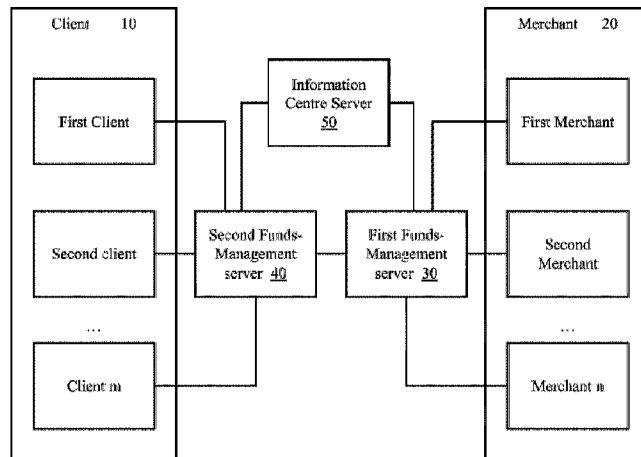




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(54) Titre : SYSTEME DE PAIEMENT BASE SUR SERVEUR POUR LA GESTION DE FONDS CROISES, ET PROCEDE, DISPOSITIF ET SERVEUR ASSOCIES  
 (54) Title: CROSS-FUNDS MANAGEMENT SERVER-BASED PAYMENT SYSTEM, AND METHOD, DEVICE AND SERVER THEREFOR



(57) **Abrégé/Abstract:**

A cross Funds-Management server-based payment system, and a method, device and server in e-transactions are provided. The method comprises receiving a network payment data packet by at least one client device; determining whether the sum of a credit overdraft limit and a credit loan limit of the client account is sufficient for an electronic commitment payment certificate to be created; if so determined, freezing the client funds greater than or equal to the payment amount in the client account; generating the electronic commitment payment certificate for a second funds-management server to commit to pay the frozen client funds; determining that the frozen client funds can be allocated to the first funds management server according to state of the electronic commitment payment certificate. Using the technical solution of the present invention reduces financial risk and ensures the interests of both parties in e-transactions.

## **Abstract**

A cross Funds-Management server-based payment system, and a method, device and server in e-transactions are provided. The method comprises receiving a network payment data packet by at least one client device; determining whether the sum of a credit overdraft limit and a credit loan limit of the client account is sufficient for an electronic commitment payment certificate to be created; if so determined, freezing the client funds greater than or equal to the payment amount in the client account; generating the electronic commitment payment certificate for a second funds-management server to commit to pay the frozen client funds; determining that the frozen client funds can be allocated to the first funds management server according to state of the electronic commitment payment certificate. Using the technical solution of the present invention reduces financial risk and ensures the interests of both parties in e-transactions.

Title: CROSS-FUNDS MANAGEMENT SERVER-BASED PAYMENT SYSTEM, AND  
METHOD, DEVICE AND SERVER THEREFOR

- [1] [Technical Field]
- [2] This invention involves e-commerce field, especially, a cross Funds-Management server payment system and its payment method, device and server.
- [3] [Background Technology]
- [4] E-commerce has become increasingly widely used in a variety of commercial trade activities, the so-called e-commerce is a business operation model that based on the browser and server applications helps consumer realize online shopping, online transactions between merchants and online electronic payments, as well as a variety of business activities, trading activities, financial activities and related integrated service activities in the commercial trade, and in the Internet open network environment.
- [5] At present, many banks or enterprises have provided a network of payment services, allowing customers to operate computers, mobile phones and other terminal equipment to achieve network payment, the way of the network payment provides customers with a great convenience. But in the process of network payment, the payment is conducted by directly using the existing funds in the debit cards or credit card, or allocating the credit limit of the existing funds or credit card to the third party as a guarantee for the transaction, once the merchant does not provide goods or service, or disputes occur, the financial security is difficult to be guaranteed. Thus, new payment systems, methods, devices and servers at this stage are needed to reduce the risk of user funds and to protect the interests of buyers and sellers.
- [6] [Summary of the invention]
- [7] In view of the above, the technical problem to be solved by the present invention is to provide a payment system, and its payment method, device and server based on a cross Funds-Management server to reduce the risk of user funds, and to protect the interests of buyers and sellers.
- [8] The technical solution of the present invention to solve the above-mentioned technical problems is as follows:
- [9] A payment system based on a cross Funds-Management server including at least one first terminal, one second terminal, and an information centre server; a second Funds-Management server connected to the first terminal, and the first Funds-Management

WO 2016/173051

PCT/CN2015/080085

- server connected to the second terminal, the first Funds-Management server and the second Funds-Management server are both connected to the information centre server, wherein:
- [10] The said client for sending payment request information including at least the payment amount to the said second Funds-Management server;
- [11] The said Merchant for receiving the electronic commitment payment certificate sent by the second Funds-Management server;
- [12] The second Funds-Management server is used for receiving payment request information sent by the client; comparing the sum of the credit loan limit and overdraft limit with payment amount to determine whether an electronic commitment payment certificate can be created; if yes, the Funds-Management server respectively freezes the credit loan limit and overdraft limit within client account, making the frozen amount are greater or equal to the payment amount; generating the electronic commitment payment certificate for the Funds-Management server to commit payment according to an agreed condition, and sending the electronic commitment payment certificate to merchant to make a credit commitment payment on behalf of the client.
- [13] The first Funds-Management server is configured to store the electronic payment document information transmitted by the second Funds-Management server and allocate the received payment amount to the Merchant and account based on the electronic payment document information;
- [14] The information centre server for storing and supervising the electronic commitment payment certificate information.
- [15] According to another aspect of the present invention, there is a network payment method based on a cross Funds-Management server, the method comprises the steps of:
- [16] The second Funds-Management server receives the payment request information sent by the client, wherein the payment request information includes at least the payment amount;
- [17] Compare the sum of the credit loan limit and overdraft limit with the payment amount to determine whether or not an electronic commitment payment certificate is to commit payment;
- [18] If yes, the Funds-Management server respectively freezes the credit loan limit and overdraft limit within client account, making the frozen amount are greater or equal to the payment amount; generating the electronic commitment payment certificate for the Funds-Management server to commit payment according to an agreed condition, and sending the electronic commitment payment certificate to merchant to make a credit commitment payment on behalf of the client and synchronizing the electronic commitment payment certificate information to the information centre server.

- [19] A payment device based on the cross Funds-Management server, the said device comprising a receiving module, a judging module and a processing module, wherein.
- [20] A receiving module configured to receive payment request information transmitted by the first terminal connected with the second Funds-Management server, wherein the payment request information includes a payment amount;
- [21] A judgement module is configured to compare the sum of the credit loan limit and overdraft limit with the payment amount to determine whether an electronic commitment payment certificate can be created;
- [22] The processing module is configured to respectively freeze the credit loan limit and overdraft limit within client account, making the frozen amount are greater or equal to the payment amount; generate the electronic commitment payment certificate, and send the electronic commitment payment certificate to merchant connected to the first Funds-Management server, and synchronize to the information centre server.
- [23] A server based on the cross Funds-Management server, the said server includes the payment device described in any of the aforementioned embodiments .
- [24] The present invention provides a payment system based on different Funds-Management server and its method, device and server, supervises the information of the buyers and sellers through the Funds-Management server and the information centre server, and the regulatory function is merged into the bank or other institutions with payment ability; meanwhile, freezes the client account credit overdraft limit and credit loan limit, generates electronic payment certificates and synchronize the information centre server for real-time monitoring, reduces the risk of funds to protect the interests of the buyers and the sellers; this program makes full use of the risk control centre function of the credit centre of the Funds-Management server and the information centre server, facilitates the security of on-line transactions and guarantees transaction funds with a more optimized credit mechanism, provides credit media for both parties to the transaction, and reduces the risk of funds through the supervision of funds to protect the interests of both parties. In addition, it brings convenience to the customer by adding loan functions, which also enriches businesses of banks or other institutions with credit payment ability.
- [25] [Brief Description]
- [26] Figure 1 is a schematic diagram of the payment system based on the cross Funds-Management server provided by the Example of the present invention;
- [27] Figure 2 is a flow chart of the payment method based on a cross Funds server provided by the second example of the present invention;
- [28] Figure 3 is a flow chart of the payment method based on a cross Funds server provided by

- the third example of the present invention;
- [29] Figure 4 is a block diagram of a payment device based on a cross Funds-Management server provided by the fourth example of the present invention;
- [30] Figure 5 is a block diagram of a payment system based on a cross Funds-Management server provided by the fifth example of the present invention.
- [31] [Description of the Preferred Examples]
- [32] The present invention will be described in further detail with reference to the accompanying drawings and the accompanying example, in which the technical problems, technical solutions and advantages to be solved by the present invention will become more apparent. It is to be understood that the specific examples described herein are merely illustrative of the invention and are not intended to limit the invention.
- [33] Example 1
- [34] As shown in Figure 1, an example of the present invention provides a cross funds-Management server payment system comprising at least one client 10, at least one merchant 20, and interconnected the first fund server 30 and the second Funds-Management server 40, wherein:
- [35] The client 10 is connected with server 40 of the second Funds-Management server for transmitting the payment request information to the second Funds-Management server 40, and the payment request information includes the payment amount.
- [36] Specifically, the client 10 is suitable for the payer (buyer), including the account information of mobile phone, personal computer, PAD, and other intelligent devices, the account information of the client 10 is filled in when the customer registers and stored in the database of the Funds-Management service and (or) the information centre server, the account information of the client 10 includes customer ID, an account opening bank, account name, a bank account number, and a credit balance, and may also include the customer's shipping address. The payment request information is the information that the customer has written and confirmed shipping address information after the customer purchases the specific goods/services. According to the pre-set rules, price of the goods/services, and commercial Merchants of the goods/services, the client 10 generates data package; the packet will be transmitted to the second Funds-Management server 40. The payment request information includes at least the payment amount, and may include the Merchant information and the product information. Among them, the Merchant information can be directly the Merchant's receiving account, it can also uniquely identify the Merchant information (for an example, Merchant ID), by the Funds-Management server 40 on the unique identification of the merchant from the database to find the

WO 2016/173051

PCT/CN2015/080085

corresponding bank account information. In the specific application, the account information of the Merchant 20 should be kept confidential with respect to the client 10, so the Merchant information is preferably the Merchant ID, and the second Funds-Management server 40 inquires the Merchant's receiving account by using the corresponding relationship between the Merchant ID and its receiving account number. In other words, the client 10 only needs to inform the second Funds-Management server 40 to which Merchant and which goods to pay the amount of funds, the second Funds-Management server will be able to call out the Merchant account to implement the appropriate payment operation.

- [37] The Merchant 20 is connected to the first Funds-Management server 30 for receiving the electronic commitment payment certificate transmitted by the second Funds-Management server 40.
- [38] Specifically, the Merchant 20 is adapted to the recipient (Merchant), and the Merchant includes but not limited to devices such as servers, and POS machines and so on. Merchants include but not limited to manufacturers, agents, logistics companies, etc. The merchant information is also registered in the database of the Funds-Management server and (or) the information centre server, and the merchant information includes, but not limited to merchant ID, merchant name, merchant opening bank, merchant account name, and merchant bank account number. The Merchant 20 receives the electronic commitment payment voucher transmitted from the second Funds-Management server 40, and extracts the merchandise information and the goods receipt information in the electronic commitment payment voucher information to designate the merchandise transmission destination.
- [39] The second Funds-Management server 40 is used for receiving payment request information sent by a client 10; comparing the sum of the credit loan limit and overdraft limit of the client 10 with a payment amount to determine whether an electronic commitment payment certificate can be created; if yes, respectively freeze the credit loan limit and overdraft limit within client account according to the payment amount; generating the electronic commitment payment certificate for the second Funds-Management server 40 according to the agreed condition, and sending the electronic commitment payment certificate to merchant 20, and synchronizing to the information centre server.
- [40] Specifically, the second Funds-Management server 40 receives the packet of the payment request information and analyses it according to the reset rule to obtain the relevant payment information including but not limited to the Merchant information, the merchandise information, and the payment amount And other necessary information, that

is, to which Merchant which goods to pay the amount of money. The second Funds-Management server 40 inquires whether the sum of the credit loan limit and overdraft limit in the client account is sufficient for the current settlement, if it is insufficient, the payment is terminated, and if sufficient, respectively freeze the credit loan limit and overdraft limit within client account, making the frozen amount are greater or equal to the payment amount, until the merchant confirms the delivery or the customer confirms the receipt, carry out transfer operation and complete the deal.

- [41] It is understandable that respectively freezing the credit loan limit and overdraft limit corresponding to payment amount included the following cases:
- [42] 1. Only freeze the amount of credit overdraft, so that the total frozen amount is greater than or equal to the amount of the payment.
- [43] 2. Only the credit loan limit is frozen so that the total frozen amount is greater than or equal to the payment amount.
- [44] 3. Respectively freeze part of the credit loan limit and credit overdraft limit in client account, making the total frozen amount greater than or equal to the amount of the payment.
- [45] The information centre server 50 is connected to the second Funds-Management server 40 and the first Funds-management server 30 for storing the electronic commitment payment certificate information of the client 10 and the merchant 20.
- [46] Specifically, both the client 10 and the merchant 20 can obtain the electronic commitment payment certificate information to the information centre server 50 via the Internet for subsequent processing, such as the correctness of the dual channel authentication information using the data. The second Funds-Management server 40 may further determine whether or not the payment operation is made in accordance with the state of the electronic commitment payment certificate information, that is, the payment request is only freezing the credit loan limit and overdraft limit, transferring and deducting credit overdraft limit are conducted after confirming receipt.
- [47] In the present example, the second Funds-Management server 40 may be connected to the plurality of clients 10 and via the Internet at the same time. The first Funds-Management server 30 may be connected to a plurality of Merchant terminals 20 and via the Internet at the same time. That is, the server where the Merchant 20 is located is not on the same server as the server where the client 10 is located. The second Funds-Management server 40 and the first Funds-management server 30 can be a single server in the physical sense, or it can work in parallel for multiple servers in the physical sense, such as multiple physical servers. According to the different traffic, the resources of the server are

WO 2016/173051

PCT/CN2015/080085

automatically allocated to realize the Funds-Management. The second Funds-Management server 40 and the first Funds-Management server 30 includes but is not limited to servers in institutions such as banks, businesses, and so on. In the practical applications, it can be understood as the same bank's cluster Funds-Management server, but not limited to banks, but also the Internet to support the flow of funds in other institutions. Through the Funds-Management server and information centre server, the seller and seller of information are regulated, and the regulatory functions are merged into the bank or other institutions with credit ability to pay.

[48] Example 2

[49] As shown in Figure 2, an example of the present invention provides a payment method based on a cross Funds-Management server for use in a Funds-Management server, which method comprises the following steps:

[50] S201, the client transmits the payment request information to the second Funds-Management server, and the payment request information includes the payment amount.

[51] Specifically, the payment request information received by the second Funds-Management server includes Merchant information, product information and payment amount, and it may also include the client information (for an example, client ID). Among them, the merchant information can be merchants' account number, and it can also be the only identification of the merchant information (such as merchant ID), to find the corresponding bank account information based on the unique identification of the business from the database by the second Funds-Management server. In the specific application, the account information of the Merchant should be kept confidential with respect to the client .so the Merchant information is preferably the Merchant ID, and the second Funds-Management server inquires the Merchant's receiving account by using the corresponding relationship between the Merchant ID and its receiving account number. In other words, the client only needs to inform the second Funds-Management server to which Merchant and which goods to pay the amount of funds, the second Funds-Management server will be able to call out the Merchant account to implement the appropriate payment operation.

[52] S202, the second Funds-Management server receives the client to send the payment request information;

[53] S203, inquiries the sum of the credit loan limit and overdraft limit, comparing the sum of the credit loan limit and overdraft limit with the payment amount, if the sum is greater than or equal to the amount, it is sufficient; if the sum is less than the amount, it is insufficient. When the credit loan limit and overdraft limit is sufficient, execute the Step S204,

otherwise terminate, not to pay;

- [54] S204, the second Funds-Management server freezes the credit loan limit and overdraft limit corresponding to the payment amount; it is understood that freezing the credit loan limit and overdraft limit corresponding to the payment amount includes the following circumstances:
- [55] 1. Only to freeze the amount of credit overdraft limit, so that the total amount of frozen are greater than or equal to the amount of the payment.
- [56] 2. Only the credit loan limit is frozen so that the total amount of the greater than or equal to the payment amount.
- [57] 3. Respectively freeze part of the credit loan limit and credit overdraft limit of the client account, making the total frozen amount greater than or equal to the amount of the payment.
- [58] S205, the second Funds-Management server generates the electronic commitment payment certificate based on the payment request information and the freezing information and transmits the electronic commitment payment certificate to the Merchant;
- [59] Specifically, since the payment request information is sent by the buyer to the second Funds-Management server through the client's operation, the payment information is objectively confirmed by the customer and authorized by the bank. The second Funds-Management server freezes the corresponding funds and generates an electronic commitment payment certificate based on the payment information, and the Merchant provides the corresponding merchandise/service according to the electronic commitment payment certificate.
- [60] S206, the second Funds-Management server sends the electronic payment certificate to the merchant, and synchronizes to the information centre server and the first Funds-Management server; Specifically, this Step sends the generated electronic certificate information to the information centre server so that the information centre server performs subsequent tracking.
- [61] S207, the second Funds-Management server receives the payment information;
- [62] S208, the second Funds-Management server allocates the funds corresponding to the freezing amount to the first Funds-Management server;
- [63] S209, the first Funds-Management server transfers the received payment amount to the account of the Merchant.
- [64] The payment method provided by the example of the present invention, through receiving the payment request information of the client via the second Funds-Management server, determining whether the payment is permitted based on the sum of the credit loan limit and

overdraft limit of the client, and freezing the credit loan limit and overdraft limit of the client account, generating electronic commitment payment certificate to synchronize to the information centre server for real-time supervision, reduces the risk of funds and protects the interests of the buyers and the sellers.

- [65] Example 3
- [66] As shown in Figure 3, an example of the present invention provides a payment method of the credit overdraft and loan limit, which is applied in the payment system of the same Funds-Management server in Figure 1, and comprises the following steps:
- [67] S301, the client sends the payment request information to the second Funds-Management server, and the payment request information includes at least the payment amount.
- [68] And the payment request information is composed of a plurality of data packets, including at least the Merchant information, the product information and the payment amount. You can also include client information (such as client ID). Among them, the merchant information can be directly merchants receiving account number, you can also uniquely identify the merchant information (such as business ID), and find the corresponding bank account information by Funds-Management server based on the unique identification of the merchant from the database. In the specific application, the account information of the merchant should be kept confidential with respect to the merchant, so the merchant information is preferably the merchant ID, and the Funds-Management server inquires the merchant's receiving account by using the correspondence relationship between the merchant ID and its receiving account. In other words, the client only need to inform the Funds-Management server to which merchant and which goods to pay the amount of funds, the Funds-Management server will be able to call out the account of the implementation of the corresponding payment operation.
- [69] The way the client sends payment request information to the second Funds-Management server can be done in the existing way, such as using a digital signature or a digital envelope. A digital signature is a data that the user encrypts a hash of the original data with own private key. The information recipient obtains the hash digest by decrypting the digital signature attached to the original information using the public key of the sender of the information and confirms whether the original information is made by comparing with the hash digest generated by the original data received by the information recipient tampered with. This ensures that the data transmission is undeniable. Digital envelopes use password technology to ensure that only the recipient of the specified information can read the contents of the information. Digital envelopes used in a single-key password system and public key password system. The information sender first encrypts the information with the

WO 2016/173051

PCT/CN2015/080085

- randomly generated symmetric password, and then encrypts the symmetric password with the public key of the receiver. The symmetric password encrypted by the public key is called the digital envelope. In the transmission of information, the information receiver shall decrypt the information, you must first use their own private key to decrypt the digital envelope, get a symmetric password, in order to use the symmetric password to decrypt the information obtained. This ensures the authenticity and integrity of the data transmission.
- [70] S302, the Funds-Management server receives the payment request information sent by the client.
- [71] Specifically, the payment request information received by the second Funds-Management server includes Merchant information, product information and payment amount, and it may also include the client information (for an example, client ID). Among them, the merchant information can be merchants' account number, and it can also be the only identification of the merchant information (such as merchant ID), to find the corresponding bank account information based on the unique identification of the business from the database by the second Funds-Management server. In the specific application, the account information of the Merchant should be kept confidential with respect to the client .so the Merchant information is preferably the Merchant ID, and the second Funds-Management server inquires the Merchant's receiving account by using the corresponding relationship between the Merchant ID and its receiving account number. In other words, the client only needs to inform the second Funds-Management server to which Merchant and which goods to pay the amount of funds, the second Funds-Management server will be able to call out the Merchant account to implement the appropriate payment operation.
- [72] S303, inquires the sum of the credit loan limit and overdraft limit, comparing the sum of the credit loan limit and overdraft limit with the payment amount, if the sum is greater than or equal to the amount, it is sufficient; if the sum is less than the amount, it is insufficient. When the credit loan limit and overdraft limit is sufficient, execute Step S305, or execute step s304;
- [73] S304, ask the client whether to use the funds balance; if it needs to use the funds balance, then implement step S305, otherwise end the process;
- [74] S305, judges whether the funds balance is sufficient; the sufficiency can be understood in several cases:
- [75] 1. If the sum of the credit loan limit and overdraft limit and part of the funds balance in the client account is greater than or equal to the amount of the payment, then the funds are considered sufficient, and conversely, insufficient;
- [76] 2. When the funds balance is greater than or equal to the amount of the payment, it is

WO 2016/173051

PCT/CN2015/080085

considered that the funds is sufficient, and conversely, it is not sufficient.

- [77] Specifically, the funds amount for using can be the amount specified by the client, or it is default to the amount of the current payment lacked. For example, when the price of a product selected by the customer is 1,500 Yuan (payment amount), if in the customer end account funds the credit loan limit and overdraft limit is only 900 Yuan, then funds balance of 600 Yuan is needed in order to meet the allowable payment standard to commit the payment. Of course, the using of another way, such as directly using funds balance of 1,500 Yuan to pay, is also feasible.
- [78] S306, the second Funds-Management server freeze the credit loan limit and overdraft limit respectively, so that the total frozen amount are greater than or equal to the amount of the payment, and it can be specifically divided into the following forms:
- [79] 1. Only the balance of the funds in the client account is frozen so that the total amount of the frozen is greater than or equal to the payment amount.
- [80] 2. Only the credit loan limit is frozen so that the total amount of the greater than or equal to the payment amount.
- [81] 3. Only to freeze the amount of credit overdraft limit, so that the total amount of frozen are greater than or equal to the amount of the payment.
- [82] 4. Respectively, to freeze the balance of funds and credit overdraft limit of the client's account, making the total amount of frozen greater than or equal to the amount of the payment.
- [83] 5. Respectively, to freeze part of the balance of funds and credit loan limit of the client's account, making the total amount of frozen greater than or equal to the amount of the payment.
- [84] 6. Respectively, to freeze part of the credit loan limit and credit overdraft limit of the client's account, making the total amount of frozen greater than or equal to the amount of the payment.
- [85] 7. Respectively freeze part of the credit loan limit and credit overdraft limit, as well as the funds balance, making the total amount frozen greater than or equal to the amount of the payment.
- [86] S307, the second Funds-Management server generates the electronic commitment payment certificate according to the payment request information and the freezing information;
- [87] Specifically, since the payment request information is sent by the buyer to the second Funds-Management server through the client's operation, the payment information is objectively confirmed by the customer and authorized by the bank. The second Funds-Management server will freeze the corresponding the funds balance, or credit

WO 2016/173051

PCT/CN2015/080085

- overdraft limit or credit loan limit; meanwhile, it will generate an electronic commitment payment certificate based on the payment information, and the merchant will provide the corresponding goods/services according to the electronic commitment payment certificate.
- [88] S308, the second Funds-Management server sends the electronic payment certificate to the second terminal and synchronizes to the information centre server and the first Funds-Management server; Specifically, this Step sends the generated electronic certificate information to the information centre server so that the information centre server performs subsequent tracking.
- [89] S309, the second Funds-Management server receives the payment information; it should be noted that In Step S408, the Merchant sends and receives the payment information to the Funds-Management server only as an example, and in practice, the client, a logistics server, or other entity that is aware of the delivery status to send payment information to the Funds-Management server.
- [90] S310, the second Funds-Management server allocates the funds corresponding to the freezing amount to the first Funds-Management server; it is understood that there will be a corresponding matching fund allocation scheme according to the different freezing methods in Step S306, and the funds allocated to the account of the Merchant.
- [91] S311, the first Funds-Management server transfers the received payment amount to the account of the Merchant
- [92] Finally, the process is ended.
- [93] The example of the present invention, on the basis of the second example, not only facilitates the buyer, but also greatly enriches the business of the bank or other institution with the credit payment ability by increasing the credit overdraft limit function; in addition, by adding to information centre server of tracking synchronously both buyers and sellers' electronic commitment certificate, the flow of goods and the flow of funds trajectory can be effectively combined, so it can protect the interests of both buyers and sellers effectively.
- [94] Example 4
- [95] As shown in Figure 4, an example of the present invention provides a payment device including a receiving module 301, a judgement module 302, and a processing module 303, wherein:
- [96] A receiving module 301 is configured to receive payment request information transmitted by the first terminal connected with the second Funds-Management server, wherein the payment request information includes a payment amount;
- [97] Specifically, the payment request information received by the receiving module 301

WO 2016/173051

PCT/CN2015/080085

includes Merchant information, product information and payment amount, and may include the client information (for an example, client ID). Among them, the merchant information can be merchants receiving account, and the merchant information can also be uniquely identified (such as business ID). In the particular application, the account information of the merchant should be kept confidential from the client, so the merchant information should be the merchant ID, that is, the client simply informs which merchandise of which merchant is paid by how much, then the device call out of the merchant account number to implement the corresponding payment operation.

- [98] The judgement module 302 is configured to determine whether or not a payment is permitted based on the credit loan limit and overdraft limit;
- [99] As a preferred scheme, the judgement module 302 is specifically configured to inquiry in the client account funds the credit loan limit and overdraft limit; and determine whether the funds balance and the credit overdraft limit of the credit loan limit and overdraft limit in the client account are greater than or equal to the payment amount, if yes, it is allowed to pay. In this way, first, determine the payment ability of the sum of the credit loan limit and overdraft limit, and preferentially use the credit loan limit and overdraft limit, which can save the payment cycle to protect the interests of merchants. The bank account or the credit card account may be notified by the client to the device in the payment request information, or the device may inquire from the database based on the client information and obtain the funds corresponding to the credit loan limit and overdraft limit. Only when the credit loan limit and overdraft limit in the client are more than or equal to the payment amount, the client has the ability to pay, and until now the payment behaviour is allowed to conduct.
- [100] As another preferred example, the judgement module 302 is also configured to ask the client whether funds balance is needed when the sum of the credit loan limit and overdraft limit is less than the payment amount; if it needs, then the application of funds balance is issued to allow the payment; if not, terminate the payment. In addition, it not only to facilitate the buyer, but also greatly enrich the bank or other institutions with credit ability to pay the business. When using a Funds-Management server to obtain a bank account or credit card account based on the Funds-Management server, a customer may have multiple accounts, and a mixed payment method may also be used. For example, when the price of a commodity selected by the customer is 1,500 Yuan (the payment amount), the sum of the credit loan limit and overdraft limit is only 900 Yuan, then the amount of money that the customer can use to pay is a total of 900 Yuan, which will not be able to pay; If the client account has funds balance of 600 Yuan, so by applying the use of funds balance of 600

Yuan, then they have 1,500 Yuan for using, payment behaviour can be implemented.

- [101] The processing module 303 is configured to freeze the credit loan limit and overdraft limit and funds balance in the client account respectively when the payment is allowed, making the total amount frozen are greater than or equal to the payment amount; generating the electronic commitment payment certificate, send the electronic commitment payment certificate message to the merchant connected to the first Funds-Management server, and synchronize to the information centre server.
- [102] Preferably, the processing module 303 further includes a freeze unit 3031, a certificate generation unit 3032, and a synchronization unit 3033, wherein:
- [103] The freezing unit 3031 is configured to freeze the credit loan limit and overdraft limit and funds balance in the client account respectively when the payment is allowed, making the total amount frozen are greater than or equal to the payment amount;
- [104] The credential generation unit 3032 is configured to generate an electronic commitment payment certificate;
- [105] The synchronization unit 3033 is configured to transmit the electronic commitment payment certificate information to the merchant.
- [106] In addition, the processing module 303 may include a transferring unit which is configured to receive the payment information, synchronize the payment information to the information centre server, and allocate the corresponding frozen funds to the account of the merchant.
- [107] It is important to note that the technical features of the above-described method examples 2 and 3 are applicable in the present apparatus and are not repeated here.
- [108] In addition, the present invention also provides a Funds-Management server including the payment device in the fourth embodiment, which is not repeated here.
- [109] The payment method provided by the example of the present invention, through receiving the payment request information of the client via the second Funds-Management server, determining whether the payment is permitted based on the sum of the credit loan limit and overdraft limit of the client, and freezing the credit loan limit and overdraft limit of the client account, generating electronic commitment payment certificate to synchronize to the information centre server for real-time supervision, reduces the risk of funds and protects the interests of the buyers and the sellers. In addition, by increasing the loan function, not only to facilitate the buyer, but also greatly enrich the bank or other institutions with credit ability to pay the business.
- [110] Example 5
- [111] As shown in Figure 5, a preferred example of the present invention provides a payment

WO 2016/173051

PCT/CN2015/080085

system based on cross Funds-Management server, which includes at least one client 10, at least one merchant 20, and one second Funds-Management server 40 connected to client 10 and one first Funds-Management server 30 connected with the information centre 50, wherein:

- [112] The information centre server 50 is used to store and supervise the electronic commitment payment certificate information.
- [113] The client 10 includes a payment request module 101 configured to send payment request information to the second Funds-Management server 40, and the payment request information includes Merchant information, product information, and payment amount.
- [114] The merchant 20 includes a certificate receiving module 201 and a certificate updating module 202, wherein the certificate receiving module 201 is configured to receive the electronic commitment payment certificate sent by the fund managing server 40.
- [115] The second Funds-Management server 40 includes a receiving module 301, a judgement module 302, and a processing module 303, wherein:
- [116] The receiving module 301 is configured to receive payment request information transmitted by the client connected to Funds-Management server 40;
- [117] The judgement module 302 is configured to compare the sum of the credit loan limit and overdraft limit within client account with the payment amount to determine whether the electronic commitment payment certificate can be issued;
- [118] As a preferred example, the judgement module 302 is configured to determine whether the credit loan limit and overdraft limit within client account in the client account is greater than or equal to the amount of the payment, and if so, the payment is allowed; or to further determine whether the funds balance is greater than or equal to the payment amount, if so, allow to pay.
- [119] The processing module 303 is configured to freeze the funds amount corresponding to the payment amount in the client account when the payment is allowed, and generate the electronic commitment payment certificate, and transmit the electronic commitment payment certificate information to the merchant 20 connected to the first Funds-Management server 30 and synchronize to the information centre server 50.
- [120] As a preferred example, the receiving module 301 of the second Funds-Management server 40 is also responsible for receiving the payment information; the processing module 303 also includes a transferring module, synchronizes the payment information to the information centre server 50, which is configured to transfer equal funds to the account of the merchant 20 after receiving the payment information.
- [121] Specifically, since the payment request information is sent by the buyer to the second

WO 2016/173051

PCT/CN2015/080085

Funds-Management server 40 through the client 10, the payment information is objectively obtained by the client 10 confirming and authorizing the bank to pay. The second Funds-Management server 40 respectively freezes the corresponding the credit loan limit and overdraft limit, and generates an electronic commitment payment certificate based on the payment information. The electronic commitment payment certificate information includes but is not limited to commodity information, payment amount (frozen funds or credit overdraft limit or credit loan limit), delivery address and validity period, and the form is not limited to text, pictures, graphics and so on. The electronic certificate is the certificate for Merchant 20 to receive funds, and the Merchant 20 provides the corresponding merchandise/service based on the electronic commitment payment certificate.

- [122] The general technicians of this field can understand and implement all or parts of steps in the aforesaid examples that can complete the procedure by controlling relevant hardware, and the said procedure can be stored in a readable storage media of a computer such as ROM/RAM, disk and light disk.
- [123] The preferred examples of the present invention have been described above with reference to the accompanying drawings, which are not to limit the scope of the present invention. It will be apparent to those skilled in the field that various modifications, equivalents, and improvements may be made without departing from the scope and spirit of the invention.

Claims:

1. A computer payment system comprising:

at least one client device;

at least one merchant device;

an information center server;

a first funds-management server; and

a second funds-management server;

wherein the at least one client device and the second funds-management server are operatively connected;

wherein the at least one merchant device and the first funds-management server, are operatively connected;

wherein the information center server is operatively connected to the first funds-management server and the second funds-management server;

wherein the information center server is configured to:

receive an electronic commitment payment certificate transmitted by the second funds-management server; and

store and supervise the electronic commitment payment certificate;

wherein the at least one client device is configured to:

generate a network payment data packet including payment request information of an e-commerce transaction between a buyer and a merchant, to enable the second funds-management server to freeze client funds as a credit commitment payment in a client account before commodity delivery is completed, the payment request information including a payment amount and a merchant identifier for uniquely identifying the merchant;

send the network payment data packet to the second funds-management server;

wherein the at least one merchant device is configured to:

receive the electronic commitment payment certificate sent by the second funds-management server;

wherein the second funds-management server is configured to:

analyze the network payment data packet sent by the at least one client device to obtain the payment amount and the merchant identifier;

retrieve merchant receiving account information specifying a merchant account from a merchant database using the merchant identifier;

determine whether the sum of a credit overdraft limit of the client account and a credit loan limit of the client account is greater than or equal to the payment amount in the client account for the electronic commitment payment certificate to be created; and

wherein where the sum of the credit overdraft limit of the client account and the credit loan limit of the client account is greater than or equal to the payment amount, the second funds-management server is further configured to:

freeze client funds greater than or equal to the payment amount in the client account, wherein the frozen client funds include at least a portion of the credit overdraft limit and/or a portion of the credit loan limit in the client account;

generate the electronic commitment payment certificate to commit to pay the frozen client funds according to an agreed condition, the electronic commitment payment certificate at least including commodity information and client receiving information for the commodity and an amount of the frozen funds and expiration date;

synchronize the electronic commitment payment certificate to the information center server for real-time monitoring;

send the electronic commitment payment certificate to the at least one merchant device to make a credit commitment payment on behalf of the at least one client device and synchronize the electronic commitment payment certificate to the first funds-management server; and

determine that the frozen client funds can be allocated to the first funds management server according to a state of the electronic commitment payment certificate;

wherein the first funds-management server is configured to:

store the electronic commitment payment certificate transmitted by the second funds-management server; and

allocate a received payment amount equal to the frozen client funds received from the second funds management server to the merchant account based on the electronic commitment payment certificate.

2. The system of claim 1, wherein the second funds-management server is further configured to ask the at least one client device whether to use a portion of a client funds balance in the client account when the second funds-management server determines that the sum of the credit overdraft limit of the client account and the credit loan limit of the client account is less than the payment amount.
3. The system of claim 2, wherein the second funds-management server is further configured to determine that the portion of the client funds balance is greater than an amount required to freeze after receiving a confirmation to use the portion of the client funds balance in the client account, so that a sum of the credit overdraft limit, the credit loan limit, and the portion of the client funds balance is greater than the payment amount .
4. The system of any one of claims 1 to 3, wherein the frozen client funds include only a client funds balance.
5. The system of any one of claims 1 to 3, wherein the frozen client funds include the credit overdraft limit and a client funds balance.

6. The system of any one of claims 1 to 3, wherein the frozen client funds include the credit loan limit and a client funds balance.
7. The system of any one of claims 1 to 3, wherein the frozen client funds include a client funds balance, the client funds balance and the credit overdraft limit.
8. The system of any one of claims 1 to 7, wherein the first funds-management server is a single physical server.
9. The system of any one of claims 1 to 7, wherein the first funds-management server is a server cluster of a bank.
10. The system of any one of claims 1 to 7, wherein the first funds-management server is a single physical server of a credit-providing organization.
11. The system of any one of claims 1 to 7, wherein the first funds-management server is a server cluster of a credit-providing organization.
12. The system of any one of claims 1 to 11, wherein the client device is a mobile phone.
13. The system of any one of claims 1 to 11, wherein the client device is a personal computer.
14. The system of any one of claims 1 to 11, wherein the client device is a tablet computer.
15. The system of any one of claims 1 to 14, wherein the merchant device is a Point-of-Sale System (POS) machine.
16. The system of any one of claims 1 to 14, wherein the merchant device is a server.
17. The system of any one of claims 1 to 16, wherein the client account is a purchasing account.
18. The system of claim 17, wherein the purchasing account is a bank account.

19. A funds management server comprising:

a computer-readable memory for storing processor-executable instructions; and

a computer processor, communicatively coupled to the memory, wherein upon execution of the processor-executable instructions, the processor is configured to:

receive a network payment data packet including payment request information of an e-commerce transaction between a buyer and a merchant from at least one client device, wherein the payment request information includes a payment amount and a merchant identifier for uniquely identifying the merchant; wherein the network payment data packet is generated by the at least one client device, to enable the funds-management server to freeze client funds as a credit commitment payment in a client account before commodity delivery is completed;

analyze the network payment data packet to obtain the payment amount and the merchant identifier;

retrieve merchant receiving account information specifying a merchant account from a merchant database using the merchant identifier;

determine whether the sum of a credit overdraft limit of the client account and a credit loan limit of the client account is greater than or equal to the payment amount in a client account for the electronic commitment payment certificate to be created where if the sum of the credit overdraft limit of the client account and the credit loan limit of the client account is greater than or equal to the payment amount such that an electronic commitment payment certificate can be created;

wherein where the sum of the credit overdraft limit of the client account and the credit loan limit of the client account is greater than or equal to the payment amount, the processor is further configured to:

freeze client funds greater than or equal to the payment amount in the client account, wherein the frozen client funds include at least a portion of the credit overdraft limit and/or a portion of the credit loan limit in the client account;

generate the electronic commitment payment certificate to commit to pay the frozen client funds according to an agreed condition, the electronic commitment payment certificate including the merchant account information; and

synchronize the electronic commitment payment certificate to an information center server for real-time monitoring;

send the electronic commitment payment certificate to at least one merchant device to make a credit commitment payment on behalf of the at least one client device; and

determine that the frozen client funds can be allocated to a first funds management server according to state of the electronic commitment payment certificate.

20. The funds-management server of claim 19, wherein the funds-management server is configured to ask the at least one client device whether to use a portion of a client funds balance in the client account when the funds-management server determines that the sum amount of the credit overdraft limit of the client account and the credit loan limit of the client account is less than the payment amount.

21. The funds-management server of claim 20, wherein the funds-management server is further configured to determine that the portion of the client funds balance is greater than an amount required to freeze after receiving a confirmation for using the portion of the client funds balance in the client account, so that a sum of the credit overdraft limit, the credit loan limit, and the portion of the client funds balance is greater than the payment amount.
22. The funds-management server of claim 19, wherein the funds-management server is a single physical server.
23. The funds-management server of claim 19, wherein the funds-management server is a server cluster of a bank.
24. The funds-management server of claim 19, wherein the funds-management server is a single physical server of a credit-providing organization.
25. The funds-management server of any one of claims 19, wherein the funds-management server is a server cluster of a credit-providing organization.
26. The funds-management server of any one of claims 19 to 25, wherein the computer processor is configured to receive the payment request information sent by the at least one client device, wherein the at least one client device is a mobile phone.
27. The funds-management server of any one of claims 19 to 25, wherein the computer processor is configured to receive the payment request information sent by the at least one client device, wherein the at least one client device is a personal computer.
28. The funds-management server of any one of claims 19 to 27, wherein the client account is a purchasing account.
29. The funds-management server of claim 28, wherein the purchasing account is a bank account.

30. A computer-implemented method for network payment between a first funds-management server and a second funds-management server, the method comprising:

receiving a network payment data packet including payment request information transmitted by at least one client device, wherein the payment request information includes a payment amount and a merchant identifier for uniquely identifying a merchant; wherein the network payment data packet is generated by the at least one client device, to enable the second funds-management server to freeze client funds as a credit commitment payment in a client account before commodity delivery is completed;

analyzing the network payment data packet to obtain the payment amount and the merchant identifier;

retrieving merchant receiving account information specifying a merchant account from a merchant database using the merchant identifier;

determining whether the sum of a credit overdraft limit of the client account and a credit loan limit of the client account is greater than or equal to the payment amount in the client account for an electronic commitment payment certificate to be created;

where if the sum of the credit overdraft limit of the client account and the credit loan limit of the client account is greater than or equal to the payment amount such that the electronic commitment payment certificate can be created;

freezing the client funds greater than or equal to the payment amount in the client account, wherein the frozen client funds include at least a portion of the credit overdraft limit and/or a portion of the credit loan limit in the client account;

generating the electronic commitment payment certificate for the second funds-management server to commit to pay the frozen client funds according to an agreed

condition, the electronic commitment payment certificate including the merchant account information;

synchronize the electronic commitment payment certificate to an information center server for real-time monitoring; and

synchronizing the electronic commitment payment certificate to the first funds management server;

sending the electronic commitment payment certificate to at least one merchant device and the information center server to make the credit commitment payment on behalf of the at least one client device; and

determining that the frozen client funds can be allocated to the first funds management server according to state of the electronic commitment payment certificate.

31. The method of claim 30, further includes asking the at least one client device whether to use a portion of a client funds balance in the client account when determining that the sum of the credit overdraft limit of the client account and the credit loan limit of the client account is less than the payment amount.
32. The method of claim 31, further includes determining that the portion of the client funds balance is greater than an amount required to freeze the portion of the client funds balance in the client account after receiving a confirmation for using the portion of the client funds balance in the client account, so that a sum of, the credit overdraft limit, the credit loan limit, and the portion of the client funds balance is greater than the payment amount.
33. The method of claim 30, further comprising transmitting the payment request information to the second funds-management server.

34. The method of claim 31, wherein the payment request information includes customer information.
35. The method of any one of claims 31 to 34, wherein the payment request information includes merchant information.
36. The method of any one of claims 31 to 35, wherein the payment request information includes product information.
37. The method of any one of claims 30 to 36, wherein the frozen client funds include only a portion of a client funds balance in the client account.
38. The method of any one of claims 30 to 36, wherein the frozen client funds include the credit overdraft limit in the client account.
39. The method of any one of claims 30 to 36, wherein the frozen client funds include the credit loan limit in the client account.
40. The method of any one of claims 30 to 36, wherein the frozen client funds include the credit loan limit in the client account and the credit overdraft limit in the client account.
41. The method of claim 30, wherein the first funds-management server is a single physical server.
42. The method of claim 30, wherein the first funds-management server is a server cluster of a bank.
43. The method of claim 30, wherein the first funds-management server is a single physical server of a credit-providing organization.
44. The method of claim 30, wherein the first funds-management server is a server cluster of a credit-providing organization.

45. The method of any one of claims 30 to 44, wherein the at least one client device is a mobile phone.
46. The method of any one of claims 30 to 44, wherein the at least one client device is a personal computer.
47. The method of any one of claims 30 to 46, wherein the at least one merchant device is a Point-of-Sale System (POS) machine.
48. The method of any one of claims 30 to 46, wherein the at least one merchant device is a server.
49. The method of any one of claims 30 to 48, wherein the client account is a purchasing account.
50. The method of claim 49, wherein the purchasing account is a bank account.

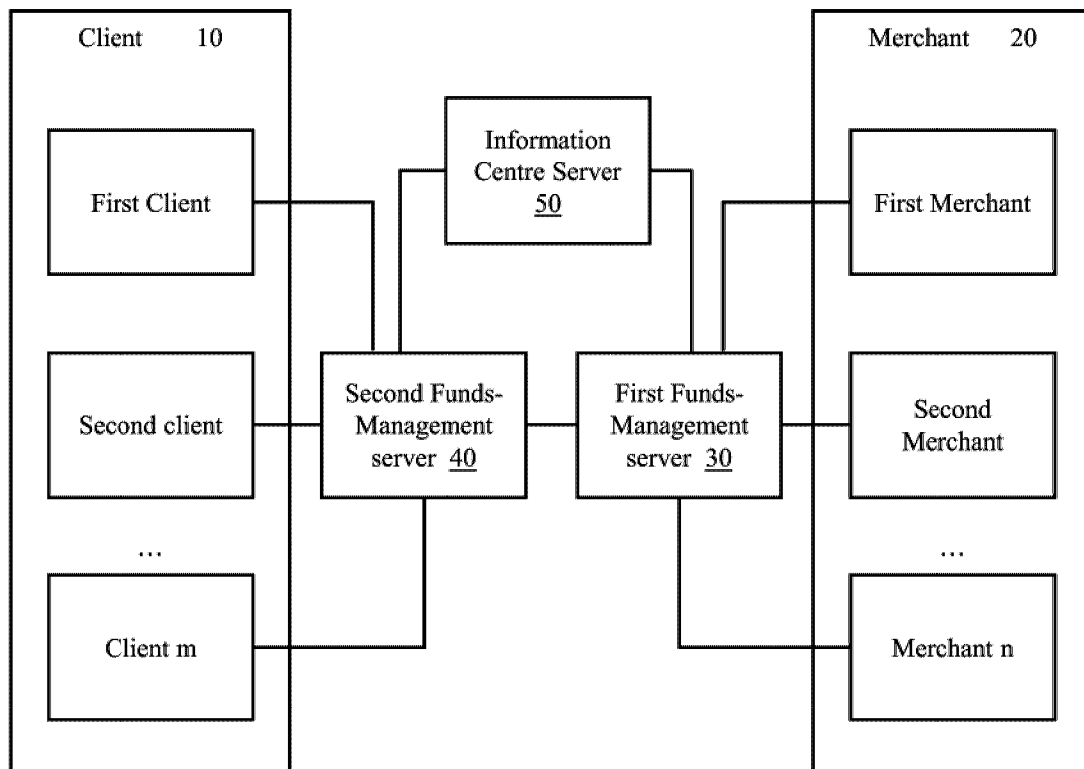


Figure 1

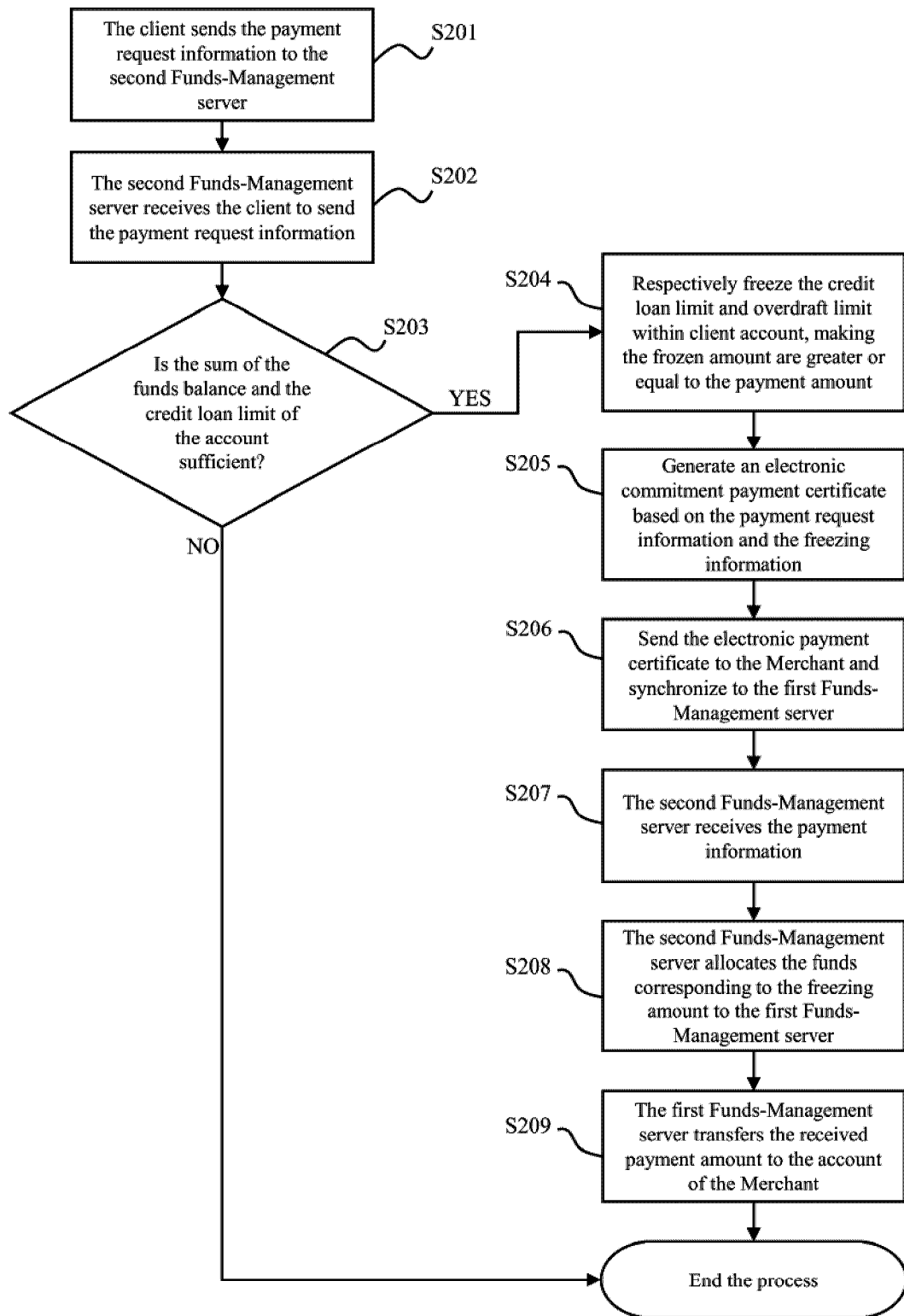


Figure 2

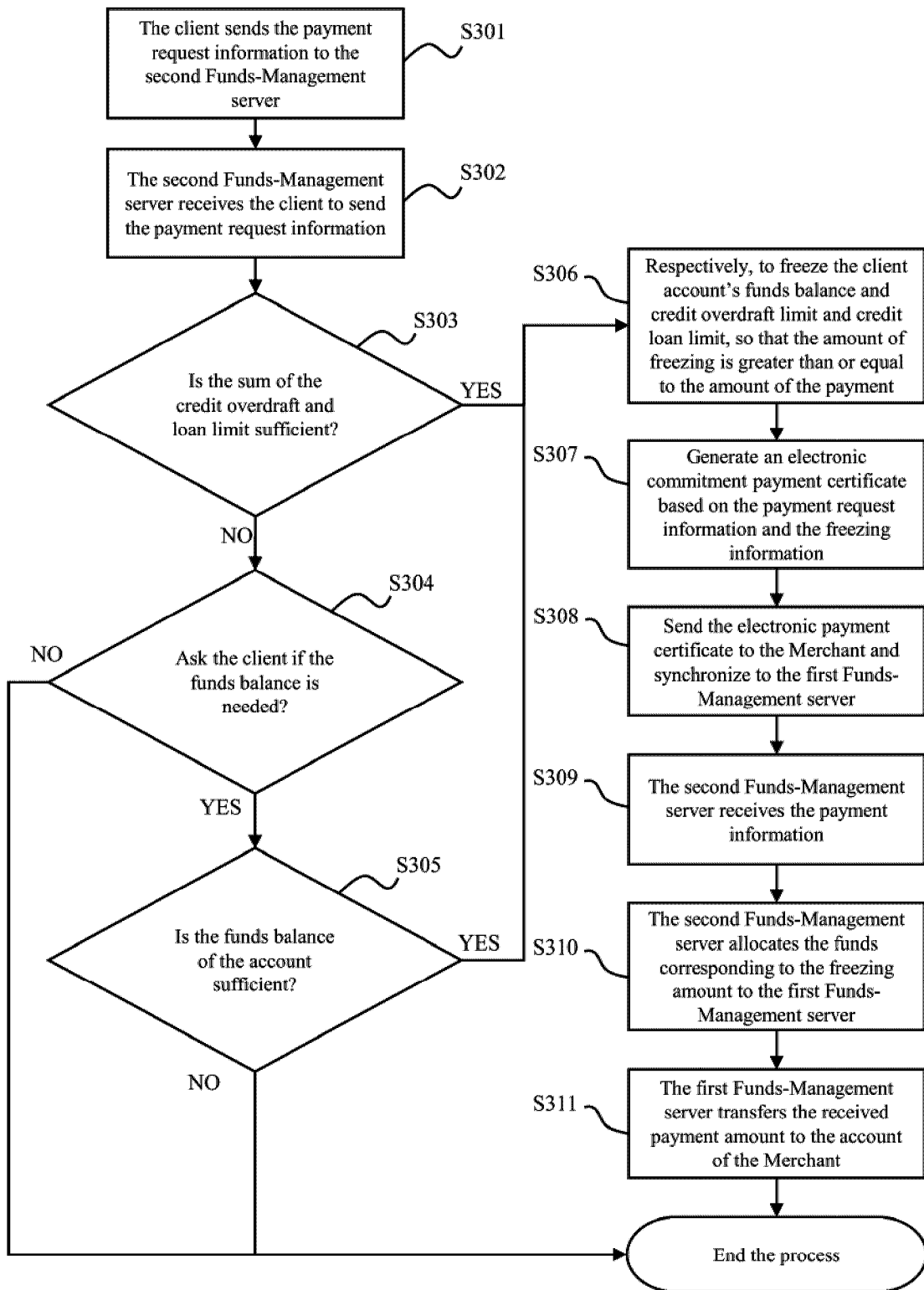


Figure 3

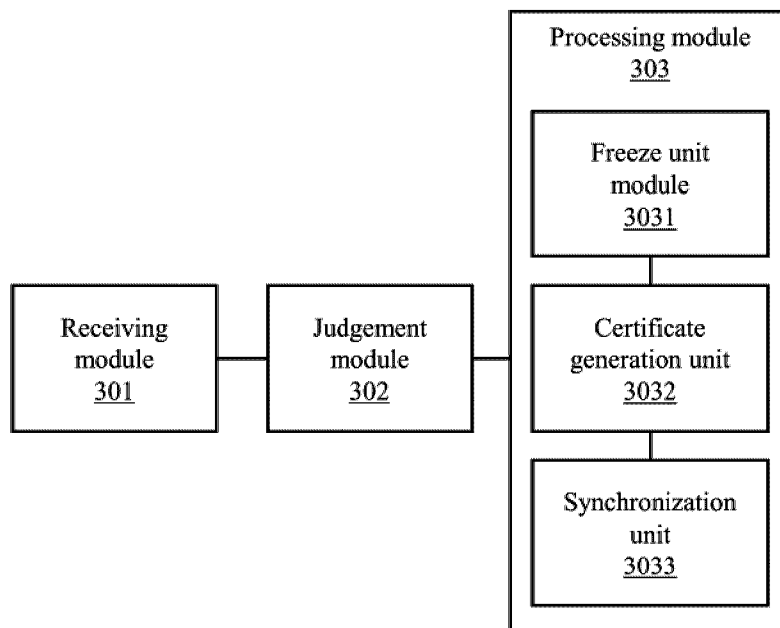


Figure 4

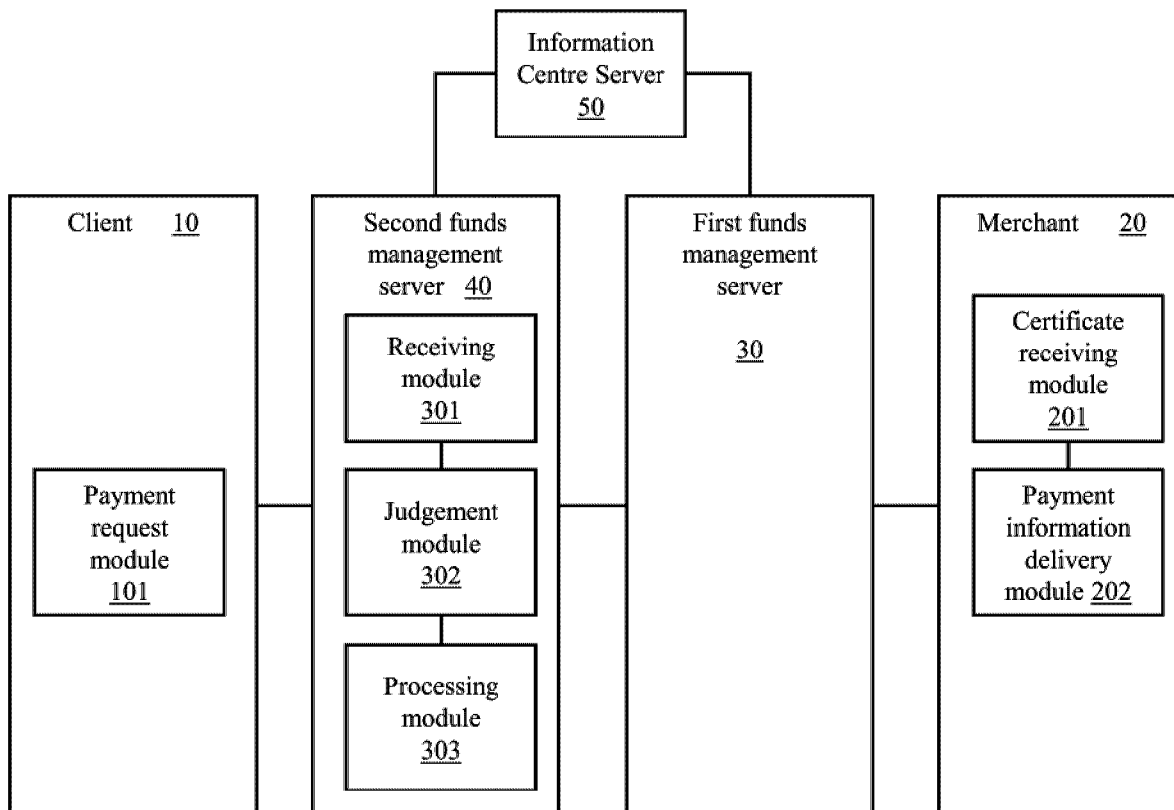


Figure 5

