\beta^* V}{R_{cv}} + \frac{\beta^* V}{C_v}.$$  

(4)

Among them, $T_1$ represents the wireless data transmission time, and $T_p$ represents the daily task execution time. Therefore, the time saved based on the input calculation, that is, the time gain value of the system software, can be expressed as follows:

$$T_{\tau} = \max(T_1 - T_c, 0) = \max \left\{ \frac{V}{C_c} - \frac{\beta^* y V}{R_{cv}} - \frac{\beta^* V}{C_p}, 0 \right\}.$$  

(5)

Obviously, $T_{\tau}$ increases the amount of free resource storage $C_v$. We introduce a remuneration system in the terminal cloud service. RP, as a resource service provider, hopes to obtain remuneration by providing idle cloud computing servers. The amount of resource storage given is related to the amount of remuneration paid by RC. Therefore, the key issue for improvement is how to allocate subtasks to measure the amount of idle resources and set a “price” so that RC and RP can reach an agreement and minimize the execution time of the overall task.
The combination is represented by \( \beta \) stored in the terminal device cloud service system, and their multiple RP scenario. Assuming that there is a group of RPs \( j \) idle resources that the \( \beta_j \) system, transmission between the RC and the \( k \)th transmission resource block is allocated for data receiving wireless antenna of the \( k \)th RP for the current D2D scene. Obviously, in order to maximize the time gain of the \( j \)th RP, and \( h_{c,j} \) is the channel gain between the client and the \( j \)th RP, and \( \sigma_j^2 \) is the noise output power index of the receiving wireless antenna of the \( j \)th RP. NRB represents the total number of resource blocks transmitted by the system software. In a proxy-based system, the transmission resource block can refer to the frequency resource block (FDD system) or the time slot resource block (TDD system). In the self-organizing structure, the transmission resource block is the time slot resource Block, because FDMA is not suitable for the current D2D scene. \( S_{i,j} = 1 \) \( (S_{i,j} = 0) \) means that the \( k \)th transmission resource block is allocated for data transmission between the RC and the \( j \)th RP.

Obviously, in order to maximize the time gain of the system, \( \beta_j \) needs to meet the degree-like constraints as follows:

\[
\beta_j = \frac{\beta_{\text{max}} V R_{c,j} C_j}{S_{c,j} C_j + V C_c R_{c,j}}, \quad j \in \mathcal{A}_c, \quad 0 \leq C_j \leq \overline{C}_j. \tag{6}
\]

Among them, \( C_j \) is the idle resource that the \( j \)th RP can give. Below, we will expand the single RP scenario to a multiple RP scenario. Assuming that there is a group of RPs stored in the terminal device cloud service system, and their combination is represented by \( A_c \), the wireless network transmission speed between the client and the \( j \)th RP in this scenario is as follows:

\[
R_{c,j} = \sum_{k=1}^{N_{\text{NRB}}} S_{k,j} \log \left( 1 + \frac{p_k \left| h_{c,j} \right|^2}{\sigma_j^2} \right), \quad j \in \mathcal{A}_c. \quad (6)
\]

Among them, \( h_{c,j} \) is the channel gain between the client and the \( j \)th RP, and \( \sigma_j^2 \) is the noise output power index of the receiving wireless antenna of the \( j \)th RP. NRB represents the total number of resource blocks transmitted by the system software. In a proxy-based system, the transmission resource block can refer to the frequency resource block (FDD system) or the time slot resource block (TDD system). In the self-organizing structure, the transmission resource block is the time slot resource Block, because FDMA is not suitable for the current D2D scene. \( S_{i,j} = 1 \) \( (S_{i,j} = 0) \) means that the \( k \)th transmission resource block is allocated for data transmission between the RC and the \( j \)th RP.

Obviously, in order to maximize the time gain of the system, \( \beta_j \) needs to meet the degree-like constraints as follows:

\[
\beta_j = \frac{\beta_{\text{max}} V R_{c,j} C_j}{S_{c,j} C_j + V C_c R_{c,j}}, \quad j \in \mathcal{A}_c, \quad 0 \leq C_j \leq \overline{C}_j. \tag{7}
\]

Therefore, the time gain obtained by introducing parallel calculation in the multi-RP scenario can be expressed as follows:

\[
T_{\text{mv}} = \max \left( T_{j} - T_{c}, 0 \right) = \max \left( \frac{V}{C_c} - \frac{\beta_j V}{C_c}, 0 \right). \tag{8}
\]

The SPG issue can be seen as the whole process of negotiation between the buyer and the seller. The buyer in this model is the RC that must perform daily tasks, and the seller is the RP. The seller expects to get the most profit, while the buyer expects to invest a smaller cost. In the terminal equipment cloud service system software, RC motivates each RP to allocate unused resources for calculation based on a certain reward. Therefore, a SPG problem with RC and RP as participants is clearly proposed, and the corresponding Stackelberg equilibrium can be regarded as a solution to the problem. This SPG problem can be described as a two-stage game process from two levels.

**Table 2: List of system data sheets.**

| Data sheet name                                             | Data sheet purpose                                                |
|--------------------------------------------------------------|-------------------------------------------------------------------|
| Chart of accounts                                           | Save corporate financial accounting title setting information      |
| Account balance sheet                                       | Save the balance information of the financial account              |
| Accounting entry form                                       | Used for entry in voucher management                              |
| Voucher table                                               | Used for credential input management                              |
| Entry history table                                         | After the entry is confirmed, the data are put into the history    |
| Voucher history table                                       | After the voucher input is confirmed, the data are put into the history |
| Detailed ledger                                             | Used for the input of enterprise financial details’ account book   |
| Project account comparison table                            | Compare specific items with accounting subjects                    |
| General ledger                                              | Used for the input of the corporate financial general ledger book  |
| This year’s detailed account book                           | Summary of annual account books                                    |
| General ledger book of the year                             | Summary of annual ledger books                                     |
| Historical detailed ledger                                  | Save detailed account book history                                 |
| Historical ledger                                           | Save the ledger history                                            |
| Statement of changes in financial status                    | Save the financial status change table information of the enterprise|
| Internal voucher table                                      | Voucher information sheet by internal number                       |
| Annual income statement                                     | Save the annual income statement information of the company’s finances |
| Annual balance sheet                                        | Save the annual balance sheet information of the company’s finances |
| List of fixed assets                                        | Save the basic information of the company’s fixed assets           |
| Table of changes in fixed assets                            | Save information on changes in the company’s fixed assets          |
| Internal record                                             | Debit and credit information by internal number                    |
| Change data history table                                   | Save the history of changes in the company’s fixed assets          |

\[
\beta_j = \frac{\beta_{\text{max}} V R_{c,j} C_j}{S_{c,j} C_j + V C_c R_{c,j}} \tag{8}
\]

\[
\beta_0 = \frac{1}{1 + \sum_{j \in \mathcal{A}_c} V R_{c,j} C_j \left( S_{c,j} C_j + V C_c R_{c,j} \right)}
\]

**Table 2: List of system data sheets.**
Seller: RP deducts a certain amount of remuneration to borrow its own idle resources and hopes to increase the resource price of each enterprise as much as possible. Therefore, the expected supply and demand relationship between the seller and the seller can be shown as follows:

$$\max U_j = \lambda_j C_j^b - \eta_j C_j^b.$$  \hspace{1cm} (11)

Among them, \(b_j \geq 1\) is a constant compromise factor.

In the whole process, the information that buyers and sellers must exchange includes the price of unit resources and the amount of resource storage used. In a typical SPG problem, participants are the core of the rules of the game, and management decisions are made based on the reflection of other participants. Therefore, the entire game process will eventually converge to the Stackelberg equilibrium, which is defined as follows: the main parameters \(\lambda_j^{SE}\) and \(C_j^{SE}\) are SPG. The clearly proposed Stackelberg balance needs to meet the following criteria. When it is fixed,

$$U_c(\{C_j^{SE}\}) = \sup_{\alpha_i \leq 1} U_c(\{C_j\}), j \in \mathcal{A}_c.$$  \hspace{1cm} (12)

When \(C_j^{SE}\) is fixed,

$$U_c(\{\lambda_j^{SE}\}) = \sup_{\lambda} U_c(\{\lambda_j\}), j \in \mathcal{A}_c.$$  \hspace{1cm} (13)

The following analyzes the Stackelberg equilibrium in the proposed SPG problem from two aspects:

Buyer: as a resource consumer, RC can be aware of the seller, that is, RP will respond to its clearly proposed countermeasures. According to the previous analysis, RC drives sellers to respond based on the amount of resource storage that they decide to purchase from each RP, so as to maximize profits. According to the definition of the Stackelberg equilibrium, when \(\lambda_j^{SE}\) is fixed and \(U_c\) is derived from \(C_j\), we can get the following:

$$\frac{\partial U_c}{\partial C_j} = \frac{V \frac{\partial \beta_j}{C_c} + \lambda_j}{C_j}.$$  \hspace{1cm} (14)

With

$$\frac{\partial^2 U_c}{\partial C_j^2} = \frac{2\beta_j \partial \beta_j / \partial C_j V R_{c,j}^2 (SC_c C_j + VC_c R_{c,j}) - 2\beta_j V R_{c,j}^2}{(SC_c C_j + VC_c R_{c,j})^3} < 0.$$  \hspace{1cm} (15)

The optimal solution to the problem can be derived as follows:

$$C_j^* = u_j \sqrt{\frac{1}{\lambda_j} - \nu_j}.$$  \hspace{1cm} (16)

Among them,

$$u_j = \frac{VR_{c,j} V R_{c,j}}{SC_c + VR_{c,j} + SC_c w_j},$$  \hspace{1cm} (17)

$$v_j = \frac{VC_c R_{c,j} (1 + w_j)}{SC_c + VR_{c,j} + SC_c w_j},$$

$$w_j = \sum_{i \in \mathcal{A}_c \neq j} \frac{VR_{c,i} C_i}{SC_c C_i + VC_c R_{c,i}}.$$  \hspace{1cm} (18)

Finally, the optimal number of resources borrowed by the user from the jth RP can be expressed as follows:

$$C_j^* = \min(C_j^*, C_j).$$  \hspace{1cm} (19)

Seller: RP maximizes its profit by setting the best unit resource price. By deriving the utility function of RP with \(\lambda_j\) and setting its value to 0, we can get the following:

$$\frac{\partial U_c}{\partial \lambda_j} = \lambda_j^3 + \lambda_j \beta_j b_j (C_j^*)^{b_j-1} \frac{\partial C_j^*}{\partial \lambda_j} - \eta_j b_j (C_j^*)^{b_j-1} \frac{\partial C_j^*}{\partial \lambda_j} = 0.$$  \hspace{1cm} (20)

To derive the above formula, there are the following:

$$(C_j^*)^{h-1} \left\{ C_j^* + \frac{\partial C_j^*}{\partial \lambda_j} (\lambda_j - \eta_j) \right\} = 0.$$  \hspace{1cm} (21)

This formula has a unique solution as follows:

$$\lambda_j^* = \eta_j - \frac{C_j^*}{b_j \frac{\partial C_j^*}{\partial \lambda_j}}.$$  \hspace{1cm} (22)

In order to better obtain the optimal solution for this SPG, we chose an iterative algorithm to clarify the unit resource price of each RP and the amount of resource storage used by RC for each RP. We use \(\lambda = \{\lambda_j\}\) to represent the price space vector, and \(P(\lambda)\) represents the update function, then

$$\lambda_j = F(\lambda) = \eta_j - \frac{C_j^*}{b_j \frac{\partial C_j^*}{\partial \lambda_j}}.$$  \hspace{1cm} (23)
Mobile Information Systems 7

Table 3: SPG problem-solving steps.

| Step | Description |
|------|-------------|
| 1    | Reset: for each RP, we reset the price space vector \( \lambda(0) = \{\lambda_j(0)\}, j \in A \) and tell the mobile grid customer to reset the resource storage used by each RP, namely, \( C_j(0) \). Set \( t \) to 1. |
| 2    | The whole process of RC iterative update: according to formula (16), we use \( \lambda(t) \) to get the best use of each RP by the customer. |
| 3    | Resource storage capacity, we get \( C(t+1) = \{C_j(t+1)\}, j \in A \). The whole process of the iterative update of the RP party: according to the \( C(t+1) \) obtained in the previous step, the optimal price \( \lambda_j \) of each RP unit resource is calculated according to formula (23), which is recorded as \( \lambda(t+1) \). We upgrade load production scheduling management decision \( \beta_j \) and iteration number \( t \). |

The update equation can be written in the following vector form:

\[
\lambda(t + 1) = F[\lambda(t)].
\]  

Among them, \( F = \{F_j\} j \in A \), and \( t \) is the number of iteration updates. The SPG acquisition process can be divided into four steps, as shown in Table 3. The following is based on system software simulation based on the SPG analysis of the characteristics of the load production scheduling optimization algorithm clearly proposed in this article. The simulation scenario is described as follows: a square indoor space is placed with a certain number of mobile terminals that can be used as RPs. There is a wireless repeater in the middle of the house. RC is a node in the wired domain. RC and RP can communicate with each other based on the wireless repeater. For simplicity, we assume that the average frequency stability of the wireless channel from the connection point to the remote RP (house edge) is OdB. Responsive number allocation technology and 16MCS are used in the simulation. The main parameters of other simulations are shown in Table 4:

4.3. Design of System Business Process. The online financial system uses virtual technology to centralize various hardware facilities and system software to form a virtualized resource sharing pool. The resources required by financial auditors to run the system software will be immediately obtained from the virtual resource pool. In addition, financial audit company data information, financial audit analysis results, and other audit information are integrated and stored on the financial audit cloud service platform, and the virtual resource pool realizes multiparty resource sharing and integration. It is a key factor for the centralized integration of various financial auditing system software and the construction of anti-heterogeneous infrastructure, which can be quickly deployed in accordance with the application software regulations.

The online financial system is the use of resource pool division and management methods to perform financial audits on all resources of the cloud platform under the support of virtual technology, assign and appoint the supervisory power of each cluster or server resource, and establish multiple resource pools, which are clusters or servers. which are the direct child nodes of the cluster or server. It solves the needs of financial audit business process transformation and is faster, more convenient, and more efficient than traditional financial audit. Therefore, when financial audit institutions carry out financial audit activities, online financial audits can dynamically expand and allocate financial audit resources according to customer needs, and use cloud collaboration systems to centralize storage, unified management, and centralized resources. The previously scattered and incomplete resources are integrated and upgraded to enrich and expand the existing financial audit resource management system. The website administrator resets the financial audit system software on the cloud.
service platform in advance, generates environment variables, and expands the basic system software. The cloud platform administrator accurately and in detail applies for registration of the basic system software in the service project archive catalog, creates a clear system catalog, so that the financial auditors can enjoy the service process conveniently and quickly, and further executes the financial audit business process.

Taking into account the functions developed in the enterprise financial management high-tech information system, the process of the user management module is planned in detail. The following are some detailed designs. When users use the financial information system, they must log in first. The user login process is shown in Figure 5.

When a user needs to log in to the financial management information system of a high-tech enterprise, the system is sent to the scene for verification at the same time. Only in the financial management information of high-tech enterprises, the system background will check the correctness of the user’s input data before the user successfully logs into the system. If there is a problem with the user’s input, the system will remind the login personnel that there is a pop-up input error.

After a successful login, the user will perform system operations according to his authority. The financial staff must work according to the allocation of accounting positions, registration, and verification of accounts. This requires managing account information, including account number, name, type, etc.

High-tech enterprises are also the source of capital management. Since the working capital of high-tech enterprises must rely on credit, the credit management process can adapt to demand.

In addition to the above four aspects, the system has also developed a statistical office process, which can perform statistical analysis based on financial data in a timely manner, so that high-tech business managers can perform statistical analysis on financial data and extract management data.
This article introduces the detailed design of the high-tech information management system for the company’s financial management. First of all, it will describe in detail the principles and financial management information system of the high-tech information system for the company’s financial management and the company’s financial management. The financial management information system database mainly for high-tech enterprises was introduced in detail, and the financial management information system database tables for high-tech enterprises were developed. Finally, the financial management information system was tested in detail. The test results show that the high-tech enterprise financial management information system developed by this theme can meet the requirements before the project.

The cloud service platform creates corresponding financial audit entity models according to the operating steps, characteristics, and laws of each business process type, and quickly and accurately discovers the defects in the auditing enterprise. Financial auditors input standardized data information solved by massive informatization solution technology into corresponding financial audit entity models, purposefully analyze data, identify abnormal data information, and find clues to financial audit cases. During the new financial audit project, financial auditors will implement on-site audits, policy tracking or key tracking, extended audits, and continuous audits to reveal risks, fraud, and other violations of laws and regulations in the company’s various businesses.

5. Conclusions

The B/S structure selected by the control system has excellent advantages. The project can fully meet the following requirements: the establishment of a financial management system can improve the degree of automation and computerization of financial management, and reduce the labor intensity of financial personnel. It is an analysis and decision-making program for the financial management of high-tech enterprises that can be shared using financial management software. Using a financial management system in actual work can achieve rapid financial data entry and improve the accuracy of data accounting. The high-tech enterprise financial management system is a very suitable and convenient management system, which substantially meets the daily business needs of high-tech financial management of enterprises, thus greatly reducing the time spent on tedious financial management work and improving the efficiency of financial management, and improving the correct plan and the use of information for the implemented financial management. The overall structure of the system is clear, the interface is very good, and the operation is very simple.

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 do not have any possible conflicts of interest.

References

[1] P. K. Senyo, E. Addae, and R. Boateng, “Cloud computing research: a review of research themes, frameworks, and future research directions,” International Journal of Information Management, vol. 38, no. 1, pp. 128–139, 2018.
[2] T. Velmurugan and T. Santhanam, "Performance evaluation of K-means and fuzzy C-means clustering algorithms for statistical distributions of input data points," European Journal of Scientific Research, vol. 46, no. 3, pp. 320–330, 2010.
[3] P. P. Bonissone, F. Xue, and R. Subbu, “Fast meta-models for local fusion of multiple predictive models,” Applied Soft Computing, vol. 11, no. 2, pp. 1529–1539, 2011.
[4] G. Shafiee, M. M. Arefi, M. R. Jahed-Motlagh, and A. A. Jalali, “Nonlinear predictive control of a polymerization reactor based on piecewise linear Wiener model,” Chemical Engineering Journal, vol. 143, no. 1–3, pp. 282–292, 2008.
[5] F. Chen, X. Du, S. Lai, and M. L. Z. Ma, “Does the use of honorific appellations in audit reports connote higher financial misstatement risk? Evidence from China,” Asian Review of Accounting, vol. 26, no. 2, pp. 154–181, 2018.
[6] J. Wonglimpiyarat, “What is it about strategic implications of using financial models in the process of technology management?” The Journal of High Technology Management Research, vol. 30, no. 1, pp. 82–90, 2019.
[7] G. Barta, “The increasing role of it auditors in financial audit: risks and intelligent answers,” Business, Management and Education, vol. 16, no. 0, pp. 81–93, 2018.
[8] M. Lai, “Smart financial management system based on data mining and man-machine management,” Wireless Communications and Mobile Computing, vol. 2022, pp. 1–10, Article ID 2717982, 2022.
[9] R. Yu, C. Wu, B. Yan et al., “Analysis of the impact of big data on E-commerce in cloud computing environment,” Complexity, vol. 2021, no. 2, pp. 1–12, Article ID 5613599, 2021.
[10] J. Y. Yeh and C. H. Chen, “A machine learning approach to predict the success of crowdfunding fintech project,” Journal of Enterprise Information Management, vol. 14, 2020.
[11] L. Ogiela, M. R. Ogiela, and H. Ko, “Intelligent data management and security in cloud computing,” Sensors, vol. 20, no. 12, p. 3458, 2020.
[12] S. Kaffash and M. Marra, “Data envelopment analysis in financial services: a citations network analysis of banks,
insurance companies and money market funds,” *Annals of Operations Research*, vol. 253, no. 1, pp. 307–344, 2017.

[13] Y. Zhao, “Decision support system for economic management of large enterprises based on artificial intelligence,” *Wireless Communications and Mobile Computing*, vol. 2022, pp. 1–11, Article ID 9453580, 2022.

[14] F. Du, Y. Cai, Z. Guan, F. Tang, and D. Wu, “Optimization research on CAN bus transmission delay,” *Automobile Technology*, vol. 1735, no. 1, pp. 1–6, 2021.

[15] H. Wang, F. Zuo, L. Yang, and Y. Zhang, “Design of battery performance monitoring system based on,” *CAN Bus Instrument Technique and Sensor*, vol. 2021, no. 6, pp. 77–81, Article ID 1786926, 2021.

[16] J. F. Sreih, R. N. Lussier, and M. C. Sonfield, “Differences in management styles, levels of profitability, and performance across generations, and the development of the family business success model,” *Journal of Organizational Change Management*, vol. 32, no. 1, pp. 32–50, 2019.

[17] M. Adil, J. Ali, M. Attique et al., “Three byte-based mutual authentication scheme for autonomous Internet of vehicles,” *IEEE Transactions on Intelligent Transportation Systems*, vol. 23, no. 7, pp. 9358–9369, 2022.

[18] L. Xu, R. Gao, Y. Xie, and P. Du, “To be or not to be? Big data business investment decision-making in the supply chain,” *Sustainability*, vol. 11, no. 8, p. 2298, 2019.

[19] P. Vandekerkhof, T. Steijvers, W. Hendriks, and W. Voordeckers, “Socio-emotional wealth separation and decision-making quality in family firm TMTs: the moderating role of psychological safety,” *Journal of Management Studies*, vol. 55, no. 4, pp. 648–676, 2018.