

## WHAT IS CLAIMED IS:

1. A computer-implemented method, comprising:

receiving, at a registration authority computer, a certificate signing request from a token requestor computer associated with a token requestor, wherein the registration authority computer is operated by or on behalf of an acquirer bank that manages a financial account associated with the token requestor, the token requestor being a merchant;

in response to receiving the certificate signing request, authenticating, by the registration authority computer, the token requestor associated with the token requestor computer utilizing data associated with the financial account;

in response to authenticating the token requestor by the registration authority computer utilizing data associated with the financial account, transmitting, by the registration authority computer to a certificate authority computer, a modified certificate signing request comprising an identifier associated with the registration authority computer, the certificate authority computer being operated by an entity different from the acquirer bank, wherein transmitting the modified certificate signing request to the certificate authority computer causes the certificate authority computer to:

verify the registration authority computer authenticated the token requestor based at least in part on determining that the identifier associated with the registration authority computer is included in the modified certificate signing request;

in response to verifying the registration authority computer authenticated the token requestor, generate a token requestor identifier (ID) for the token requestor; and

store a mapping between a token requestor ID and a public key generated by and received from the token requestor computer;

receiving, by the registration authority computer from the certificate authority computer, a token requestor identifier (ID) assigned to the token requestor; and

transmitting, by the registration authority computer, the token requestor ID to the token requestor computer, wherein receipt of the token requestor ID by the

token requestor computer configures the token requestor computer to obtain a payment token from a token provider computer for a subsequent token-based transaction in which payment data is replaced by the payment token in an authorization request message, the payment token being generated by the token provider computer based on the token provider computer retrieving the public key from the mapping utilizing the token requestor ID and utilizing the retrieved public key to verify the integrity of a token request message provided by the token requestor computer.

2. The computer-implemented method of claim 1, wherein authenticating the token requestor by the registration authority computer comprises executing a know-your-customer process to authenticate the token requestor.

3. The computer-implemented method of claim 1, wherein the certificate signing request is received and transmitted within an authorization request message conforming to an ISO 8583 transaction message format.

4. The computer-implemented method of claim 1, further comprising:  
receiving, by the registration authority computer, a token provisioning request message, the token provisioning request message comprising a digital signature generated by the token requestor computer using the token requestor ID generated by the certificate authority computer;

transmitting the token provisioning request message to the token provider computer, wherein transmitting the token provisioning request messages causes the token provider computer to retrieve the public key associated with the token requestor ID using the mapping and to verify the digital signature using the public key;

in response to transmitting the token provisioning request message, receiving, by the registration authority computer from the token provider computer, a token provisioned to the token requestor from the token provider computer; and

transmitting the token to the token requestor computer, wherein transmitting the token to the token requestor computer causes the token requestor computer to transmit an authorization request message including the token.

5. The computer-implemented method of claim 4, wherein the token provisioning request message comprises a digital signature, the digital signature being generated based on the token requestor ID, an identifier associated with registration authority computer, an identifier associated with the token requestor, a terminal identifier, a time stamp, a message counter, and a private encryption key associated with the token requestor.
6. The computer-implemented method of claim 4, further comprising:  
notifying an authorization computer related to the token provisioning request message that the token has been provisioned to the token requestor, the authorization computer being associated with an issuer corresponding to the token-based transaction.
7. The computer-implemented method of claim 4, wherein transmitting the token provisioning request message to the token provider computer causes the token provider computer to decrypt the digital signature to generate decrypted information and compare the decrypted information against one or more data fields of the token provisioning request message.
8. The computer-implemented method of claim 1, further comprising:  
receiving, by the registration authority computer from the token requestor computer, an authorization request message associated with a token-based transaction, the authorization request message comprising a token and a digital signature generated by the token requestor computer;  
transmitting, by the registration authority computer to the token provider computer, the authorization request message, wherein receipt of the authorization request message by the token provider computer causes the token provider computer to modify the authorization request message prior to sending the authorization request message to an authorization computer;  
receiving, by the registration authority computer, an authorization response message corresponding to the authorization request message; and

transmitting, by the registration authority computer to the token requestor computer, the authorization response message.

9. A registration authority computer, comprising:
  - a processor; and
  - a computer readable medium, the computer readable medium comprising code, executable by the processor, for implementing a method comprising:
    - receiving a certificate signing request from a token requestor computer associated with a token requestor, wherein the registration authority computer is operated by or on behalf of an acquirer bank that manages a financial account associated with the token requestor, the token requestor being a merchant;
    - in response to receiving the certificate signing request, authenticating, by the registration authority computer, authenticating the token requestor associated with the token requestor computer utilizing data associated with the financial account;
    - in response to authenticating the token requestor by the registration authority computer utilizing data associated with the financial account, transmitting, to a certificate authority computer, a modified certificate signing request comprising an identifier associated with the registration authority computer, the certificate authority computer being operated by an entity different from the acquirer bank, wherein transmitting the modified certificate signing request to the certificate authority computer causes the certificate authority computer to:
      - verify the registration authority computer authenticated the token requestor based at least in part on determining that the identifier associated with the registration authority computer is included in the modified certificate signing request;
      - in response to verifying the registration authority computer authenticated the token requestor, generate a token requestor identifier (ID) for the token requestor; and
      - store a mapping between a token requestor ID and a public key generated by and received from the token requestor computer;
      - receiving, from the certificate authority computer, a token requestor identifier (ID) assigned to the token requestor; and

transmitting the token requestor ID to the token requestor computer, wherein receipt of the token requestor ID by the token requestor computer configures the token requestor computer to obtain a payment token from a token provider computer for a subsequent token-based transaction in which payment data is replaced by the payment token in an authorization request message, the payment token being generated by the token provider computer based on the token provider computer retrieving the public key from the mapping utilizing the token requestor ID and utilizing the retrieved public key to verify the integrity of a token request message provided by the token requestor computer.

10. The registration authority computer of claim 9, wherein authenticating the token requestor comprises executing a know-your-customer process to authenticate the token requestor.

11. The registration authority computer of claim 9, wherein the certificate signing request is received and transmitted within an authorization request message conforming to an ISO 8583 transaction message format.

12. The registration authority computer of claim 9, wherein the method further comprises:

receiving a token provisioning request message, the token provisioning request message comprising a digital signature generated by the token requestor computer using the token requestor ID generated by the certificate authority computer;

transmitting the token provisioning request message to the token provider computer, wherein transmitting the token provisioning request messages causes the token provider computer to retrieve the public key associated with the token requestor ID using the mapping and to verify the digital signature using the public key;

in response to transmitting the token provisioning request message, receiving, a token provisioned to the token requestor from the token provider computer; and

transmitting the token to the token requestor computer, wherein transmitting the token to the token requestor computer causes the token requestor computer to transmit an authorization request message including the token.

13. The registration authority computer of claim 12, wherein the token provisioning request message comprises a digital signature, the digital signature being generated based on the token requestor ID, an identifier associated with registration authority computer, an identifier associated with the token requestor, a terminal identifier, a time stamp, a message counter, and a private encryption key associated with the token requestor.

14. The registration authority computer of claim 12, wherein transmitting the token provisioning request message to the token provider computer causes the token provider computer to decrypt the digital signature to generate decrypted information and compare the decrypted information against one or more data fields of the token provisioning request message.

15. The registration authority computer of claim 9, wherein the method further comprises:

receiving, from the token requestor computer, an authorization request message associated with a token-based transaction, the authorization request message comprising a token and a digital signature generated by the token requestor computer;

transmitting, to the token provider computer, the authorization request message, wherein receipt of the authorization request message by the token provider computer causes the token provider computer to modify the authorization request message prior to sending the authorization request message to an authorization computer;

receiving an authorization response message corresponding to the authorization request message; and

transmitting, to the token requestor computer, the authorization response message.

16. A computer-implemented method, comprising:
- receiving, a first payment token associated with a first token domain;
  - transmitting a token provisioning request message to a token provider computer using the first payment token, wherein the token provider computer generates a second payment token in response to receiving the token provisioning request message, the second payment token being associated with a second token domain that is different than the first token domain; and
  - receiving the second payment token from the token provider computer.
17. The computer-implemented method of claim 16, wherein the token provisioning request message is routed through a transport computer prior to being received by the token provider computer, and wherein the transport computer authenticates an identity of a token requestor associated with the token provisioning request message.
18. The computer-implemented method of claim 16, wherein the first token domain is associated with a lesser security restriction than the second token domain.