WHAT IS CLAIMED IS:

1. A method performed by a browser server including conveying an indication of a payment instead of a payment instrument of a user to a merchant server during a transaction between a computing device of the user and the merchant server over a network, comprising:

receiving, by the browser server, the payment instrument of the user from the computing device;

performing, by the browser server, a secure handshake with an electronic shopping cart on the merchant server over the network;

receiving, by the browser server from a browser client application of the computing device, user-authenticating data;

retrieving, by the browser server from the computing device, encrypted secure user data;

decrypting by the browser server, the retrieved encrypted secure user data using the user-authenticating data;

authenticating, by the browser server, the user based on the user-authenticating data and the decrypted secure user data;

in response to authenticating the user, transmitting, by the browser server, the indication of the payment to the electronic shopping cart;

processing, by the browser server, the transaction using the payment instrument of the user after transmitting the indication of the payment; and

recording, by the browser server, the transaction in a blockchain in the computing device including the payment instrument of the user.

2. The method of claim 1, further comprising, prior to the retrieving the encrypted secure user data:

encrypting, by the browser client application, the secure user data; and storing, by the browser client application, the encrypted secure user data on the computing device.

3. The method of claim 2, further comprising: storing, by the browser server, the encrypted secure user data in a block of the blockchain.

4. The method of claim 1, wherein recording the transaction in the blockchain comprises:

generating a block of the blockchain, including the payment instrument, an identification of the transaction and an identification of the electronic shopping cart; and

encrypting the block using a key associated with the browser server.

5. The method of claim 1, wherein receiving the user-authenticating data comprises:

receiving biometric data or a personal identification number (PIN) from the browser client application of the computing device.

6. The method of claim 1, wherein processing the transaction comprises:

transmitting an identification of the transaction and at least a portion of the decrypted secure user data to a financial entity.

7. The method of claim 1, wherein transmitting the indication of the payment includes displaying, by the browser client application of the computing device of the user, a selectable payment option, the user interface omitting entry of user account information into the electronic shopping cart.

8. The method of claim 1, wherein recording the transaction in the blockchain comprises:

recording the transaction in a side chain of the blockchain during the transaction;

determining that the transaction has been completed; and

adding the side chain to the blockchain in response to the determining that the transaction has been completed.

9. A system, comprising:

one or more hardware processors; and

a non-transitory memory storing instructions that, when executed by the one or more hardware processors, cause the one or more hardware processors to perform a method including conveying an indication of a payment instead of a payment instrument of a user to a merchant server during a transaction between a computing device of the user and the merchant server over a network, the method comprising:

receiving the payment instrument of the user from the computing device;

performing a secure handshake with an electronic shopping cart on the merchant server over the network;

receiving user-authenticating data from a browser client application of the computing device;

retrieving encrypted secure user data from the computing device;

decrypting the retrieved encrypted secure user data using user-authenticating data;

authenticating the user based on the user-authenticating data and the decrypted secure user data;

in response to authenticating the user, transmitting the indication of the payment to the electronic shopping cart;

processing the transaction using the payment instrument of the user after transmitting the indication of the payment; and

recording the transaction in a blockchain in the computing device including the payment instrument of the user.

10. The system of claim 9, wherein the instructions, when executed by the one or more hardware processors, further causes the one or more hardware processors to further perform the method of: storing the encrypted secure user data in a block of the blockchain.

11. The system of claim 9, wherein the recording the transaction in the blockchain comprises:

generating a block of the blockchain, including an identification of the transaction and an identification of the electronic shopping cart; and

encrypting the block using a key associated with the browser.

12. The system of claim 9, wherein the receiving the user-authenticating data further comprises:

receiving biometric data or a personal identification number (PIN) from the browser client application of the computing device.

13. The system of claim 9, wherein the processing the transaction further comprises:

transmitting an identification of the transaction and at least a portion of the decrypted encrypted secure user data to a financial entity.

14. The system of claim 9, wherein the recording the transaction in the blockchain further comprises:

recording the transaction in a side chain of the blockchain during the transaction;

determining that the transaction has been completed; and

adding the side chain to the blockchain in response to the determining that the transaction has been completed.

15. A non-transitory machine-readable medium having stored thereon machine-readable instructions that, when executed, cause one or more hardware processors to perform a method including conveying an indication of a payment instead of a payment instrument of a user to a merchant server during a transaction between a computing device of the user and the merchant server over a network, the method comprising:

receiving the payment instrument of the user from the computing device;

performing a secure handshake with an electronic shopping cart on the merchant server over the network;

receiving user-authenticating data from a browser client application of the computing device;

retrieving encrypted secure user data from the computing device;

decrypting the retrieved encrypted secure user data from the computing device;

authenticating the user based on the user-authenticating data and the decrypted secure user data;

in response to authenticating the user, transmitting the indication of the payment to the electronic shopping cart;

processing the transaction using the payment instrument of the user after transmitting the indication of the payment; and

recording the transaction in a blockchain in the computing device including the payment instrument of the user.