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[57]	Abstract:	The invention relates to a process for performing transactions among a number of participants, in which every participants has a unique pseudonym assigned to him and the assignment of a pseudonym to a participant and the participant's transaction data are stored on a notary server.		

Figure 3 Flow chart of an inventive process with the additional step of participant authentication;

Figure 4 Flow chart of an inventive process with registered program and the participant authentication step;

Figure 5 Flow chart of an inventive process for registration of an application program to a participant;

Figure 6 Block diagram of a system allowing performance of an inventive process.

In the following discussion of the embodiments, elements that correspond to one another or are identical are always labeled with the same reference numbers.

Figure 1 shows a flow chart of an inventive embodiment of the process. Feasibility of the process presumes at least the presence of a transaction server, a notary server, a number of participants, and an application program. The process involves assigning a unique pseudonym to every participant, this assignment of pseudonyms to the participants being stored on the notary server. The notary server also assigns the participants' transaction data to the participants. A participant's transaction data can be, for example, his bank information or similar information.

A first step 101 involves reading the pseudonyms of the participants involved in the transaction. This reading of the pseudonyms is done by the application program, for example by reading a storage location where the pseudonyms are stored, or by optical reading of a barcode containing the pseudonyms. After the participants' pseudonyms have been read, the application program collects the transaction parameters 102. The transaction parameters can be, for example, an amount of money to be transferred or a message to be sent between two participants.

The combination of pseudonym and transaction parameters represents a transaction record. In the next step 103, the application program sends this transaction record to a transaction server. However, the transaction server cannot assign the pseudonyms to the participants. Therefore, in a fourth step 104 the transaction server sends the pseudonyms contained in the transaction record to the notary server. The notary server in turn is able, on the basis of the assignment of participants and pseudonyms stored on it, to assign the pseudonyms that were sent from the transaction server to the corresponding participants 105. Since the notary server also stores transaction data for every participant, it can send it to the transaction server 106, so that the latter can initiate or perform a transaction in accordance with the previously received transaction record 107.

Figure 2 shows a flow chart of an embodiment of the inventive process in which the process is expanded by registration of the application program sending the transaction record to a participant. This involves assigning, during the program's registration, the Globally Unique Identifier (GUID) of the piece of terminal equipment on which the application program was installed, to the notary server's record of the participant registering the application program.

Since the application program is registered to one of the participants, his pseudonym is known to the application program. Therefore, in the first step 201 the application program only collects the pseudonyms of the other participants. The pseudonym of the first participant that registered the application program is added to the record by the application program. In the second step 202, the application program collects the Globally Unique Identifier (GUID) of the piece of terminal equipment in addition to the transaction parameters. In the third step 203, the application program sends, to the transaction server, the transaction record, which has been expanded over [that in] the embodiment shown in Figure 1 by the addition of the GUID of the piece of terminal equipment used.

Analogous to the previously described process, the transaction server extracts the participants' pseudonyms from the transaction record and sends them to the notary

server. In addition to the pseudonyms, the GUID, which is contained in the transaction record, is also forwarded to the notary server. The notary server now checks whether received GUID is contained in the record of the first participant 205. If this is not the case, the process is canceled 206. However, if the assignment of the GUID does coincide with the pseudonym of the participant, then process steps 105-107 are performed, analogous to the process shown in Figure 1.

The use of a registered application program prevents unnoticed manipulation of the first participant's pseudonym. As soon as the pseudonym of the first participant has been manipulated, the assignment of the pseudonym to the GUID that is sent does not coincide with the information of the notary server, so that the process is immediately canceled.

Figure 3 shows a flow chart of an embodiment of the inventive process in which the process is expanded by authentication of the participants. The authentication presumes that the participants of the process have [1] an application program that is registered to them.

Process steps 101-104 run identically to those in Figure 1. After the notary server has received the pseudonyms contained in the transaction record from the transaction server, an authentication request is sent to the participants 305. Here it is necessary for every participant to have a registered application program. Moreover, the notary server must be able to communicate with the participants' application programs. For the purpose of authentication, it is possible to send, to the participants' application program, a request that must be manually confirmed by the participants, for example. For example, this request can contain information about [the participants] between whom a transaction should be performed and what transaction parameters have been sent.

[1] German original has: "verführen über", interpreted as "verfügen über" - translator.

If even one participant does not confirm the authentication request 306, the process is canceled 307. However, if all participants confirm the authentication request, the process is continued according to the previously described steps 105-107.

The additional step of requesting authentication allows, for example, a first participant who wants to perform a transaction to the other participants, to wait to confirm his authentication request until he knows that all other participants have also confirmed the authentication request. This can be realized, for example, by the first participant calling the other participants and asking whether an authentication request corresponding to the provided transaction has been received. As soon as this is the case, it is impossible for the transaction that should be performed to be diverted to other persons.

Figure 4 shows a flow chart of an embodiment of the inventive process in which the process is expanded by the additional steps of registration of an application program and the request for authentication.

Process steps 201-204 are analogous to those in Figure 2. As soon as the GUID contained in the transaction record can be uniquely assigned to the pseudonym of the first participant, the notary or transaction server sends an authentication request to the other participants 305. Only after the other participants have been successfully authenticated are process steps 105-107 performed as described in Figure 1. It is also possible for the order of security requests 204 and 305 to be switched. The characteristic feature of this embodiment of the process is that the identity of the first participant is established on the basis of the registration, while the identity of the other participants is established on the basis of the authentication request. This prevents unnoticed manipulation of pseudonyms of the participants of the transaction.

Figures 1-4 omit the encryption of a transaction record by the application program and the subsequent decryption by the transaction server, to make these figures easier to read.

Figure 5 is a flow chart of an inventive process for registration of an application program to a participant.

The first step 501 is installation of the application program on a piece of terminal equipment. This piece of terminal equipment can be, for example, a smartphone, a personal computer, a tablet PC, or something similar. The second step 502 is for the application program to collect pseudonym of the participant that would like to register it. The pseudonym can be collected either while the application program is still being installed or afterwards. The pseudonym itself can be collected, for example, by reading it in from a barcode or reading it out of a storage medium. After the application program collects the participant's pseudonym, it stores it. Then, the application program collects the Globally Unique Identifier of the piece of terminal equipment 503. This identifier is usually stored in the hardware of the piece of terminal equipment. After the pseudonym and GUID have been collected, they are sent to the notary server 504. After the notary server receives the pseudonym and GUID, it identifies the participant on the basis of his pseudonym and asks the participant for additional participant information; this query is done over a communication channel specified by channel information at log-on 504. The corresponding communication channel can be defined by an e-mail address, for example. The participant information can be, for example, the participant's date of birth, address, identification card number, or something similar. Here it is necessary for the participant information to be stored in the participant's record on the notary server at the beginning, when the participant logs on, and that the notary server can assign it to the participant. After the notary server receives the participant information, it checks whether the participant information sent is contained in the record assigned to the pseudonym on the notary server 506. If this is the case, the GUID of the piece of terminal equipment on which the application program was installed is assigned to the record of the pseudonym 507. However, if the participant information is not contained in the record of the pseudonym, the record is discarded and the registration is canceled 508.

Registration of the application program to a participant enables the notary server to send an authentication request to this application program. In the above embodi-

ments this contributes to the security of the process. Registration of the application program also increases the system's user-friendliness, since the pseudonym of the participant to whom the application program is registered does not have to be read in again for every transaction, but rather is automatically added to the transaction record by the application program.

Figure 6 shows a system 600 that allows the performance of a process in accordance with one embodiment of the invention. The essential requirements for performing this process are a notary server 610, a transaction server 620, and the piece of terminal equipment of a participant 630.

The notary server 610 contains a database 611 that stores at least the assignment of pseudonyms to participants and the participants' transaction data. In the case when the pseudonym of a participant is his encrypted record, in accordance with the above embodiment, the notary server also contains means to encrypt and decrypt 612 participants' records. This can be, for example, a processor with an assigned data storage device containing a program code that can be executed by the processor and that contains instructions that can be executed by the computer, these instructions being tailored to encrypt and decrypt a record in accordance with a certain encryption process.

The transaction server 620 contains means to initiate a transaction 621, which in the case of a financial transaction, for example, can be a communications connection with a bank. For the case in which the transaction records are encrypted by the application program to increase the security of the process, the transaction server 620 also contains means to decrypt 622 the transaction records, which can be done analogous to 612.

A participant's piece of terminal equipment 630 contains a database 631 that stores the participant's pseudonym after an application program has been registered, for example. The participant's piece of terminal equipment 630 also contains a sequence of numbers or characters uniquely identifying the piece of terminal equipment 632, for

example its GUID. In the case when transaction records are supposed to be sent to the transaction server in encrypted form, a participant's piece of terminal equipment 630 also contains means of record encryption 633 that can be executed in an analogous manner to 612. The piece of terminal equipment 630 also contains the application program 634, which is necessary to perform the transactions. This program is able to access the GUID 632, the database 631, and the means of encryption 633. The piece of terminal equipment 630 also contains a sensor 635, which can read participants' pseudonyms. This sensor is coupled to the application program in such a way that they can operate together and the application program can receive information from the sensor.

The piece of terminal equipment 630 and the notary server 610 have communication channels between them that can be used to authenticate a participant 604 and to register an application program to a participant 605. The piece of terminal equipment 630 and the transaction server 620 also have a communication channel between them over which transaction records 603 are sent from the piece of terminal equipment to the transaction server. Since at first the transaction server 620 cannot process pseudonyms, the transaction server 620 and the notary server 610 also have a communications link between them, over which the transaction server 620 can request participants' data 601, following which the notary server 610 can supply the corresponding data 602 to the transaction server 620.

The process described in Figure 4 is explained below on the basis of system 600. It will be assumed that the application program is registered to one of the participants. To make things easier to understand, only one transaction server will be used here. Furthermore, the figure also shows only one piece of participant terminal equipment, which should be considered to represent many pieces of participant terminal equipment.

First, the pseudonyms of the participants of the transaction are collected by sensor 635 and forwarded to the application program 634. In addition, the transaction parameters are collected by the application program 634 and the GUID 632 of the piece

of terminal equipment 630 is collected. The first participant's pseudonym contained in the database 631 is also read out by the application program 634 and added to the transaction record. The record produced in this way, which comprises the pseudonym of the first participant, the pseudonyms of the other participants, the GUID of the piece of terminal equipment, and the transaction parameters, is now encrypted 633. The encrypted transaction record is now sent over communication channel 603 to transaction server 620. The latter decrypts 622 the transaction record. Then, the transaction server extracts, from the transaction record, the pseudonyms of the participants and the GUID of the piece of terminal equipment on which the transaction record was created. Now, the transaction server 620 requests 601 the transaction data belonging to the pseudonyms on the notary server 610. In addition, the previously extracted GUID is also sent to the notary server. The notary server 610 now checks whether the GUID received is stored in the record of the first participant. If this is not the case, the process is canceled, since it must be assumed from this that the application program is being used against the will of the first participant, for example, due to extraction of the application program from the first participant's piece of terminal equipment. However, if the received GUID coincides with the GUID contained in the record of the first participant, an authentication request 604 is sent to the other participants' pieces of terminal equipment 630. If the authentication request is not confirmed by even one participant, then the process is canceled, since it must be assumed from this that the pseudonym of a participant has been manipulated. However, if the authentication request is confirmed by all participants, the notary server assigns to the pseudonyms the corresponding participants with the respective transaction data and sends the participants' transaction data 602 to the transaction server 620. The transaction server now performs the transaction 621, or initiates it, using the previously received transaction parameters.

List of Reference Numbers

601	Request for data
602	Supply of data
603	Sending of a transaction record
604	Authentication
605	Registration
610	Notary server
611	Database
612	Encryption and decryption
620	Transaction server
621	Initiation of a transaction
622	Decryption
630	Piece of terminal equipment of a participant
631	Database
632	GUID
633	Encryption
634	Application program
635	Sensor

METHOD FOR CARRYING OUT TRANSACTIONS

Description

The invention relates to a process for performing transactions among a number of participants.

Many processes for performing transactions, especially for the financial sector, are known from the prior art.

A frequent weak point of these processes is the manipulability of the transaction-limiting data, such as, for example, the bank information of senders and recipients of a transfer. This is especially problematic in the area of online banking, due to the accessibility of the transaction channel, for example, by man-in-the-middle attacks. To prevent these attacks, the use of unique transaction numbers (TAN process) was introduced; these numbers are known only to the person performing the transfer and the financial institution; and they must be sent along with every transaction request. The security of this process against manipulation was further improved by the iTAN or chipTAN schemes, among others; especially the chipTAN scheme is distinguished by discontinuity of media. Here discontinuity of media means that there is a transfer from one medium, for example the Internet, to another medium, for example optical reading of a picture. This reduces the susceptibility of the process to attack, since manipulating the process would require attacking both media.

Payment systems and corresponding processes, and systems for simplifying and authenticating transactions are disclosed in the documents WO 02/19211 A1, EP 1 150 227 A1, WO 2004/036513 A1, and US 2012/0089519 A1, for example.

By contrast, the invention has the goal of creating an improved process for performing transactions.

The goal of the invention is achieved by the features of claim 1. Embodiments of the invention are specified in the dependent claims.

One embodiment of the invention creates a process for performing transactions among a number of participants. Each participant of the transaction is assigned a unique pseudonym. The assignment of the pseudonyms to each participant is stored on a notary server. The notary server also stores the participants' transaction data and uniquely assigns it to them. Carrying out the process also requires an application program and at least one transaction server.

Here transaction data means data that must be known to perform a transaction; otherwise this is impossible. In the case of making a transfer, the transaction data would be, for example, the participants' bank information; in the case of sending a message it would be e-mail addresses, for example. Many transactions have the same transaction data, so this transaction data can be referred to as master data.

A notary server, like a transaction server, is a server computer. The latter does not necessarily have to be a physical entity, but rather can also be completely virtual, for example in the form of a computing unit deployed in a computer network. Such a notary server is preferably designed in such a way that the data stored on it is protected from access by third parties, and is only supplied to a transaction server at the request of the transaction server.

The first step of the process comprises the application program collecting the pseudonym of a first participant. The pseudonym can be collected by manual input or by reading a data storage device, for example. Using a financial transaction as an example, the first participant would be the person making the transfer or the sender. The second step of the process comprises the application program collecting the pseudonyms of any number of other participants. It is preferable for these pseudonyms to be collected in a sensory manner, that is, for example, by reading a magnetic card or optically reading a barcode or QR code. Using a financial transaction as an example, the aforementioned other participants would be the recipients of a transfer. As soon as the application program has collected all participants involved in the transaction, the transaction parameters are sent to the application program. Using a financial transaction as an example once again, the transaction parameters would be

the amount to be transferred or a purpose. Thus, transaction parameters can be different for every transaction, and can be called variable data.

After the participants' pseudonyms and transaction parameters have been collected by the application program, the entire transaction record, comprising precisely these pseudonyms and transaction parameters, is forwarded to at least one transaction server. This forwarding can be done over the Internet, for example, or any other communication channel. As soon as the transaction server receives a transaction record, it extracts from it the participants' pseudonyms and sends them to the notary server. Since the notary server stores the assignment of the pseudonyms to the corresponding participants, it is able to identify the participants on the basis of their pseudonyms. Therefore, the notary server is able to send the participants' transaction data to the transaction server. As soon as the transaction server has received the participants' transaction data, it can either perform or initiate the transaction.

The described embodiment is especially advantageous, since the transaction record contains only the participants' pseudonyms. Thus, it is impossible to manipulate the transaction data, such as, for example, bank information, in the transaction record, except by completely replacing the pseudonyms. However, this presumes that a potential attacker is also registered on the notary server. This makes it easy to identify an attacker. Only the transaction parameters can be manipulated, which, however, generally does not cause any harm, since the transaction participants notice this and can correct it. In the case of a financial transaction, for example, only the amount transferred between the participants could be changed. However, diversion of the payment to a different account would be impossible without revealing the identity of an attacker.

One embodiment of the invention involves assigning a series of pieces of data to each of the participants' pseudonyms. To allow a transaction to be performed, the transaction data of each participant must first be stored. The notary server supplies this data to the transaction server on request, as previously described. In addition to this transaction data, other information is stored that uniquely identifies a participant.

This could be, for example, name, address, birthplace and date of birth, an identification card number, or a combination of this data. The notary server also stores, for each participant, unique channel information that is suitable to specify a communication channel between the notary server and the application program. This could be, for example, the participant's e-mail address.

The previously mentioned data can be collected when a participant registers on the notary server, for example, by having the participant fill out a form with personal data. The entered data is then input into the notary server or read by it. This means that the participants' data is known only to the notary server and is protected from access by others. During the course of registration, the participant's identity can be further verified by checking an identification card, for example.

As was previously mentioned, a unique pseudonym is assigned to every participant. One embodiment of the invention uses the encrypted record of a participant as the [participant's] pseudonym. The encryption key is stored only on the notary server, so that the pseudonym can only be decrypted by the notary server. This does not necessarily require storing the complete record of every participant on the notary server, only the assignment of pseudonyms and keys. This encryption can be done using any process. Furthermore, here it is possible to encrypt the record symmetrically using a one-time pad, so that decryption of the pseudonym without knowledge of the key can be excluded. Since the pseudonym is encrypted and decrypted by the same entity, the problems associated with communicating the key are eliminated.

One embodiment of the invention uses the QR code of the previously described encrypted record of the participant as the participant's pseudonym. Using the pseudonym in the form of a QR code makes it easier to read the pseudonym later in the process, since a QR code can be optically read with little effort, for example by the camera of a smartphone or a tablet PC.

As was previously described, it is possible to manipulate the transaction parameters contained in a transaction record. However, one embodiment of the invention can

prevent this by having the application software encrypt the transaction record before sending it to the transaction server. The transaction record is then decrypted by the transaction server. Suitable selection of the encryption process can tailor the security of the previously described process to the security requirements in each case.

One embodiment of the invention allows the encryption type and the key used to be individualized for every transaction type or even every transaction. The encryption processes used here can be symmetric, asymmetric, or even hybrid. It is also possible to encrypt only part of a transaction record. This makes it possible to protect critical transaction parameters such as, for example, the amount of a transfer or secret information, while uncritical transaction parameters such as, for example, an accompanying text, do not have to be encrypted.

One embodiment of the invention performs a transaction only when at least some of the participants of the transaction have been authenticated by the transaction server or the notary server. It is preferable for the participants to be authenticated only after a transaction record is received by a transaction server. The fact that the participants of the transaction have been authenticated by the transaction or notary server ensures that the participants' pseudonyms contained in the transaction record have not been replaced before the transaction is performed. Thus, in this embodiment, replacement of the pseudonyms would be recognized no later than when the participants are authenticated.

One embodiment of the invention authenticates the participants using application programs registered to each participant and additionally using a time window of validity for a transaction record. In this embodiment it is preferable for each participant to have his own application program assigned to him, and for the assignment of application programs to the participants to be stored on the notary server. Now if a transaction record should be sent to a transaction server, a time window of validity is first defined for this transaction record. The transaction record is then processed by a transaction server only if the point in time of processing falls within the time window of validity. To accomplish this, the application program inserts a time stamp into the

transaction record. This documents the point in time at which the transaction record was created.

Now if a transaction server receives a transaction record, it checks whether the current time is within the time window of validity, taking into consideration the time stamp of the transaction record. If this is the case, the participants' application program(s) ask for confirmation of the transaction request. This request can be sent either by the transaction server or by the notary server. A confirmation request can involve, for example, the transaction or notary server causing the participant's application program to open a popup window that informs the participant that a transaction request has been received. It is then possible to confirm or decline this transaction request. A transaction is performed only once all requested confirmations have been received.

If the point in time when a transaction record is processed is outside the time window of validity, the transaction server discards the transaction record. This prevents the transaction records being held back for later processing. Authentication of the participants also prevents a transaction being sent to the wrong recipient. For example, the sender can, for his part, wait with his confirmation of the transaction request until the recipients have received the request for confirmation. As soon as the recipients have received a request for confirmation, it is certain that the recipients' pseudonyms have not been manipulated.

In one embodiment of the invention, the application program that reads the pseudonyms and to which the transaction parameters are sent is registered to one of the participants. This means that his pseudonym is known to the application program, and need not be reread for every transaction request. If a transaction record is sent from this application program, the pseudonym of the participant to whom the application program was registered is automatically inserted into the transaction record. Furthermore, registration of the application program to the participant allows unique assignment of the application program to this participant by the notary server or also the transaction server. This allows transaction records that are sent from the registered application program to the transaction server to be uniquely assigned to a first participant. This excludes unnoticed manipulation of the pseudonym of the first participant.

In the embodiment described below, the registration of an application program to a participant can also contain an assignment of the application program to a piece of terminal equipment. This can prevent the application program being extracted from the participant's piece of terminal equipment and being used on another piece of terminal equipment against the will of the participant.

In one embodiment of the invention, registration of an application program to a participant comprises the following steps:

First, the application program reads the pseudonym of the participant to whom the application program should be registered in a sensory manner. This can alternatively be done during installation of the application program or afterwards. Then, the application program determines a parameter that uniquely identifies the piece of terminal equipment on which the application program is installed. For example, this can be the Globally Unique Identifier (GUID) of the piece of terminal equipment, which is usually stored in the hardware of the piece of terminal equipment. Then, the application program sends the pseudonym of the participant to whom the application program should be registered and the uniquely identifying parameter of the piece of terminal equipment to the notary server. However, before this data is stored on the notary server, it must first be verified that the participant who wants to register the application software installation to a pseudonym also really is the participant who is assigned this pseudonym on the notary server. To accomplish this, a piece of participant information that can be uniquely assigned to the participant by the notary server is sent to the notary server in addition to the already mentioned data. This can be, for example, a security question, a piece of personal information contained in the participant's record, or also an arbitrary number that was generated when the participant logged on to the notary server and is known only to the participant and the notary server. When the notary server receives a registration request, it checks whether the participant information sent is contained in the record of the participant to whom the pseudonym is assigned. If this is the case, information about the piece of terminal equipment on which an application program installation was registered is additionally added to the participant's record.

One embodiment of the invention presents a system comprising at least one transaction server and one notary server. In this embodiment, a transaction server is adapted to read transaction records comprising transaction parameters and participants' pseudonyms, and to perform and/or initiate a corresponding transaction. The notary server contains records of the participants of the process; these records comprise the following information:

- The pseudonym of a participant;
- Data uniquely identifying the participant;
- Transaction data of the participant;

the notary server supplies the transaction-relevant data belonging to a pseudonym contained in the transaction record to the transaction server at its request.

In one embodiment of the invention, the previously described system also comprises a piece of terminal equipment of a participant, the participant's piece of terminal equipment having an application program installed on it that allows the previously described process to be performed.

In one embodiment of the invention, the notary server of the previously described system is adapted to assign the piece of terminal equipment on which the application program is installed to a unique participant.

One embodiment of the invention presents a computer program product that is adapted to perform the previously described process steps.

Embodiments of the invention are explained in detail below with reference to the drawings. The figures are as follows:

Figure 1 Flow chart of an inventive process;

Figure 2 Flow chart of an inventive process with a registered application program;

Claims

1. Process for performing transactions among a number of participants, in which every participant has a unique pseudonym assigned to him, in which a participant's pseudonym comprises his encrypted transaction data, a participant's transaction data being transaction-limiting data, without knowledge of which a transaction cannot be performed and which remains the same for every transaction of the participant, in which the assignment of a pseudonym to a participant, and the key required to decrypt the transaction data are stored in the form of a participant record on a notary server (610), the process comprising supplying an application program (634) installed on a piece of terminal equipment (630) of a first participant and at least one transaction server (620), the application program (634) being registered to the first participant (605), so that his pseudonym is known to the application program (634), a parameter (632) uniquely identifying the first participant's piece of terminal equipment (630) being contained in the first participant's record, the application program being able to determine the parameter (632) uniquely identifying the first participant's piece of terminal equipment (630), the process comprising the following steps:

- Optical reading, by the application program (634), of a QR code containing the pseudonym of a second participant;

- Collection of transaction parameters by the application program (634);

- Sending (603) the pseudonyms of the first and second participant, the transaction parameters, and the parameter (632) uniquely identifying the piece of terminal equipment (630) from the application program (634) to a transaction server (620) over the Internet;

- Sending (601) the pseudonyms and the parameter (632) uniquely identifying the piece of terminal equipment (630) from the at least one transaction server (620) to the notary server (610);

- Identification of the participants by the notary server on the basis of the pseudonyms (610);

- Checking whether the parameter (632) uniquely identifying the piece of terminal equipment (630) is contained in the first participant's record;

- If the parameter (632) uniquely identifying the piece of terminal equipment (630) is contained in the first participant's record, decryption of the transaction contained in the participants' pseudonym;

- Sending (602) the participants' transaction data to the at least one transaction server (620) by the notary server (610);

- Performance, by the at least one transaction server (620), of the transaction between the first participant and the at least one other participant on the basis of the transaction parameters.

2. The process described in claim 1, in which transaction parameters are data that are different for every transaction of the participant and are not transaction-limiting.

3. The process described in claim 1, in which the parameter uniquely identifying the piece of terminal equipment is a parameter that is stored in the hardware of the piece of terminal equipment.

4. The process described in claim 1, in which the following data is assigned to the pseudonym of the first and second participant:

- Information uniquely identifying the participant;

- channel information uniquely assigned to the participant to specify a communication channel between the notary server (610) and the application program (634);

- The participant's transaction data;

the data being stored on the notary server (610) with the assigned pseudonym.

5. The process described in claim 1, in which at least part of the transaction record (603) comprising the pseudonyms of the participants and the transaction parame-

ters, is encrypted by the application program (634) before being sent from the application program (634) to the at least one transaction server (620), and is decrypted again by the at least one transaction server (620) after the transaction record (603) is received.

6. The process described in claim 5, in which every type of transaction and/or every transaction itself is assigned an encryption method or key used for encryption of the transaction record (603).

7. The process described in claim 1, in which a transaction is only performed if the at least one other participant or all other participants involved have been authenticated (604) by a transaction server (620) and/or a notary server (610) after a transaction server (620) receives a transaction record (603).

8. The process described in claim 7, in which every participant has at least one application program (634) that is registered to the respective participant, the authentication (604) of the at least one other participant comprising the following steps:

- Establishment of a time window of validity for a transaction record (603);

- Insertion of a time stamp into the transaction record (603) by the application program (634),

- Checking, by the transaction server (620), whether the receipt and/or processing of the transaction record (603) by the transaction server (620) falls within the time window of validity of the transaction record (603);

- If this is the case: requesting confirmation of the transaction request through the application program (634) of the at least one other participant;

- If this is not the case: discarding the transaction record (603).

9. The process described in claim 1, in which the registration (605) of the application program (634) to a participant comprises the following steps:

- Sensory collection of the participant's pseudonym by the application program (634);

- Determination of a parameter (632) uniquely identifying the piece of terminal equipment (630) on which the application program (634) is installed;

- Sending the participant's pseudonym and the parameter (632) uniquely identifying the piece of terminal equipment (630) to the notary server (610);

- Sending to the notary server (610) a piece of participant information that is uniquely assigned to the participant by the notary server (610);

- Checking, by the notary server (610), whether the information that is assigned to the participant is contained in the record to which the participant's pseudonym is assigned.

10. System for performing transactions among a number of participants, the system comprising at least one transaction server (620) and one notary server (610) and a piece of terminal equipment of a first participant, in which every participant has a unique pseudonym assigned to him, in which a participant's pseudonym comprises his encrypted transaction data, a participant's transaction data being transaction-limiting data, without knowledge of which a transaction cannot be performed and which remains the same for every transaction of the participant, in which the assignment of a pseudonym to a participant, and the key required to decrypt the transaction data are stored in the form of a participant record on a notary server (610), an application program (634) being installed on the piece of terminal equipment (630) of the first participant and at least one transaction server (620), the application program (634) being registered to the first participant (605), so that his pseudonym is known to the application program (634), a parameter (632) uniquely identifying the first participant's piece of terminal equipment (630) being contained in the first participant's record, the application program being able to determine the parameter (632) uniquely identifying the first participant's piece of terminal equipment (630), the application program (634) being installed on the piece of terminal equipment (630) of the first participant being adapted to:

- Optically acquire a QR code containing the pseudonym of the second participant.

- Acquire transaction parameters,

- Sending the pseudonyms of the first and second participant, the transaction parameters, and the parameter (632) uniquely identifying the piece of terminal equipment (630) to a transaction server (620) over the Internet,

wherein the transaction server (620) is adapted to send the pseudonyms and the parameter (632) uniquely identifying the piece of terminal equipment (630) to the notary server (610), wherein the notary server is adapted to:

- identify the participants on the basis of the pseudonyms (610),

- check whether the parameter (632) uniquely identifying the piece of terminal equipment (630) is contained in the first participant's record,

- if the parameter (632) uniquely identifying the piece of terminal equipment (630) is contained in the first participant's record, decrypt of the transaction contained in the participants' pseudonym, and

- send the participants' transaction data to the at least one transaction server (620);

wherein the transaction server (620) is adapted to execute the transaction between the first participant and the at least one other participant on the basis of the transaction parameters.

11. Computer program product that is adapted to perform the previously described process steps in any one of claims 1-9.

Figure 1

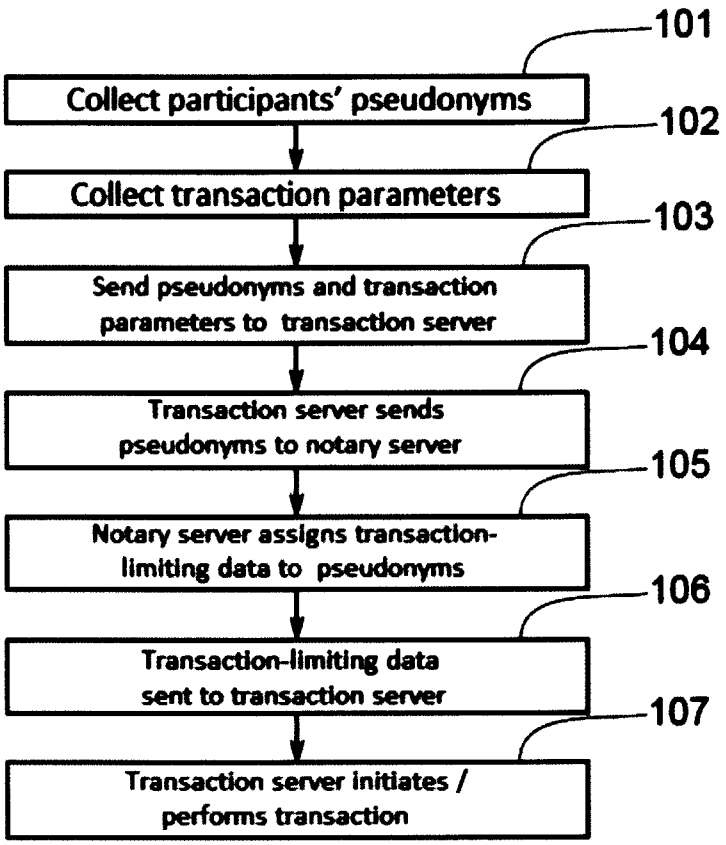

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Figure 2

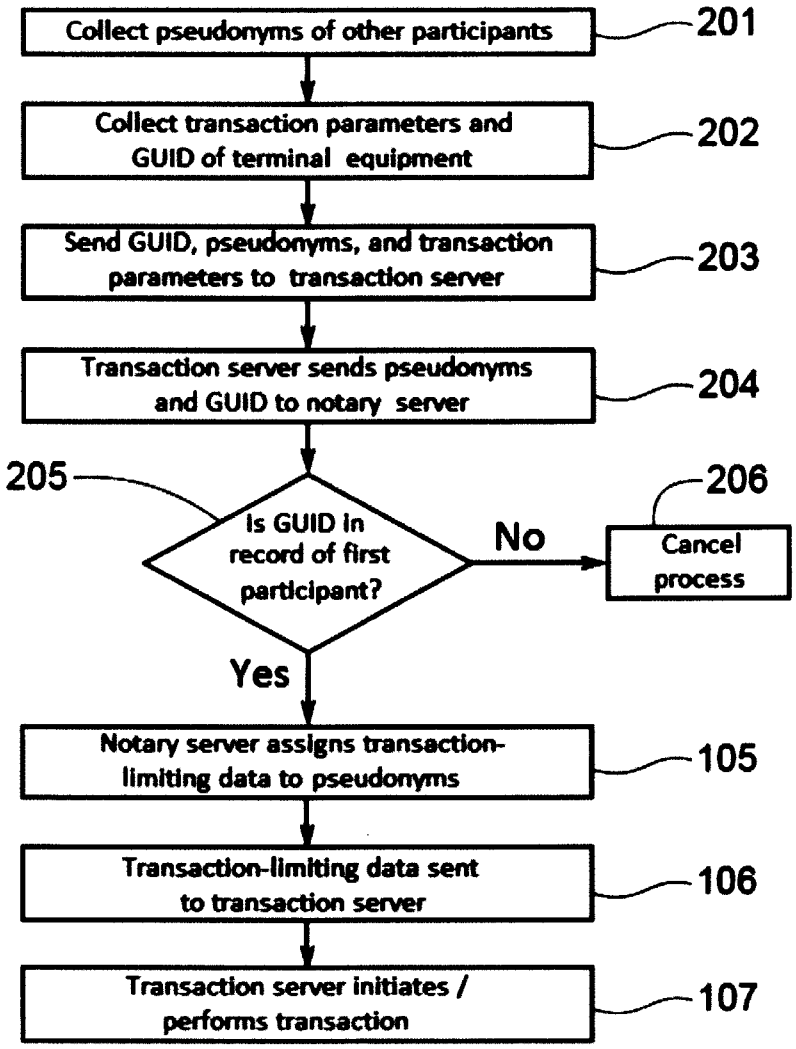

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Figure 3

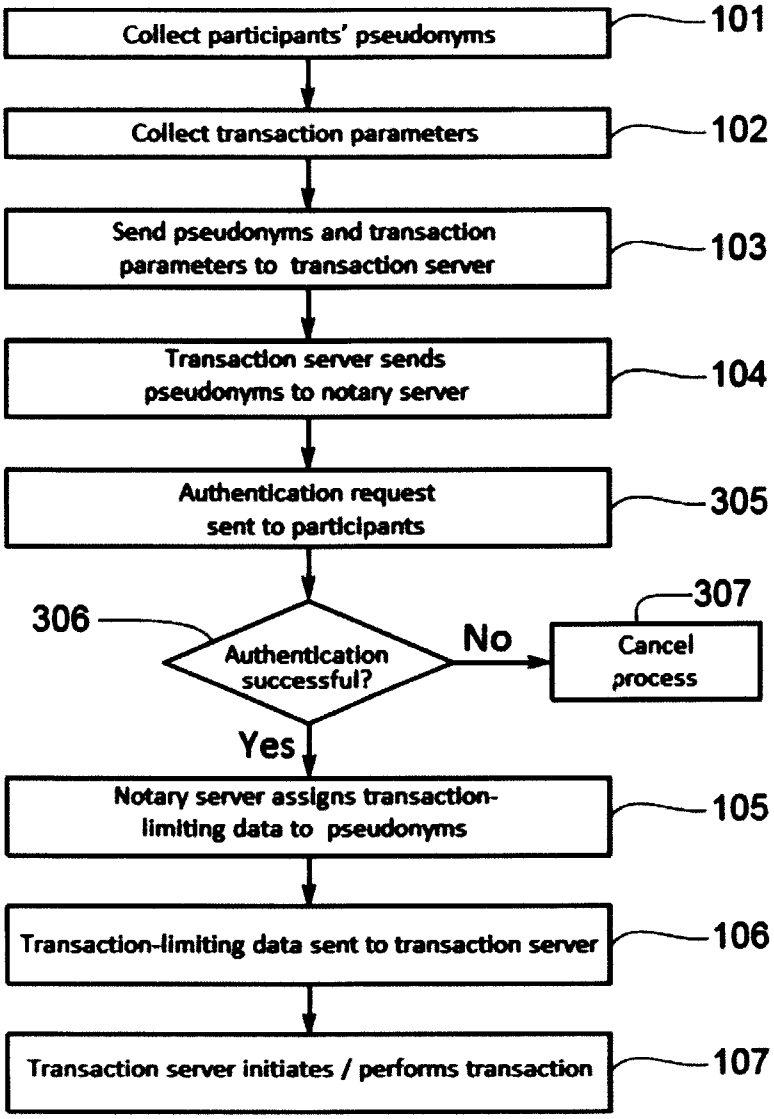

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Figure 4

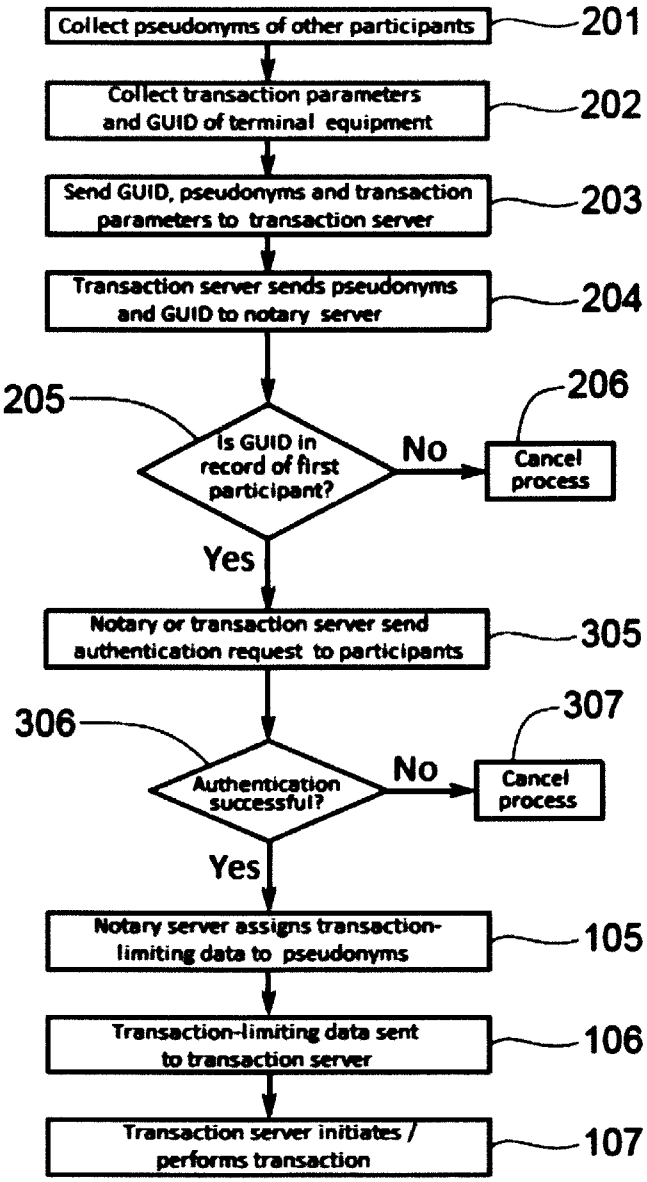

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Figure 5

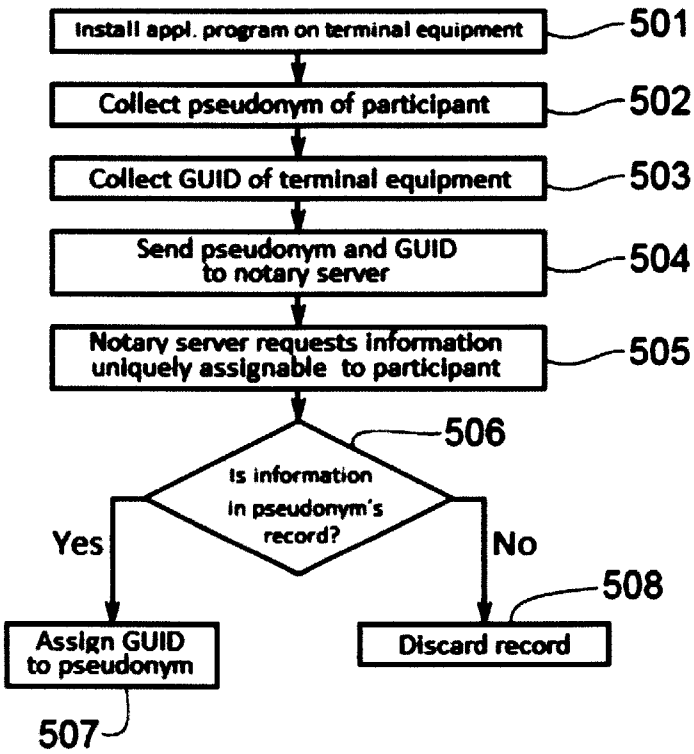

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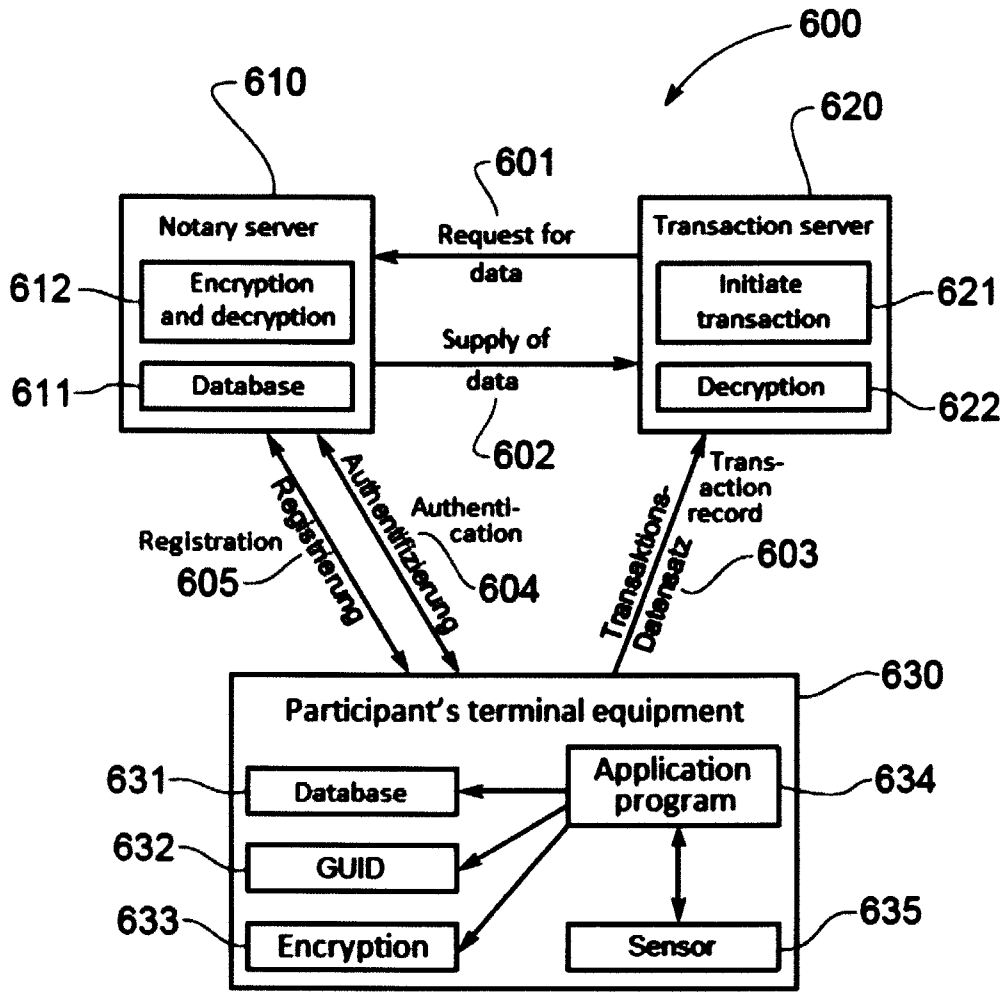
Figure 6



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