as well as telecommunication networks. In particular, electronic devices may include personal computers, laptop computers, mobile phones including both feature and smart phones, tablets, smart watches and other personal digital assistants.

Similarly the term "transactional infrastructure" should be interpreted to include any electronic devices configured to conduct, or assist in the conducting of financial transactions and may include transaction servers, on-site or cloud based, transaction server networks as well as any electronic device referred to above.

The preceding discussion of the background to the invention is intended only to facilitate an understanding of the present invention. It should be appreciated that the discussion is not an acknowledgment or admission that any of the material referred to was part of the common general knowledge in the art as at the priority date of the application.

SUMMARY OF THE INVENTION

In accordance with a first aspect of the present invention, there is provided a system for conducting electronic payment transactions between transaction initiators and transaction responders, the system comprising a server system in communication with transactional infrastructure of the transaction initiators and transaction responders, the server system including:

a plurality of transaction controller instances in communication with a master control server, each transaction controller instance comprising:

a transaction initiation component for receiving a transaction initiation request from the transactional infrastructure of a transaction initiator, the transaction initiation request including a transaction initiator identifier and parameters of a transaction to be concluded between the transaction initiator and one or more transaction responders, the transaction initiation request excluding any transaction responder specific information, and the parameters including one or more transaction attributes representing rules applicable to the transaction;

a token generation component for creating a first, responder independent, token representing the transaction, the token excluding any transaction responder specific information and including the one or more attributes;

a storage component for storing the first token and transaction parameters in a database associated with the transaction controller instance;

a communication component for communicating the first token to the transactional infrastructure of the transaction initiator;

a transaction response component for receiving a transaction response request from the transactional infrastructure of at least one transaction responder, the transaction response request including a responder identifier and a second token;

a token comparator component for comparing the first and second tokens; and

a transaction settlement component for settling the transaction between the transaction initiator and transaction responder if the first and second tokens are found by the token comparator to correspond;

wherein at least the transaction responders are consumer communities or organizations enrolled for use of the system.

Transaction parameters may include one or more of a transaction amount, transaction reference, transaction alive time period, pre-authorisation limit, multiple responder indicator, multiple responder alive time period, overpayment allowed indicator, extra payment allowed indicator, extra payment alive time period, underpayment allowed indicator, underpayment percentage variance, underpayment alive time period and responder or consumer identifier.

Yet further features of this disclosure provide for the server system to include a transaction initiator and responder enrolment component for enrolling transaction initiators and responders for use of the system; for the enrolment component to facilitate compilation of custom software installable components for transaction initiators and responders during the enrolment process; and for each instance of custom software installable components to include at least an IP address, MAC address, derivative encryption key and transaction initiator or responder, as the case may be, identifier for the applicable transaction initiator or responder.

In accordance to a second aspect of the present invention, there is provided a system for conducting electronic payment transactions between transaction initiators and transaction responders, the system comprising a transaction server of a transaction initiator in communication with a server system of a transaction controller, the transaction server including:

a transaction initiation component for compiling a transaction initiation request including a transaction initiator identifier and parameters of a transaction to be concluded between the transaction initiator and one or more transaction responders, the transaction initiation request excluding any transaction responder specific information, and the parameters including one or more transaction attributes representing rules applicable to the transaction;

a communication component for communicating the transaction initiation request to the server system of the transaction controller;

a token receiving component for receiving a first, responder independent, token representing the transaction, from the server system of the transaction controller, the token excluding any transaction responder specific information and including the one or more attributes;

a token conveying component for conveying the first token to a consumer for onward transmission by the consumer to the transaction controller over an independent communication channel; and

a transaction result component for receiving a transaction result from the server system of the transaction controller;

wherein at least the transaction responders are consumer communities or organizations enrolled for use of the system.

In accordance to a third aspect of the present invention, there is provided a method for conducting electronic payment transactions between transaction initiators and transaction responders, the method being conducted at a transaction controller instance forming part of a

server system including a plurality of transaction controller instances in communication with a master control server and comprising the steps of:

receiving, at a transaction initiation component of the transaction controller instance, a transaction initiation request from transactional infrastructure of a transaction initiator, the transaction

initiation request including a transaction initiator identifier and parameters of a transaction to be concluded between the transaction initiator and one or more transaction responders, the transaction initiation request excluding transaction responder specific information, and the parameters including one or more transaction attributes representing rules applicable to the transaction;

creating, by way of a token generation component of the transaction controller instance, a first, responder independent, token representing the transaction, the token excluding any transaction responder specific information and including the one or more attributes;

storing the first token and transaction parameters in a database associated with the transaction controller instance;

communicating, by way of a communication component of the transaction controller instance, the first token to the transactional infrastructure of the transaction initiator;

receiving, by way of a transaction response component of the transaction controller instance, a transaction response request from the transactional infrastructure of at least one transaction responder, the transaction response request including a responder identifier and a second token;

comparing, by way of a token comparator component of the server system, the first and second tokens; and

settling, by way of a transaction settlement component of the server system, the transaction between the transaction initiator and transaction responder if the first and second tokens are found by the token comparator to correspond,

wherein at least the transaction responders are consumer communities or organizations enrolled for use of the system.

Further features of this disclosure provide for the method to include the steps of customising and deploying an interface component to the architectural infrastructure of each of the transaction initiators and transaction responders, the interface component providing user interfaces enabling, amongst others, transaction initiators to communicate transaction initiation requests to the transaction initiation component, and transaction responders to communicate transaction response requests to the transaction response component; and encrypting and decrypting communication between the server system and interface components by way of an encryption/decryption component.

Still further features of this disclosure provide for the method to include the steps of, responsive to the first and second tokens being found by the token comparator to correspond, compiling a payment confirmation message by way of a payment confirmation component, the payment

confirmation message including at least some of the parameters of the transaction to be concluded; forwarding the payment confirmation message to the encryption/decryption component of the server system for encryption and onward transmission to the interface component of the transaction responder corresponding to the responder identifier included in the second token; receiving a payment confirmation or rejection message from the interface component of the transaction responder, the payment confirmation or rejection message including the transaction responder's confirmation or rejection of the transaction; and compiling and transmitting a transaction approval messages to the interface components of the

transaction initiator and responder transactional infrastructure if the payment confirmation or rejection messaged includes a confirmation of the transaction.

In accordance to a fourth aspect of the present invention, there is provided a method for conducting electronic payment transactions between transaction initiators and transaction responders, the method being conducted at a transaction server of a transaction initiator and including the steps of:

compiling, by way of a transaction initiation component of the transaction server, a transaction initiation request including a transaction initiator identifier and parameters of a transaction to be concluded between the transaction initiator and one or more transaction responders, the transaction initiation request excluding any transaction responder specific information, and the parameters including one or more transaction attributes representing rules applicable to the transaction;

transmitting, by way of a communication component, the transaction initiation request to a server system of a transaction controller;

receiving a first, responder independent, token representing the transaction, from the server system of the transaction controller, the token excluding any transaction responder specific information and including the one or more attributes;

conveying, by way of a token conveying component of the transaction server, the first token to a consumer for onward transmission by the consumer to the transaction controller over an independent communication channel; and

receiving, by way of a transaction result component, a transaction result from the server system of the transaction controller,

wherein at least the transaction responders are consumer communities or organizations enrolled for use of the system.

In accordance to a fifth aspect of the present invention, there is provided a computer program product for conducting electronic payment transactions between transaction initiators and transaction responders, the computer program product comprising a computer readable storage medium having computer-readable program code configured to carry out the steps of: receiving, at a transaction controller instance forming part of a server system including a plurality of transaction controller instances in communication with a master control server, a transaction initiation request from transactional infrastructure of a transaction initiator, the transaction initiation request including a transaction initiator identifier and parameters of a transaction to be concluded between the transaction initiator and one or more transaction responders, the transaction initiation request excluding any transaction responder specific information, and the parameters including one or more transaction attributes representing rules applicable to the transaction; creating a first, responder independent, token representing the transaction, the

token excluding any transaction responder specific information and including the one or more attributes; storing the first token and transaction parameters in a database associated with the transaction controller instance; communicating the first token to the transactional infrastructure of the transaction initiator; receiving a transaction response request from transactional infrastructure of at least one transaction responder, the transaction response request including a responder identifier and a second token; comparing the first and second tokens; and settling the transaction between the transaction initiator and transaction responder if the first and second tokens are found by the token comparator to correspond, wherein at least the transaction responders are consumer communities or organizations enrolled for use of the system.

In accordance to a sixth aspect of the present invention, there is provided a computer program product for conducting electronic payment transactions between transaction initiators and transaction responders, the computer program product comprising a computer readable storage medium having computer-readable program code configured to carry out the steps of: compiling a transaction initiation request including a transaction initiator identifier and parameters of a transaction to be concluded between the transaction initiator and one or more transaction responders, the transaction initiation request excluding any transaction responder specific information, and the parameters including one or more transaction attributes representing rules applicable to the transaction; transmitting the transaction initiation request to a server system of a transaction controller; receiving a first, responder independent, token representing the transaction, from the server system of the transaction controller, the token excluding any transaction responder specific information and including the one or more attributes; conveying the first token, in printed, electronic or other format, to a consumer, for onward transmission by the consumer to the transaction controller over an independent communication channel; and receiving a transaction result from the server system of the transaction controller, wherein at least the transaction responders are consumer communities or organizations enrolled for use of the system.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will now be described, by way of example only, with reference to the accompanying representations in which:

Figure 1 is a schematic illustration of an embodiment of a system for conducting electronic payment transactions according to the technology;

Figure 2 is a schematic illustration of the communication flow between transaction initiators and responders, and a transaction controller according to the technology;

Figure 3 is a swim-lane flow diagram illustrating a method for conducting electronic payment transactions according to the technology;

Figure 4 is a block diagram illustrating components or modules of a server system (transaction controller) used in the system of Figure 1;

Figure 5 is a schematic illustration of an alternative embodiment of a system according to the technology, in which multiple responders may respond to the same transaction initiation request;

Figure 6 is a swim-lane flow diagram illustrating enrolment of a transaction initiator or responder with a transaction controller according to the technology;

CLAIMS:

1. A system for conducting electronic payment transactions between transaction initiators and transaction responders, the system comprising a server system in communication with transactional infrastructure of the transaction initiators and transaction responders, the server system including:

a plurality of transaction controller instances in communication with a master control server, each transaction controller instance comprising:

a transaction initiation component for receiving a transaction initiation request from the transactional infrastructure of a transaction initiator, the transaction initiation request including a transaction initiator identifier and parameters of a transaction to be concluded between the transaction initiator and one or more transaction responders, the transaction initiation request excluding any transaction responder specific information, and the parameters including one or more transaction attributes representing rules applicable to the transaction;

a token generation component for creating a first, responder independent, token representing the transaction, the token excluding any transaction responder specific information and including the one or more attributes;

a storage component for storing the first token and transaction parameters in a database associated with the transaction controller instance;

a communication component for communicating the first token to the transactional infrastructure of the transaction initiator;

a transaction response component for receiving a transaction response request from the transactional infrastructure of at least one transaction responder, the transaction response request including a responder identifier and a second token;

a token comparator component for comparing the first and second tokens; and

a transaction settlement component for settling the transaction between the transaction initiator and transaction responder if the first and second tokens are found by the token comparator to correspond;

wherein at least the transaction responders are consumer communities or organizations enrolled for use of the system.

2. The system as claimed in claim 1, which includes an interface component customised for and deployed to the architectural infrastructure of each of the transaction initiators

and transaction responders, the interface component providing user interfaces enabling transaction initiators to communicate transaction initiation requests to the transaction initiation component, and transaction responders to communicate transaction response requests to the transaction response component.

3. The system as claimed in claim 2, wherein each interface component and the server system have data encryption/decryption components associated therewith for encrypting and decrypting communication between the server system and interface components.

4. The system as claimed in claim 3, wherein the encryption/decryption components of each interface component has a derivative encryption key derived from a master

encryption key known only to the encryption/decryption component of the server system, associated therewith.

5. The system as claimed in claim 3, wherein the encryption/decryption components of the server system and interface components conduct asymmetric and/or Triple Data Encryption Algorithm (TDEA) encryption on data communicated between the server system and transactional infrastructure of the transaction initiators and transaction responders.

6. A system as claimed in claim 3, wherein the server system includes a payment confirmation component for:

responsive to the first and second tokens being found by the token comparator to correspond, compiling a payment confirmation message including at least some of the parameters of the transaction to be concluded;

forwarding the payment confirmation message to the encryption/decryption component of the server system for encryption and onward transmission to the interface component of the transaction responder corresponding to the responder identifier included in the transaction response request;

receiving a payment confirmation or rejection message from the interface component of the transaction responder, the payment confirmation or rejection message including the transaction responder's confirmation or rejection of the transaction; and

compiling and transmitting transaction approval messages to the interface components of the transaction initiator and responder transactional infrastructure if the payment confirmation or rejection message includes a confirmation of the transaction.

7. A system as claimed in claim 1, wherein the server system includes a transaction initiator and responder enrolment component for enrolling transaction initiators and responders for use of the system.

8. A system as claimed in claim 7, wherein the enrolment component facilitates compilation of custom software installable components for transaction initiators and responders during the enrolment process.

9. A system as claimed in claim 8, wherein each instance of custom software installable components includes at least an IP address, MAC address, derivative encryption key and transaction initiator or responder identifier for the applicable transaction initiator or responder.

10. A system for conducting electronic payment transactions between transaction initiators and transaction responders, the system comprising a transaction server of a transaction initiator in communication with a server system of a transaction controller, the transaction server including:

a transaction initiation component for compiling a transaction initiation request including a transaction initiator identifier and parameters of a transaction to be concluded between the transaction initiator and one or more transaction responders, the transaction initiation request excluding any transaction responder specific information, and the parameters including one or more transaction attributes representing rules applicable to the transaction;

a communication component for communicating the transaction initiation request to the server system of the transaction controller;

a token receiving component for receiving a first, responder independent, token representing the transaction, from the server system of the transaction controller, the token excluding any transaction responder specific information and including the one or more attributes;

a token conveying component for conveying the first token to a consumer for onward transmission by the consumer to the transaction controller over an independent communication channel; and

a transaction result component for receiving a transaction result from the server system of the transaction controller;

wherein at least the transaction responders are consumer communities or organizations enrolled for use of the system.

11. A method for conducting electronic payment transactions between transaction initiators and transaction responders, the method being conducted at a transaction controller instance forming part of a server system including a plurality of transaction controller instances in communication with a master control server and comprising the steps of:

receiving, at a transaction initiation component of the transaction controller instance, a transaction initiation request from transactional infrastructure of a transaction initiator, the transaction initiation request including a transaction initiator identifier and parameters of a transaction to be concluded between the transaction initiator and one or more transaction responders, the transaction initiation request excluding transaction responder specific information, and the parameters including one or more transaction attributes representing rules applicable to the transaction;

creating, by way of a token generation component of the transaction controller instance, a first, responder independent, token representing the

transaction, the token excluding any transaction responder specific information and including the one or more attributes;

storing the first token and transaction parameters in a database associated with the transaction controller instance;

communicating, by way of a communication component of the transaction controller instance, the first token to the transactional infrastructure of the transaction initiator;

receiving, by way of a transaction response component of the transaction controller instance, a transaction response request from the transactional infrastructure of at least one transaction responder, the transaction response request including a responder identifier and a second token;

comparing, by way of a token comparator component of the server system, the first and second tokens; and

settling, by way of a transaction settlement component of the server system, the transaction between the transaction initiator and transaction responder if the first and second tokens are found by the token comparator to correspond,

wherein at least the transaction responders are consumer communities or organizations enrolled for use of the system.

12. The method as claimed in claim 11, which includes the steps of customising and deploying an interface component to the architectural infrastructure of each of the transaction initiators and transaction responders, the interface component providing user interfaces enabling transaction initiators to communicate transaction initiation requests to the transaction initiation component, and transaction responders to communicate transaction response requests to the transaction response component.

13. The method as claimed in claim 11, which includes the step of encrypting and decrypting communication between the server system and interface components by way of an encryption/decryption component.

14. The method as claimed in claim 13, which includes the steps of, responsive to the first and second tokens being found by the token comparator to correspond, compiling a payment confirmation message by way of a payment confirmation component, the payment confirmation message including at least some of the parameters of the transaction to be concluded; forwarding the payment confirmation message to the encryption/decryption component of the server system for encryption and onward transmission to the interface component of the transaction responder corresponding to the responder identifier included in the transaction response request; receiving a payment confirmation or rejection message from the interface component of the transaction responder, the payment confirmation or rejection message including the transaction responder's confirmation or rejection of the transaction; and compiling and transmitting a transaction approval messages to the interface components of the transaction initiator and responder transactional infrastructure if the payment confirmation or rejection messaged includes a confirmation of the transaction.

15. A method for conducting electronic payment transactions between transaction initiators and transaction responders, the method being conducted at a transaction server of a transaction initiator and including the steps of:

compiling, by way of a transaction initiation component of the transaction server, a transaction initiation request including a transaction initiator identifier and parameters of a transaction to be concluded between the transaction initiator and one or more

transaction responders, the transaction initiation request excluding any transaction responder specific information, and the parameters including one or more transaction attributes representing rules applicable to the transaction;

transmitting, by way of a communication component, the transaction initiation request to a server system of a transaction controller;

receiving a first, responder independent, token representing the transaction, from the server system of the transaction controller, the token excluding any transaction responder specific information and including the one or more attributes;

conveying, by way of a token conveying component of the transaction server, the first token to a consumer for onward transmission by the consumer to the transaction controller over an independent communication channel; and

receiving, by way of a transaction result component, a transaction result from the server system of the transaction controller,

wherein at least the transaction responders are consumer communities or organizations enrolled for use of the system.

16. A computer program product for conducting electronic payment transactions between transaction initiators and transaction responders, the computer program product comprising a computer readable storage medium having computer-readable program code configured to carry out the steps of: receiving, at a transaction controller instance forming part of a server system including a plurality of transaction controller instances in communication with a master control server, a transaction initiation request from transactional infrastructure of a transaction initiator, the transaction initiation request including a transaction initiator identifier and parameters of a transaction to be concluded between the transaction initiator and one or more transaction responders, the transaction initiation request excluding any transaction responder specific information, and the parameters including one or more transaction attributes representing rules applicable to the transaction; creating a first, responder independent, token representing the transaction, the token excluding any transaction responder specific information and including the one or more attributes; storing the first token and transaction parameters in a database associated with the transaction controller instance; communicating the first token to the transactional infrastructure of the transaction initiator; receiving a transaction response request from transactional infrastructure of at least one transaction responder, the transaction response request including a responder identifier and a second token; comparing the first and second tokens; and settling the transaction between the transaction initiator and transaction responder if the first and second tokens are found by the token comparator to correspond, wherein at least the transaction responders are consumer communities or organizations enrolled for use of the system.

17. A computer program product for conducting electronic payment transactions between transaction initiators and transaction responders, the computer program product comprising a computer readable storage medium having computer-readable program code configured to carry out the steps of: compiling a transaction initiation request including a transaction initiator identifier and parameters of a transaction to be concluded between the transaction initiator and one or more transaction responders, the transaction initiation request excluding any transaction responder specific information, and the parameters including one or more transaction attributes representing rules applicable to the transaction; transmitting the transaction initiation request to a server system of a transaction controller; receiving a first, responder independent, token representing the transaction, from the server system of the transaction controller, the token excluding any transaction responder specific information and including the one or more attributes; conveying the first token, in printed, electronic or other format, to a consumer, for onward transmission by the consumer to

the transaction controller over an independent communication channel; and receiving a transaction result from the server system of the transaction controller, wherein at least the transaction responders are consumer communities or organizations enrolled for use of the system.

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