information to the card issuer to authenticate the card account to be used in the transaction. In this way, the participating merchant establishes an authentication session to confirm if the client is the rightful holder of the account. However, merchants may prefer not to subscribe to such authentication services to avoid card abandonments and improved user experience.

In view of the above, it would be desirable to authenticate a transaction without requiring the transacting merchant to first subscribe to an authentication service.

## SUMMARY

According to an aspect, the present disclosure refers to a method comprising: receiving a payment request message at a proxy server from a merchant computing device, the proxy server communicating between the merchant computing device and an issuer computing device, the payment request message relating to a transaction between a customer and a merchant, the payment request message comprising customer data and merchant data, the customer data identifying an account associated with the customer in the transaction, the merchant data indicating that the merchant does not have a subscription to an authentication service that would allow the merchant to obtain results of an authentication of the customer; determining, at the proxy server, i) that the merchant does not have a subscription to the authentication service based on merchant data, ii) that the transaction is an online transaction, and iii) that an issuer associated with the issuer computing device does have a subscription to the authentication service; generating an authentication request message at the proxy server based on the determination i) that the merchant does not have a subscription to the authentication service, ii) that the transaction is an online transaction, and iii) that the issuer does have a subscription to the authentication service, the authentication request message requesting confirmation that a holder of the account is the customer; holding the payment request message at the proxy server based on the generation of the authentication request message; sending the authentication request message from the proxy server to the issuer computing device while the payment request message is

held at the proxy server; receiving an authentication response message from the issuer computing device at the proxy server in response to sending the authentication request message, the authentication response message comprising an indication of whether the holder of the account is the customer and including a certificate that establishes that the indication is authentic; modifying, at the proxy server, based upon the receipt of the authentication response message, the held payment request message to generate a modified payment request message that includes the certificate and the indication of whether the holder of the account is the customer; and transmitting the modified payment request message from the proxy server to the issuer computing device to cause the issuer computing device to analyze the certificate and the indication included in the modified payment request message to determine whether to authorize the transaction.

According to another aspect, the present disclosure refers to a proxy server comprising: at least one processor; and at least one memory including computer program code that when executed by the at least one processor, causes the at least one processor to perform the steps of: receiving a payment request message from a merchant computing device, the payment request message relating to a transaction between a customer and a merchant, the payment request message comprising customer data and merchant data, the customer data identifying an account associated with the customer in the transaction, the merchant data indicating that the merchant does not have a subscription to an authentication service that would allow the merchant to obtain results of an authentication of the customer; determining i) that the merchant does not have a subscription to the authentication service based on the merchant data, ii) that the transaction is an online transaction, and iii) that an issuer associated with an issuer computing device does have a subscription to the authentication service; generating an authentication request message based on the determination i) that the merchant does not have a subscription to the authentication service, ii) that the transaction is an online transaction, and iii) that the issuer does have a subscription to the authentication service, the authentication request message requesting confirmation that a holder of the account is the customer; holding the payment request message at the proxy server

merchant to obtain results of an authentication of the customer; determining i) that the merchant does not have a subscription to the authentication service based on the merchant data, ii) that the transaction is an online transaction, and iii) that an issuer associated with an issuer computing device does have a subscription to the authentication service; generating an authentication request message at the proxy server based on the determination i) that the merchant does not have a subscription to the authentication service, ii) that the transaction is an online transaction, and iii) that the issuer does have a subscription to the authentication service, the authentication request message requesting confirmation that a holder of the account is the customer; holding the payment request message based on the generation of the authentication request message; sending the authentication request message to the issuer computing device while the payment request message is held at the proxy server; receiving an authentication response message from the issuer computing device in response to sending the authentication request message, the authentication response message comprising an indication of whether the holder of the account is the customer and including a certificate that establishes that the indication is authentic; modifying, at the proxy server, based upon the receipt of the authentication response message, the held payment request message to generate a modified payment request message that includes the certificate and the indication of whether the holder of the account is the customer; and transmitting the modified payment request message from the proxy server to the issuer computing device to cause the issuer computing device to analyze the certificate and the indication included in the modified payment request message to determine whether to authorize the transaction.

Various examples provide a method comprising receiving a request message at a proxy server, the request message relating to a transaction between a first client and a second client, the request message comprising first client data and second client data, the first client data identifying an account to be used by the first client in the transaction, the second client data indicating if the second client is subscribed to a service; determining if the second client is subscribed to the service based on the second client data at the proxy server; generating an authentication request message at the proxy

IN THE CLAIMS:

1. A method comprising:

receiving a payment request message at a proxy server from a merchant computing device, the proxy server communicating between the merchant computing device and an issuer computing device, the payment request message relating to a transaction between a customer and a merchant, the payment request message comprising customer data and merchant data, the customer data identifying an account associated with the customer in the transaction, the merchant data indicating that the merchant does not have a subscription to an authentication service that would allow the merchant to obtain results of an authentication of the customer;

determining, at the proxy server, i) that the merchant does not have a subscription to the authentication service based on merchant data, ii) that the transaction is an online transaction, and iii) that an issuer associated with the issuer computing device does have a subscription to the authentication service;

generating an authentication request message at the proxy server based on the determination i) that the merchant does not have a subscription to the authentication service, ii) that the transaction is an online transaction, and iii) that the issuer does have a subscription to the authentication service, the authentication request message requesting confirmation that a holder of the account is the customer;

holding the payment request message at the proxy server based on the generation of the authentication request message;

sending the authentication request message from the proxy server to the issuer computing device while the payment request message is held at the proxy server;

receiving an authentication response message from the issuer computing device at the proxy server in response to sending the authentication request message, the authentication

response message comprising an indication of whether the holder of the account is the customer and including a certificate that establishes that the indication is authentic;

modifying, at the proxy server, based upon the receipt of the authentication response message, the held payment request message to generate a modified payment request message that includes the certificate and the indication of whether the holder of the account is the customer; and

transmitting the modified payment request message from the proxy server to the issuer computing device to cause the issuer computing device to analyze the certificate and the indication included in the modified payment request message to determine whether to authorize the transaction.

2. The method according to claim 1, wherein the customer data indicates that the holder of the account has a subscription to the authentication service, and wherein the authentication request message is generated based on a determination that the customer data indicates that the holder of the account has a subscription to the authentication service.

3. The method according to claim 1, further comprising:

generating a transaction request message at a customer device associated with the customer, the transaction request message comprising the customer data;

sending the transaction request message from the customer device to the merchant computing device; and

generating the payment request message at the merchant computing device based on the transaction request message and sending the payment request message from the merchant computing device to the proxy server.

4. The method according to claim 1, the method further comprising:

generating a verification request message at the issuer computing device based on verification data stored in association with the customer data by the issuer computing device, the verification data identifying a verification device of the holder of the account, the verification request message requesting password data for verification;

sending the verification request message from the issuer computing device to the verification device and outputting a password request message for the password data from the verification device to a user of the verification device;

receiving an input at the verification device from the user of the verification device and sending the input from the verification device to the issuer computing device; and

generating the authentication response message at the issuer computing device and sending the authentication response message from the issuer computing device to the proxy server, wherein the indication in the authentication response message is based on a comparison between the input and a password identified in the verification data.

5. The method according to claim 4, further comprising:

authorizing the transaction at the issuer computing device based on the indication in the modified payment request message.

6. The method according to claim 5, further comprising generating a receipt message at the issuer computing device, the receipt message indicating whether or not the transaction has been authorized.

7. The method according to claim 1, wherein the proxy server is an acquirer server associated with an acquirer, the acquirer being an administrator of a merchant account associated with the merchant.

8. The method according to claim 1, wherein the proxy server is a payment network server, wherein the payment network server is in communication with an acquirer server associated with

an acquirer, and wherein the acquirer is an administrator of a merchant account associated with the merchant transaction.

9. A proxy server comprising:

at least one processor; and

at least one memory including computer program code that when executed by the at least one processor, causes the at least one processor to perform the steps of:

receiving a payment request message from a merchant computing device, the payment request message relating to a transaction between a customer and a merchant, the payment request message comprising customer data and merchant data, the customer data identifying an account associated with the customer in the transaction, the merchant data indicating that the merchant does not have a subscription to an authentication service that would allow the merchant to obtain results of an authentication of the customer;

determining i) that the merchant does not have a subscription to the authentication service based on the merchant data, ii) that the transaction is an online transaction, and iii) that an issuer associated with an issuer computing device does have a subscription to the authentication service;

generating an authentication request message based on the determination i) that the merchant does not have a subscription to the authentication service, ii) that the transaction is an online transaction, and iii) that the issuer does have a subscription to the authentication service, the authentication request message requesting confirmation that a holder of the account is the customer;

holding the payment request message at the proxy server based on the generation of the authentication request message;

sending the authentication request message from the proxy server to the issuer computing device while the payment request message is held at the proxy server;

receiving an authentication response message from the issuer computing device in response to sending the authentication request message, the authentication response message comprising an indication of whether the holder of the account is the customer and including a certificate that establishes that the indication is authentic;

modifying, at the proxy server, based upon the receipt of the authentication response message, the held payment request message to generate a modified payment request message that includes the certificate and the indication of whether the holder of the account is the customer; and

transmitting the modified payment request message from the proxy server to the issuer computing device to cause the issuer computing device to analyze the certificate and the indication included in the modified payment request message to determine whether to authorize the transaction.

10. The proxy server according to claim 9, wherein the customer data indicates that the holder of the account has a subscription to the authentication service, and wherein the authentication request message is generated based on a determination that the customer data indicates that the holder has a subscription to the authentication service.

11. A system comprising:

a proxy server comprising:

at least one processor; and

at least one memory including computer program code that when executed by the at least one processor, causes the at least one processor to perform the steps of:

receiving a payment request message from a merchant computing device, the payment request message relating to a transaction between a customer and a merchant, the payment request message comprising customer data and merchant data, the customer data identifying an account to be used by the customer in the transaction, the merchant data indicating that the merchant does not have a subscription to an authentication service that would allow the merchant to obtain results of an authentication of the customer;

determining i) that the merchant does not have a subscription to the authentication service based on the merchant data, ii) that the transaction is an online transaction, and iii) that an issuer associated with an issuer computing device does have a subscription to the authentication service;

generating an authentication request message based on the determination i) that the merchant does not have a subscription to the authentication service, ii) that the transaction is an online transaction, and iii) that the issuer does have a subscription to the authentication service, the authentication request message requesting confirmation that a holder of the account is the customer;

holding the payment request message at the proxy server based on the generation of the authentication request message;

sending the authentication request message to the issuer computing device while the payment request message is held at the proxy server;

receiving an authentication response message from the issuer computing device in response to sending the authentication request message, the authentication response message comprising an indication of whether the holder of the account is the customer and including a certificate that establishes that the indication is authentic;

modifying, at the proxy server, based upon the receipt of the authentication response message, the held payment request message to generate a modified payment request message that

includes the certificate and the indication of whether the holder of the account is the customer; and

transmitting the modified payment request message from the proxy server to issuer computing device to cause the issuer computing device to analyze the certificate and the indication included in the modified payment request message to determine whether to authorize the transaction; and

a customer computing device associated with the customer, wherein the customer computing device comprises a customer computing device memory including computer program code that, when executed by a customer computing device processor, causes the customer computing device processor to perform the step of generating a transaction request message comprising the customer data.

12. The system according to claim 11, further comprising:

the merchant computing device associated with the merchant,

wherein, when the computer program code included in the customer computing device memory is executed by the customer computing device processor, the computer program code included in the customer computing device memory causes the customer computing device processor to perform the step of sending the transaction request message to the merchant computing device, and

wherein the merchant computing device comprises a merchant computing device memory including computer program code that, when executed by a merchant computing device processor, causes the merchant computing device processor to perform the steps of i) receiving the transaction request message from the customer computing device to, ii) generating the payment request message based on the transaction request message, and iii) sending the payment request message to the proxy server.

13. The system according to claim 11, further comprising:

the issuer computing device, wherein the issuer computing device comprises an issuer computing device memory including computer program code that, when executed by an issuer computing device processor, causes the issuer computing device processor to perform the steps of:

receiving the authentication request message from the proxy server, the authentication request message further comprising the customer data from the payment request message;

storing verification data in association with the customer data; and

generating a verification request message based on the verification data, the verification request requesting password data for verification.

14. Non-transitory computer-readable storage media having computer-executable instructions embodied thereon, wherein, when executed by at least one processor, the computer-executable instructions cause the processor to perform the steps of:

receiving a payment request message from a merchant computing device, the payment request message relating to a transaction between a customer and a merchant, the payment request message comprising customer data and merchant data, the customer data identifying an account associated with the customer in the transaction, the merchant data indicating that the merchant does not have a subscription to an authentication service that would allow the merchant to obtain results of an authentication of the customer;

determining i) that the merchant does not have a subscription to the authentication service based on the merchant data, ii) that the transaction is an online transaction, and iii) that an issuer associated with an issuer computing device does have a subscription to the authentication service;

generating an authentication request message at the proxy server based on the determination i) that the merchant does not have a subscription to the authentication service, ii) that the transaction is an online transaction, and iii) that the issuer does have a subscription to the authentication service, the authentication request message requesting confirmation that a holder of the account is the customer;

holding the payment request message based on the generation of the authentication request message;

sending the authentication request message to the issuer computing device while the payment request message is held at the proxy server;

receiving an authentication response message from the issuer computing device in response to sending the authentication request message, the authentication response message comprising an indication of whether the holder of the account is the customer and including a certificate that establishes that the indication is authentic;

modifying, at the proxy server, based upon the receipt of the authentication response message, the held payment request message to generate a modified payment request message that includes the certificate and the indication of whether the holder of the account is the customer; and

transmitting the modified payment request message from the proxy server to the issuer computing device to cause the issuer computing device to analyze the certificate and the indication included in the modified payment request message to determine whether to authorize the transaction.