

WHAT IS CLAIMED IS:

1 1. A method comprising:

2 receiving, by a directory service computer from an application on a user
3 device, a request to provide an access token that is associated with a primary access
4 identifier for an account, the request comprising identifying information that identifies the
5 account, wherein the primary access identifier is an account number;

6 retrieving, by the directory service computer, a virtual access identifier
7 based on the identifying information; and

8 transmitting a request, by the directory service computer to a token
9 service computer, that the access token be provisioned, wherein the request comprises
10 the virtual access identifier, and the token service computer thereafter provisions the
11 user device or an application computer associated with the user device with the access
12 token, wherein the access token is in the same format as the primary access identifier.

1 2. The method of claim 1, further comprising:

2 receiving, by the token service computer, the access token, the access
3 token being present in an authorization request message;

4 determining, by the token service computer, a virtual access identifier
5 associated with the access token; and

6 transmitting, by a processing computer, the authorization request
7 message comprising the virtual access identifier to an authorizing computer for
8 authorization, the authorizing computer determining the primary access identifier using
9 the virtual access identifier and performing an action with the primary access identifier.

1 3. The method of claim 2, further comprising:

2 receiving, by the directory service computer from the authorizing
3 computer, a file including a plurality of virtual access identifiers and primary access
4 identifiers, the virtual access identifiers not being capable of being used with resource
5 provider computers to conduct transactions.

1 4. The method of claim 1 wherein receiving, by the directory service
2 computer from the application on the user device, the request to provide the access
3 token occurs via the application computer associated with the application.

1 5. The method of claim 1 further comprising:
2 receiving, by the token service computer, the access token, the access
3 token being present in an authorization request message from the application computer
4 associated with the application;

5 determining, by the token service computer, a virtual access identifier
6 associated with the access token; and

7 transmitting, by a processing computer, the authorization request
8 message comprising the virtual access identifier to an authorizing computer for
9 authorization, the authorizing computer determining the primary access identifier using
10 the virtual access identifier and performing an action with the primary access identifier.

1 6. The method of claim 5, wherein the authorization request message
2 is received by the token service computer from the application computer via a transport
3 computer.

1 7. The method of claim 1, wherein the user device is a mobile phone.

1 8. The method of claim 1, wherein the access token provides access
2 to secure data.

1 9. A system comprising:
2 a directory service computer, the directory service computer comprising a
3 data processor, and a computer readable medium, the computer readable medium
4 comprising code, executable by the data processor, to cause the directory service
5 computer to

6 receive from an application on a user device, a request to provide an
7 access token that is associated with a primary access identifier for an account, the
8 request comprising identifying information that identifies the account, wherein the
9 primary access identifier is an account number,

10 retrieve a virtual access identifier based on the identifying information, and
11 transmit a request, by the directory service computer to a token service
12 computer, that the access token be provisioned, wherein the request comprises the
13 virtual access identifier, and the token service computer thereafter provisions the user
14 device or an application computer associated with the user device with the access
15 token, wherein the access token is in the same format as the primary access identifier.

1 10. The system of claim 9, wherein the data processor is a first data
2 processor and the computer readable medium is a first computer readable medium, and
3 wherein the system further comprises:

4 a token service computer in communication with the directory service
5 computer, the token service computer comprising a second data processor and a
6 second computer readable medium coupled to the second data processor, the second
7 computer readable medium comprising code, executable by the second data processor
8 to cause the token service computer to: receive the access token, the access token
9 being present in an authorization request message, and determine a virtual access
10 identifier associated with the access token; and

11 a processing computer comprising a third data processor and a third
12 computer readable medium coupled to the third data processor, the third computer
13 readable medium comprising code, executable by the third data processor to cause the
14 processing computer to transmit the authorization request message comprising the
15 virtual access identifier to an authorizing computer for authorization, the authorizing
16 computer determining the primary access identifier using the virtual access identifier
17 and performing an action with the primary access identifier.

1 11. The system of claim 10, wherein the computer readable medium of
2 the directory service computer further comprises code, executable by the first data
3 processor to cause the directory service computer to receive from the authorizing
4 computer, a file including a plurality of virtual access identifiers and real access
5 identifiers, the virtual access identifiers not being capable of being used with resource
6 provider computers to conduct transactions.

1 12. The system of claim 9, wherein code for causing the directory
2 service computer to receive from the application on the user device, the request to
3 provide the access token occurs via the application computer associated with the
4 application.

1 13. The system of claim 9, wherein the data processor is a first data
2 processor and the computer readable medium is a first computer readable medium, and
3 wherein the system further comprises:

4 a token service computer in communication with the directory service
5 computer, the token service computer comprising a second data processor and a
6 second computer readable medium coupled to the second data processor, the second
7 computer readable medium comprising code, executable by the second data processor
8 to cause the token service computer to receive the access token, the access token
9 being present in an authorization request message from the application computer
10 associated with the application, and determine a virtual access identifier associated with
11 the access token; and

12 a processing computer comprising a third data processor and a third
13 computer readable medium coupled to the third data processor, the third computer
14 readable medium comprising code, executable by the third data processor to cause the
15 processing computer to transmit the authorization request message comprising the
16 virtual access identifier to an authorizing computer for authorization, the authorizing
17 computer determining a primary access identifier using the virtual access identifier and
18 performing an action with the primary access identifier.

1 14. The system of claim 9, wherein the access token provides access
2 to secure data.

1 15. A method comprising:
2 receiving, by a token service computer and from a directory service
3 computer, a virtual access identifier and a request to provision a user device or an
4 application computer associated with the user device with an access token;

5 transmitting, by the token service computer, the access token to the user
6 device or the application computer associated with the user device;
7 receiving, by the token service computer, the access token, the access
8 token being in an authorization request message;
9 determining, by the token service computer, the virtual access identifier
10 using the access token; and
11 providing, by the token service computer, the virtual access identifier to a
12 processing computer, the processing computer transmitting an authorization request
13 message comprising the virtual access identifier to an authorizing computer for
14 authorization, the authorizing computer using the virtual access identifier to determine a
15 primary access identifier, wherein the access token is in the same format as the primary
16 access identifier, and wherein the primary access identifier is an account number.

1 16. The method of claim 15, wherein the user device is a mobile phone.

1 17. The method of claim 15, wherein the authorization request
2 message is received from an application computer associated with an application on the
3 user device.

1 18. The method of claim 15, wherein the authorizing computer uses the
2 primary access identifier to perform an action.

1 19. The method of claim 15, wherein the authorizing computer uses the
2 primary access identifier to perform an action, the action being allowing access to
3 secure data by the user device.

1 20. The method of claim 15, wherein the token service computer and
2 the processing computer are part of a same system.