which facilitates banks and corporations globally to perform and manage cross border transactions.

[0005] Herein disclosed are embodiments of methods and servers for hosting a ledger that addresses one or more of the above problems.

[0006] Furthermore, other desirable features and characteristics will become apparent from the subsequent detailed description and the appended claims, taken in conjunction with the accompanying drawings and this background of the disclosure.

SUMMARY

[0006a] In a first aspect, the present disclosure provides a system comprising a server that executes a ledger in a blockchain network, the server comprising: at least one processor programmed to: receive, from a buyer bank, an authorization to make a payment from the buyer bank to a seller bank, the authorization comprising a data block having a first header representing an invoice digitally signed by the seller bank based on a digital seller identity to indicate a source of the invoice and a second header digitally signed by the buyer bank based on a buyer digital identity to indicate acknowledgement of the invoice; transmit a command that triggers a payment sequence to effect payment from the buyer bank to the seller bank, in response to receipt of the authorization of the payment; receive, from the seller bank, a request for an identity of the buyer bank; generate the invoice for the payment, wherein data in the invoice used to identify a buyer is configured to be mapped to a unique identifier of the buyer and data in the invoice used to identify a seller is configured to be mapped to a unique identifier of the seller, wherein the buyer provides the payment and the seller receives the payment; and respond to the seller bank with the identity of the buyer bank and the generated invoice; generate a header that indicates a progress of the payment sequence digitally sign the header based on a ledger identifier; append the digitally signed header to the data block; update the ledger based on the data block appended with the digitally signed header that indicates the progress of the payment sequence; and communicate with a financial network switch during the payment sequence to effect payment from the buyer bank to the seller bank.

[0006b] In a second aspect, the present disclosure provides a com computer-implemented method for hosting a ledger, the method comprising: receiving, by a processor of a server, from a buyer bank, an authorization to make a payment from the buyer bank to a seller bank,

the authorization comprising a data block having a first header representing an invoice digitally signed by the seller bank based on a digital seller identity to indicate a source of the invoice and a second header digitally signed by the buyer bank based on a buyer digital identity to indicate acknowledgement of the invoice; receiving, from the seller bank, a request for an identity of the buyer bank; generating the invoice for the payment, wherein data in the invoice used to identify a buyer is configured to be mapped to a unique identifier of the buyer and data in the invoice used to identify a seller is configured to be mapped to a unique identifier of the seller, wherein the buyer provides the payment and the seller receives the payment; and responding to the seller bank with the identity of the buyer bank and the generated invoice; transmitting, by the processor, a command that triggers a payment sequence to effect payment from the buyer bank to the seller bank, in response to receipt of the authorization of the payment; generating, by the processor, a header that indicates a progress of the payment sequence digitally signing, by the processor, the header based on a ledger identifier; appending, by the processor, the digitally signed header to the data block; and updating, by the processor, the ledger based on the data block appended with the digitally signed header that indicates the progress of the payment sequence; and communicating with a financial network switch during the payment sequence to effect payment from the buyer bank to the seller bank.

[0007] According to a first ~~aspect~~embodiment, there is provided a server for hosting a ledger, the server comprising: at least one processor; at least one memory including computer program code; the at least one memory and the computer program code configured to, with the at least one processor, cause the ledger at least to: receive, from a buyer bank, authorisation of payment from the buyer bank to a seller bank; transmit a command that triggers a payment sequence to effect payment from the buyer bank to the seller bank, in response to receipt of the authorisation of the payment; and update the ledger on progress of the payment sequence between the buyer bank and the seller bank.

[0008] In an embodiment, the ledger is further configured to, when being updated on the progress of the payment sequence: receive a notification of the payment having been initiated from the buyer bank; indicate that the payment is initiated; receive a notification of a completion of the payment from the buyer bank to the seller bank; and indicate that the payment is completed.

[0009] In an embodiment, the payment is in respect of a transaction and wherein the ledger is further configured to maintain a separate entry for each of a plurality of the transactions.

[0010] In an embodiment, the ledger is further configured to: maintain a separate account for each of the buyer bank and the seller bank, wherein the buyer bank account is accessible by the buyer bank and the seller bank account is accessible by the seller bank.

CLAIMS

What is claimed is:

1. A system comprising

a server ~~for hosting~~that executes a ledger in a blockchain network, the server comprising~~:~~

at least one processor~~;~~

~~at least one memory including computer program code;~~

~~the at least one memory and the computer program code configured to, with the at least one processor, cause the ledger at least~~ programmed to:

receive, from a buyer bank, an authori~~s~~zation ~~of~~ to make a payment from the buyer bank to a seller bank, the authorization comprising a data block having a first header representing an invoice digitally signed by the seller bank based on a digital seller identity to indicate a source of the invoice and a second header digitally signed by the buyer bank based on a buyer digital identity to indicate acknowledgement of the invoice;

transmit a command that triggers a payment sequence to effect payment from the buyer bank to the seller bank, in response to receipt of the authori~~s~~zation of the payment; ~~and~~

receive, from the seller bank, a request for an identity of the buyer bank;

generate the invoice for the payment, wherein data in the invoice used to identify a buyer is configured to be mapped to a unique identifier of the buyer and data in the invoice used to identify a seller is configured to be mapped to a unique identifier of the seller, wherein the buyer provides the payment and the seller receives the payment; and

respond to the seller bank with the identity of the buyer bank and the generated invoice;

~~update the ledger on~~generate a header that indicates a progress of the payment sequence ~~between the buyer bank and the seller bank~~

digitally sign the header based on a ledger identifier;

append the digitally signed header to the data block;

update the ledger based on the data block appended with the digitally signed header that indicates the progress of the payment sequence; and

communicate with a financial network switch during the payment sequence to effect payment from the buyer bank to the seller bank.

2. The ~~server~~ system of claim 1, wherein the ~~ledger~~ processor is further ~~configured~~ programmed to, when being updated on the progress of the payment sequence:

receive a notification of the payment having been initiated from the buyer bank;

indicate that the payment is initiated;

receive a notification of a completion of the payment from the buyer bank to the seller bank; and

indicate that the payment is completed.

3. The ~~server~~ system of claim 1~~ or 2~~, wherein the payment is in respect of a transaction and wherein the ~~ledger~~ processor is further ~~configured~~ programmed to maintain a separate entry for each of a plurality of the transactions.

4. The ~~server~~ system of ~~any one of the preceding claims~~claim 1, wherein the ~~ledger~~ processor is further ~~configured~~ programmed to:

maintain a separate account for each of the buyer bank and the seller bank, wherein the buyer bank account is accessible by the buyer bank and the seller bank account is accessible by the seller bank.

5. The ~~server~~ system of claim 4, wherein the ~~ledger~~ processor is further ~~configured~~ programmed to update the buyer bank account and the seller bank account simultaneously when updating the progress of the payment sequence between the buyer bank and the seller bank.

6. The ~~server~~ system of ~~any one of the preceding claims~~claim 1, wherein the ~~ledger~~ processor is further ~~configured~~ programmed to, before receiving the authori~~s~~zation of the payment:

receive, from the seller bank, a request for an identity of the buyer bank;

generate ~~an~~ the invoice for the payment; and

respond to the seller bank with the identity of the buyer bank and the generated invoice.

7. The ~~server~~ system of claim 6, wherein the ~~server~~ processor is further ~~configured~~ programmed to:

map data in the invoice used to identify a buyer to a unique identifier of the buyer; and

map data in the invoice used to identify a seller to a unique identifier of the seller, wherein the buyer provides the payment and the seller receives the payment.

8. The ~~server~~ system of ~~any one of the preceding claims~~claim 1, wherein the ~~ledger~~ processor is further ~~configured~~ programmed to:

communicate with a financial network switch during the payment sequence to effect payment from the buyer bank to the seller bank.

9. A computer-implemented method for hosting a ledger, the method comprising:

receiving, by a processor of a server, from a buyer bank, an authori~~s~~zation ~~of~~ to make a payment from the buyer bank to a seller bank, the authorization comprising a data block having a first header representing an invoice digitally signed by the seller bank based on a digital seller identity to indicate a source of the invoice and a second header digitally signed by the buyer bank based on a buyer digital identity to indicate acknowledgement of the invoice;

receiving, from the seller bank, a request for an identity of the buyer bank;

generating the invoice for the payment, wherein data in the invoice used to identify a buyer is configured to be mapped to a unique identifier of the buyer and data in the invoice used to identify a seller is configured to be mapped to a unique identifier of the seller, wherein the buyer provides the payment and the seller receives the payment; and

responding to the seller bank with the identity of the buyer bank and the generated invoice;

transmitting, by the processor, a command that triggers a payment sequence to effect payment from the buyer bank to the seller bank, in response to receipt of the authori~~s~~zation of the payment; ~~and~~

~~updating~~ generating, by the ~~ledger~~ processor, a header that indicates ~~on~~ a progress of the payment sequence ~~between the buyer bank and the seller bank~~

digitally signing, by the processor, the header based on a ledger identifier;

appending, by the processor, the digitally signed header to the data block; and

updating, by the processor, the ledger based on the data block appended with the digitally signed header that indicates the progress of the payment sequence; and

communicating with a financial network switch during the payment sequence to effect payment from the buyer bank to the seller bank.

10. The method of claim 9, the method further comprising:

receiving a notification of the payment having been initiated from the buyer bank;

indicating that the payment is initiated;

receiving a notification of a completion of the payment from the buyer bank to the seller bank; and

indicating that the payment is completed.

11. The method of claim 9 ~~or 10~~, wherein the payment is in respect of a transaction and wherein the ledger is further configured to maintain a separate entry for each of a plurality of the transactions.

12. The method of ~~any one of the claims 9 to 11~~claim 9, the method further comprising:

maintaining a separate account for each of the buyer bank and the seller bank, wherein the buyer bank account is accessible by the buyer bank and the seller bank account is accessible by the seller bank.

13. The method of claim 12, wherein the ledger is further configured to update the buyer bank account and the seller bank account simultaneously when updating the progress of the payment sequence between the buyer bank and the seller bank.

~~14. The method of any one of the claims 9 to 13, wherein before the step of receiving the authorisation of the payment, the method further comprises:~~

~~receiving, from the seller bank, a request for an identity of the buyer bank;~~

~~generating an invoice for the payment; and~~

~~responding to the seller bank with the identity of the buyer bank and the generated invoice.~~

~~15. The method of claim 14, wherein data in the invoice used to identify a buyer is configured to be mapped to a unique identifier of the buyer and data in the invoice used to identify a seller is configured to be mapped to a unique identifier of the seller, wherein the buyer provides the payment and the seller receives the payment.~~

~~16. The method of any one of the claims 9 to 15, the method further comprising:~~

~~communicating with a financial network switch during the payment sequence to effect~~