[005] In some implementations of the invention, the method may include determining whether the encrypted first identification information and the encrypted PIN are associated with the POS payment transaction. In some implementations of the invention, the method may include decrypting the encrypted first identification information and the encrypted PIN. In some implementations of the invention, the method may include processing the POS payment transaction based on the decrypted first identification information and the decrypted PIN.

[005a] According to one aspect, there is provided an adaptive payment server for processing a point-of-sale (POS) payment transaction comprising:

a processor configured to:

receive, from a merchant mobile device, an encrypted first identification information that identifies a payment account and a payment amount;

in response to receiving the encrypted first identification information, generate a transaction identifier that uniquely identifies the POS payment transaction;

communicate the transaction identifier to the merchant mobile device;

receive, from a cardholder mobile device, an encrypted second identification information that is used to authenticate the POS payment transaction;

receive, from the cardholder mobile device, a transaction identifier associated with the POS payment transaction;

determine whether the encrypted first identification information and the encrypted second identification information are associated with one another by comparing the transaction identifier received from the cardholder mobile device with a list of transaction identifiers communicated by the processor to one or more merchant mobile devices, wherein the list of transaction identifiers includes the transaction identifier communicated to the merchant mobile device;

when the transaction identifier received from the cardholder mobile device matches the transaction identifier communicated to the merchant mobile device:

decrypt the encrypted first identification information and the encrypted second identification information, and

process the POS payment transaction based on the decrypted first identification information and the decrypted second identification information.

[005b] Herein disclosed is an adaptive payment server for processing a POS payment transaction comprising: a processor configuring the server to: receive, from a merchant mobile device, an encrypted first identification information that identifies a payment account and a payment amount; receive, from a cardholder mobile device, encrypted second identification information that is used to authenticate the POS payment transaction; determine whether the encrypted first identification information and the encrypted second identification information are associated with one another; decrypt the encrypted first identification information and the encrypted second identification information; and process the POS payment transaction based on the decrypted first identification information and the decrypted second identification information.

[005c] According to another aspect, there is provided a method for processing a point-of-sale (POS) payment transaction, the method comprising:

receiving, by an adaptive payment server and from a merchant mobile device, an encrypted first identification information that identifies a payment account and a payment amount;

in response to receiving the encrypted first identification information, generating, by the adaptive payment server, a transaction identifier that uniquely identifies the POS payment transaction;

communicating, by the adaptive payment server, the transaction identifier to the merchant mobile device;

receiving, by the adaptive payment server and from a cardholder mobile device, an encrypted second identification information that is used to authenticate the POS payment transaction;

receiving, by the adaptive payment server and from the cardholder mobile device, a transaction identifier associated with the POS payment transaction;

determining, by the adaptive payment server, whether the encrypted first identification information and the encrypted second identification information are associated with one another by comparing the transaction identifier received from the cardholder mobile device with a list of transaction identifiers communicated by the adaptive payment server to one or more merchant mobile devices, wherein the list of transaction identifiers includes the transaction identifier communicated to the merchant mobile device;

when the transaction identifier received from the cardholder mobile device matches the transaction identifier communicated to the merchant mobile device:

decrypting, by the adaptive payment server, the encrypted first identification information and the encrypted second identification information; and

processing, by the adaptive payment server, the POS payment transaction based on the decrypted first identification information and the decrypted second identification information.

[005d] Herein disclosed is a method for processing a POS payment transaction, the method comprising: receiving, from a merchant mobile device, an encrypted first identification information that identifies a payment account and a payment amount; receiving, from a cardholder mobile device, encrypted second identification information that is used to authenticate the POS payment transaction; determining whether the encrypted first identification

information and the encrypted second identification information are associated with one another; decrypting the encrypted first identification information and the encrypted second identification information; and processing the POS payment transaction based on the decrypted first identification information and the decrypted second identification information.

BRIEF DESCRIPTION OF THE DRAWINGS

[006] FIG. 1 is a block diagram illustrating an example of a system for processing POS payment transactions according to various implementations of the invention.

[007] FIG. 2 illustrates an exemplary screenshot depicting an interface associated with a merchant mobile device, according to various implementations of the invention.

[008] FIG. 3 illustrates an exemplary screenshot depicting an interface associated with a customer mobile device, according to various implementations of the invention.

[009] FIG. 4 is a data flow diagram illustrating an example flow of data of a system for processing POS payment transactions according to various implementations of the invention.

[010] Fig. 5 is a flow diagram illustrating an example of a process of processing a POS payment transaction at an adaptive payment server, according to various implementations of the invention.

DETAILED DESCRIPTION

[011] According to various implementations of the invention, various systems and methods may facilitate secure point-of-sale (POS) payment transactions via mobile devices. FIG. 1 is a

CLAIMS

What is claimed is:

1. An adaptive payment server for processing a point-of-sale (POS) payment transaction comprising:

a processor configured to:

receive, from a merchant mobile device, an encrypted first identification information that identifies a payment account and a payment amount;

in response to receiving the encrypted first identification information, generate a transaction identifier that uniquely identifies the POS payment transaction;

communicate the transaction identifier to the merchant mobile device;

receive, from a cardholder mobile device, an encrypted second identification information that is used to authenticate the POS payment transaction;

receive, from the cardholder mobile device, a transaction identifier associated with the POS payment transaction;

determine whether the encrypted first identification information and the encrypted second identification information are associated with one another by comparing the transaction identifier received from the cardholder mobile device with a list of transaction identifiers communicated by the processor to one or more merchant mobile devices, wherein the list of transaction identifiers includes the transaction identifier communicated to the merchant mobile device;

when the transaction identifier received from the cardholder mobile device matches the transaction identifier communicated to the merchant mobile device:

decrypt the encrypted first identification information and the encrypted second identification information, and

process the POS payment transaction based on the decrypted first identification information and the decrypted second identification information.

2. The adaptive payment server of claim 1, wherein the encrypted first identification information includes an encrypted debit card number.

3. The adaptive payment server of claim 1, wherein the encrypted second identification information includes an encrypted Personal Identification Number (“PIN”).

4. The adaptive payment server of claim 1, wherein the processor is further configured to:

authenticate identification of the payment account based on the decrypted second identification information; and

initiate a debit of the payment amount from the identified account.

5. The adaptive payment server of claim 1, wherein the processor is configured to process the POS payment transaction via an EFT network.

6. The adaptive payment server of claim 5, wherein the processor is configured to generate an EFT request to the EFT network.

7. The adaptive payment server of claim 1, wherein the encrypted first identification information and the encrypted second identification information are encrypted using the same encryption technique.

8. A method for processing a point-of-sale (POS) payment transaction, the method comprising:

receiving, by an adaptive payment server and from a merchant mobile device, an encrypted first identification information that identifies a payment account and a payment amount;

in response to receiving the encrypted first identification information, generating, by the adaptive payment server, a transaction identifier that uniquely identifies the POS payment transaction;

communicating, by the adaptive payment server, the transaction identifier to the merchant mobile device;

receiving, by the adaptive payment server and from a cardholder mobile device, an encrypted second identification information that is used to authenticate the POS payment transaction;

receiving, by the adaptive payment server and from the cardholder mobile device, a transaction identifier associated with the POS payment transaction;

determining, by the adaptive payment server, whether the encrypted first identification information and the encrypted second identification information are associated with one another by comparing the transaction identifier received from the cardholder mobile device with a list of transaction identifiers communicated by the adaptive payment server to one or more merchant mobile devices, wherein the list of transaction identifiers includes the transaction identifier communicated to the merchant mobile device;

when the transaction identifier received from the cardholder mobile device matches the transaction identifier communicated to the merchant mobile device:

decrypting, by the adaptive payment server, the encrypted first identification information and the encrypted second identification information; and

processing, by the adaptive payment server, the POS payment transaction based on the decrypted first identification information and the decrypted second identification information.

9. The method of claim 8, wherein the encrypted first identification information includes an encrypted debit card number.

10. The method of claim 8, wherein the encrypted second identification information includes an encrypted Personal Identification Number (“PIN”).

11. The method of claim 8, further comprising:

authenticating, by the adaptive payment server, identification of the payment account based on the decrypted second identification information; and

initiating, by the adaptive payment server, a debit of the payment amount from the identified account.

12. The method of claim 8, wherein the POS payment transaction is processed via an EFT network.

13. The method of claim 12, wherein processing the POS payment transaction comprises generating an EFT request to the EFT network.

14. The method of claim 8, wherein the encrypted first identification information and the encrypted second identification information are encrypted using the same encryption technique.

15. The adaptive payment server of claim 1, wherein the transaction identifier received from the cardholder mobile device was provided to the cardholder mobile device or a cardholder associated with the cardholder mobile device by the merchant mobile device.

16. The method of claim 8, wherein the transaction identifier received from the cardholder mobile device was provided to the cardholder mobile device or a cardholder associated with the cardholder mobile device by the merchant mobile device.