

**USER TERMINAL LOCATION BASED
CREDIT CARD AUTHORIZATION SERVERS,
SYSTEMS, METHODS AND COMPUTER
PROGRAM PRODUCTS**

FIELD OF THE INVENTION

[0001] This invention relates to computer servers, systems, methods and computer program products, and, more particularly, to credit card transaction authorization servers, systems, methods and computer program products.

BACKGROUND OF THE INVENTION

[0002] Credit cards are widely used for many consumer, commercial and other transactions. As used herein, the term "credit card" includes debit cards and other stored value cards in various form factors, such as wallet-sized, keychain-sized, etc.

[0003] Unfortunately, with the proliferation of credit cards, credit card fraud has become all too common. A thief can steal a credit card, and then use it to purchase thousands of dollars of goods and services before the card is denied. Many measures have been provided to reduce the possibility of fraud, including card holder signatures on the credit card, a picture identification on the credit card and/or the requirement for a separate picture identification of a credit card user, security codes printed on the credit card, billing address verification, purchase pattern screening and/or other known techniques.

[0004] A credit card authorization system is described in U.S. Pat. Nos. 6,612,488, 6,913,194 and 7,104,444, all to Suzuki, and all entitled Method and System to Prevent Fraudulent Payment In Credit/Debit Card Transactions, and Terminals Therefor. As noted in the common Abstract of these three patents, during a transaction authorization process using a transaction terminal disposed in a credit transaction member store and connected with a host computer, user validation or credit administration is carried out by using a portable communication terminal to input to the host computer identity information which has been previously registered in the portable communication terminal and/or location information for the portable communication terminal.

[0005] Notwithstanding these and other measures, credit card fraud continues to be a problem. It is, therefore, desirable to provide additional measures that can reduce or prevent credit card fraud. Moreover, the additional security that is provided should be balanced with the convenience to the legitimate credit card user.

SUMMARY OF THE INVENTION

[0006] Credit card transaction servers according to some embodiments of the present invention include a credit card transaction interface, a wireless network interface and a credit card transaction authorization processor. The credit card transaction interface is configured to receive information about credit card transactions that are associated with multiple credit card issuers. The wireless network interface is configured to obtain location information for multiple wireless terminals that are associated with multiple wireless network providers. The credit card transaction authorization processor is responsive to receipt of information concerning a prospective credit card transaction with one of the multiple credit card issuers from the credit card transaction interface. The credit card transaction authorization processor is configured to instruct the wireless network interface to obtain loca-

tion information from the multiple wireless network providers, for at least one wireless terminal that is associated with a user of the credit card for the prospective credit card transaction, and to correlate the location of a credit card transaction terminal that is associated with the prospective credit card transaction and the location(s) of the wireless terminal(s). The credit card transaction authorization processor is also configured to generate authorization information for the prospective credit card transaction based on the locations of the credit card transaction terminal and the wireless terminal(s) that were correlated.

[0007] As used herein, location information also includes proximity information. Thus, in some embodiments the credit card transaction authorization processor may be responsive to receipt of information concerning a prospective credit card transaction with one of the plurality of credit card issuers from the credit card transaction interface, to instruct the wireless network interface to obtain proximity information from the plurality of wireless network providers for at least one wireless terminal that is associated with a user of the credit card for the prospective credit card transaction, to correlate the proximity of a credit card transaction terminal that is associated with the prospective credit card transaction to the at least one wireless terminal and to generate authorization information for the prospective credit card transaction based on the proximity of the credit card transaction terminal and the at least one wireless terminal. Proximity may be obtained by communications between the wireless terminal(s) and the credit card transaction terminal over an ad hoc short-range wireless network, wherein the geographic locations of the wireless terminal(s) and the credit card transaction terminal need not be separately known, as long as their proximity to one another can be determined.

[0008] In some embodiments, the credit card transaction authorization processor is configured to selectively authorize the prospective credit card transaction if the wireless network interface determines that only a single wireless terminal is associated with the user of the credit card for the prospective credit card transaction, and the credit card transaction terminal is sufficiently close to the single wireless terminal. Authentication may be selectively obtained of the user prior to authorizing the prospective credit card transaction if the credit card transaction terminal is not sufficiently close to the single wireless terminal.

[0009] Moreover, in other embodiments, the credit card transaction authorization processor is configured to selectively authorize the prospective credit card transaction if the wireless network interface determines that multiple wireless terminals are associated with the user of the credit card for the prospective credit card transaction, and the credit card transaction terminal is sufficiently close to all of the multiple wireless terminals. Authentication of the user may be selectively obtained prior to authorizing the prospective credit card transaction if the credit card transaction terminal is not sufficiently close to all of the multiple wireless terminals. Moreover, the credit card authorization processor may also be configured to selectively obtain additional authentication of the user prior to authorizing the prospective credit card transaction if the credit card transaction terminal is not sufficiently close to all of the multiple wireless terminals and at least two of the wireless terminals are associated with different wireless network providers.

[0010] In other embodiments of the invention, the credit card transaction authorization processor is configured to