

WHAT IS CLAIMED IS:

1. A network-based computing system implementing a cross-medium transaction service, comprising:
 - a network communication interface to communicate, over one or more networks, with (i) client devices executing a transaction service application, and (ii) computing systems of exchanges each implementing conversions between a home value medium and a digital currency;
 - one or more processors; and
 - a memory storing instructions that, when executed by the one or more processors, cause the computing system to:
 - receive, over the one or more networks, a transaction request from a sending client, the transaction request indicating an original value amount in an originating value medium, a destination value medium, and a receiving client;
 - based on the originating value medium and the destination value medium, establish network communications with an originating exchange and a destination exchange;
 - transmit, over the one or more networks, a first set of transaction instructions to the originating exchange, the first set of transaction instructions causing the originating exchange to (i) convert the value amount in the originating value medium to a corresponding value amount in a digital currency, and (ii) transfer the corresponding value amount in the digital currency to the destination exchange; and
 - transmit, over the one or more networks, a second set of instructions to the destination exchange, the second set of instructions causing the destination exchange to (i) convert the corresponding amount in the digital currency to a corresponding value amount in the destination value medium, and (ii) transfer the corresponding value amount in the destination value medium to an account of the receiving client.
2. The computing system of claim 1, wherein the executed instructions further cause the computing system to:
 - maintain a client pool of the digital currency at the destination exchange.

3. The computing system of claim 2, wherein the executed instructions further cause the computing system to:

receive, over the one or more networks, a status update from the destination exchange, the status update indicating a deviation from the original value amount; and
based on the deviation, transmit, over the one or more networks, an offset instruction to the destination exchange, the offset instruction causing the destination exchange to utilize the client pool to offset the deviation by an offset amount of the digital currency such that the corresponding value amount in the destination value medium equates to the original value amount in the originating value medium based on a guaranteed exchange rate provided by the computing system.

4. The computing system of claim 3, wherein the deviation is caused by exposure to transaction volatility over a period of time between receiving the transaction request and the transfer of the corresponding value amount in the destination value medium to the account of the receiving client.

5. The computing system of claim 3, wherein the transaction request from the sending client comprises a quote request for an exchange rate between the originating value medium and the destination value medium, and wherein the executed instructions further cause the computing system to:

using the established network communications, receive exchange rate quotes from both the originating exchange and the destination exchange; and

based on the exchange rate quotes, generate the guaranteed exchange rate for the sending and receiving clients.

6. The computing system of claim 5, wherein the deviation corresponds to a value difference between the value amount in the digital currency and correct amount of the digital currency based on the guaranteed exchange rate, and wherein the offset amount compensates for the deviation to provide the guaranteed exchange rate to the sending and receiving clients.

7. The computing system of claim 3, wherein the client pool of the digital currency at the destination exchange is utilized by the computing system for volatility

deviations in cross-medium transactions for all receiving clients associated with the destination value medium.

8. The computing system of claim 3, wherein the client pool of the digital currency at the destination exchange comprises a slippage balance in an account of the receiving client, the slippage balance being dedicated for volatility deviations in cross-medium transactions involving the receiving client.

9. The computing system of claim 1, wherein the executed instructions further cause the computing system to:
establish a dedicated messaging schema for the cross-medium transaction service, the dedicated messaging schema enabling secure transmission, over the one or more networks, of messages to facilitate execution of cross-medium transactions;
wherein the network communications with (i) the client devices executing a transaction service application, and (ii) the computing systems of the exchanges are performed in accordance with the dedicated messaging schema.

10. The computing system of claim 1, wherein the originating value medium comprises a first fiat currency, and wherein the destination value medium comprises a second fiat currency.

11. A non-transitory computer readable medium storing instructions that, when executed by one or more processors of a computing system, cause the computing system to:
communicate, over one or more networks, with (i) client devices executing a transaction service application, and (ii) computing systems of exchanges each implementing conversions between a home value medium and a digital currency;
receive, over the one or more networks, a transaction request from a sending client, the transaction request indicating an original value amount in an originating value medium, a destination value medium, and a receiving client;
based on the originating value medium and the destination value medium, establish network communications with an originating exchange and a destination exchange;

transmit, over the one or more networks, a first set of transaction instructions to the originating exchange, the first set of transaction instructions causing the originating exchange to (i) convert the value amount in the originating value medium to a corresponding value amount in a digital currency, and (ii) transfer the corresponding value amount in the digital currency to the destination exchange; and

transmit, over the one or more networks, a second set of instructions to the destination exchange, the second set of instructions causing the destination exchange to (i) convert the corresponding amount in the digital currency to a corresponding value amount in the destination value medium, and (ii) transfer the corresponding value amount in the destination value medium to an account of the receiving client.

12. The non-transitory computer readable medium of claim 11, wherein the executed instructions further cause the computing system to:

maintain a client pool of the digital currency at the destination exchange.

13. The non-transitory computer readable medium of claim 12, wherein the executed instructions further cause the computing system to:

receive, over the one or more networks, a status update from the destination exchange, the status update indicating a deviation from the original value amount; and

based on the deviation, transmit, over the one or more networks, an offset instruction to the destination exchange, the offset instruction causing the destination exchange to utilize the client pool to offset the deviation by an offset amount of the digital currency such that the corresponding value amount in the destination value medium equates to the original value amount in the originating value medium based on a guaranteed exchange rate provided by the computing system.

14. The non-transitory computer readable medium of claim 13, wherein the deviation is caused by exposure to transaction volatility over a period of time between receiving the transaction request and the transfer of the corresponding value amount in the destination value medium to the account of the receiving client.

15. The non-transitory computer readable medium of claim 13, wherein the transaction request from the sending client comprises a quote request for an exchange rate

between the originating value medium and the destination value medium, and wherein the executed instructions further cause the computing system to:

using the established network communications, receive exchange rate quotes from both the originating exchange and the destination exchange; and

based on the exchange rate quotes, generate the guaranteed exchange rate for the sending and receiving clients.

16. The non-transitory computer readable medium of claim 15, wherein the deviation corresponds to a value difference between the value amount in the digital currency and correct amount of the digital currency based on the guaranteed exchange rate, and wherein the offset amount compensates for the deviation to provide the guaranteed exchange rate to the sending and receiving clients.

17. The non-transitory computer readable medium of claim 13, wherein the client pool of the digital currency at the destination exchange is utilized by the computing system for volatility deviations in cross-medium transactions for all receiving clients associated with the destination value medium.

18. The non-transitory computer readable medium of claim 13, wherein the client pool of the digital currency at the destination exchange comprises a slippage balance in an account of the receiving client, the slippage balance being dedicated for volatility deviations in cross-medium transactions involving the receiving client.

19. The non-transitory computer readable medium of claim 11, wherein the executed instructions further cause the computing system to:

establish a dedicated messaging schema for the cross-medium transaction service, the dedicated messaging schema enabling secure transmission, over the one or more networks, of messages to facilitate execution of cross-medium transactions;

wherein the network communications with (i) the client devices executing a transaction service application, and (ii) the computing systems of the exchanges are performed in accordance with the dedicated messaging schema.

20. A computer-implemented method of implementing a remote transaction service, the method being performed by one or more processors and comprising:

communicating, over one or more networks, with (i) client devices executing a transaction service application, and (ii) computing systems of exchanges each implementing conversions between a home value medium and a digital currency;

receiving, over the one or more networks, a transaction request from a sending client, the transaction request indicating an original value amount in an originating value medium, a destination value medium, and a receiving client;

based on the originating value medium and the destination value medium, establishing network communications with an originating exchange and a destination exchange;

transmitting, over the one or more networks, a first set of transaction instructions to the originating exchange, the first set of transaction instructions causing the originating exchange to (i) convert the value amount in the originating value medium to a corresponding value amount in a digital currency, and (ii) transfer the corresponding value amount in the digital currency to the destination exchange; and

transmitting, over the one or more networks, a second set of instructions to the destination exchange, the second set of instructions causing the destination exchange to (i) convert the corresponding amount in the digital currency to a corresponding value amount in the destination value medium, and (ii) transfer the corresponding value amount in the destination value medium to an account of the receiving client.

21. A network-based computing system implementing a cross-medium transaction service, comprising:

a network communication interface to communicate, over one or more networks, with computing systems of exchanges each implementing conversions between a home value medium and a digital currency;

one or more processors; and

a memory storing instructions that, when executed by the one or more processors, cause the computing system to:

based on a transaction request from a sending client, establish network communications with an originating exchange and a destination exchange;

transmit and receive communications asynchronously with the originating exchange and the destination exchange by:

initiating a first exchange account adapter to receive and filter communications from the originating exchange, wherein the first exchange

account adapter publishes non-errant messages from the originating exchange to an event feed; and

initiating a second exchange account adapter to receive and filter communications from the destination exchange, wherein the second exchange account adapter publishes non-errant messages from the destination exchange to the event feed;

wherein the computing system executes exchange management logic to monitor the event feed and communicate with the originating and destination exchanges based at least in part on information published to the event feed by the first and second exchange account adapters.

22. The computing system of claim 21, wherein the transaction request comprises a quote request for an exchange rate to transfer a value amount in an originating value medium to a receiving client in a destination value medium.

23. The computing system of claim 22, wherein the executed exchange management logic causes the computing system to process the quote request by transmitting corresponding quote requests to the originating exchange and the destination exchange, and reading the exchange quotes from both the originating exchange and the destination exchange in the event feed as published by the first and second exchange account adapters.

24. The computing system of claim 22, wherein the executed exchange management logic further causes the computing system to receive an acceptance message from the sending client indicating an exchange transaction in the value amount to the receiving client and conversion from the originating value medium to the destination value medium.

25. The computing system of claim 24, wherein the executed exchange management logic further causes the computing system to:

determine that the value amount exceeds a capacity threshold of the cross-medium transaction service;

based on the value amount exceeding the capacity threshold, partition the exchange transaction into a plurality of sub-orders and process each sub-order separately with the originating and destination exchanges.

26. The computing system of claim 25, wherein the executed instructions further cause the computing system to:

based on partitioning the exchange transaction into the plurality of sub-orders, execute order management logic to generate a record for each sub-order and track each sub-order until the sub-order is settled by the destination exchange.

27. The computing system of claim 26, wherein the executed order management logic further causes the computing system to:

when all sub-orders are settled, transmit a confirmation message to the sending client indicating settlement of the exchange transaction.

28. A non-transitory computer readable medium storing instructions that, when executed by one or more processors of a computing system, cause the computing system to:

communicate, over one or more networks, with computing systems of exchanges each implementing conversions between a home value medium and a digital currency;

based on a transaction request from a sending client, establish network communications with an originating exchange and a destination exchange;

transmit and receive communications asynchronously with the originating exchange and the destination exchange by:

initiating a first exchange account adapter to receive and filter communications from the originating exchange, wherein the first exchange account adapter publishes non-errant messages from the originating exchange to an event feed; and

initiating a second exchange account adapter to receive and filter communications from the destination exchange, wherein the second exchange account adapter publishes non-errant messages from the destination exchange to the event feed;

wherein the computing system executes exchange management logic to monitor the event feed and communicate with the originating and destination

exchanges based at least in part on information published to the event feed by the first and second exchange account adapters.

29. The non-transitory computer readable medium of claim 28, wherein the transaction request comprises a quote request for an exchange rate to transfer a value amount in an originating value medium to a receiving client in a destination value medium.

30. The non-transitory computer readable medium of claim 29, wherein the executed exchange management logic causes the computing system to process the quote request by transmitting corresponding quote requests to the originating exchange and the destination exchange, and reading the exchange quotes from both the originating exchange and the destination exchange in the event feed as published by the first and second exchange account adapters.

31. The non-transitory computer readable medium of claim 29, wherein the executed exchange management logic further causes the computing system to receive an acceptance message from the sending client indicating an exchange transaction in the value amount to the receiving client and conversion from the originating value medium to the destination value medium.

32. The non-transitory computer readable medium of claim 31, wherein the executed exchange management logic further causes the computing system to:

determine that the value amount exceeds a capacity threshold of the cross-medium transaction service;

based on the value amount exceeding the capacity threshold, partition the exchange transaction into a plurality of sub-orders and process each sub-order separately with the originating and destination exchanges.

33. The non-transitory computer readable medium of claim 32, wherein the executed instructions further cause the computing system to:

based on partitioning the exchange transaction into the plurality of sub-orders, execute order management logic to generate a record for each sub-order and track each sub-order until the sub-order is settled by the destination exchange.

34. The non-transitory computer readable medium of claim 33, wherein the executed order management logic further causes the computing system to:

when all sub-orders are settled, transmit a confirmation message to the sending client indicating settlement of the exchange transaction.

35. A computer-implemented method of implementing a cross-medium transaction service, the method being performed by one or more processors of a computing system and comprising:

communicating, over one or more networks, with computing systems of exchanges each implementing conversions between a home value medium and a digital currency;

based on a transaction request from a sending client, establishing network communications with an originating exchange and a destination exchange;

transmitting and receiving communications asynchronously with the originating exchange and the destination exchange by:

initiating a first exchange account adapter to receive and filter communications from the originating exchange, wherein the first exchange account adapter publishes non-errant messages from the originating exchange to an event feed; and

initiating a second exchange account adapter to receive and filter communications from the destination exchange, wherein the second exchange account adapter publishes non-errant messages from the destination exchange to the event feed;

wherein the computing system executes exchange management logic to monitor the event feed and communicate with the originating and destination exchanges based at least in part on information published to the event feed by the first and second exchange account adapters.

36. The method of claim 35, wherein the transaction request comprises a quote request for an exchange rate to transfer a value amount in an originating value medium to a receiving client in a destination value medium.

37. The method of claim 36, wherein the executed exchange management logic causes the computing system to process the quote request by transmitting

corresponding quote requests to the originating exchange and the destination exchange, and reading the exchange quotes from both the originating exchange and the destination exchange in the event feed as published by the first and second exchange account adapters.

38. The method of claim 36, wherein the executed exchange management logic further causes the computing system to receive an acceptance message from the sending client indicating an exchange transaction in the value amount to the receiving client and conversion from the originating value medium to the destination value medium.

39. The method of claim 38, further comprising:
determining that the value amount exceeds a capacity threshold of the cross-medium transaction service;
based on the value amount exceeding the capacity threshold, partitioning the exchange transaction into a plurality of sub-orders and process each sub-order separately with the originating and destination exchanges.

40. The method of claim 39, further comprising:
based on partitioning the exchange transaction into the plurality of sub-orders, executing order management logic to generate a record for each sub-order and track each sub-order until the sub-order is settled by the destination exchange.

41. A network-based computing system implementing a cross-medium transaction service, comprising:
a network communication interface to communicate, over one or more networks, with computing systems of exchanges each implementing conversions between a home value medium and a digital currency;
one or more processors; and
a memory storing instructions that, when executed by the one or more processors, cause the computing system to:
based on a transaction request from a sending client, attempt to establish network communications with an originating exchange and a destination exchange;

determine that one of the originating exchange or the destination exchange is experiencing downtime as a downed exchange; and

based on determining the downed exchange, initiate a failover state and establish network communications with a crediting institution to bypass the downed exchange and facilitate the transaction request.

42. The computing system of claim 41, wherein the downed exchange comprises the destination exchange, and wherein the executed instructions further cause the computing system to:

based on the transaction request, transmit, over the one or more networks, an exchange quote request to the originating exchange;

receive, over the one or more networks, an exchange rate quote from the originating exchange, the exchange rate quote indicating an exchange rate to convert an originating value medium of the sending client to a digital currency; and

based at least in part on the exchange rate quote from the originating exchange, transmit, over the one or more networks, a transaction quote to the sending client, the transaction quote indicating a guaranteed exchange rate to convert the originating value medium to a destination value medium.

43. The computing system of claim 42, wherein the executed instructions further cause the computing system to:

receive, over the one or more networks, a confirmation from the sending client to initiate an exchange transaction comprising a value amount in the originating value medium to be converted to a destination value medium and transferred to a receiving client; and

based on receiving the confirmation from the sending client, transmit, over the one or more networks, a credit request to the crediting institution, the credit request instructing the crediting institution to deposit the value amount in the destination medium to an account of the receiving client.

44. The computing system of claim 43, wherein the executed instructions further cause the computing system to:

transmit, over the one or more networks, transaction instructions to the originating exchange, the transaction instructions causing the originating exchange to place a hold on transferring digital currency to the downed destination exchange.

45. The computing system of claim 44, wherein the transaction instructions further cause the originating exchange to convert the value amount of the sending client in the originating value medium to digital currency prior to placing the hold.

46. The computing system of claim 44, wherein the executed instructions further cause the computing system to:

receive, over the one or more networks, an online confirmation that the downed destination exchange is back online;

in response to the online confirmation, terminate the failover state by:

transmitting, over the one or more networks, a release command to the originating exchange, the release command causing the originating exchange to transfer digital currency corresponding to the value amount to the destination exchange.

47. The computing system of claim 46, wherein the executed instructions cause the computing system to further terminate the failover state by:

transmitting, over the one or more networks, a settlement command to the destination exchange, the settlement command causing the destination exchange to convert the transferred digital currency to a converted amount in the destination value medium and transfer the converted amount of the destination value medium to the crediting institution in order to at least partially reconcile the credit request.

48. A non-transitory computer readable medium storing instructions that, when executed by one or more processors of a computing system, cause the computing system to:

communicate, over one or more networks, with computing systems of exchanges each implementing conversions between a home value medium and a digital currency;

based on a transaction request from a sending client, attempt to establish network communications with an originating exchange and a destination exchange;

determine that one of the originating exchange or the destination exchange is experiencing downtime as a downed exchange; and

based on determining the downed exchange, initiate a failover state and establish network communications with a crediting institution to bypass the downed exchange and facilitate the transaction request.

49. The non-transitory computer readable medium of claim 48, wherein the downed exchange comprises the destination exchange, and wherein the executed instructions further cause the computing system to:

based on the transaction request, transmit, over the one or more networks, an exchange quote request to the originating exchange;

receive, over the one or more networks, an exchange rate quote from the originating exchange, the exchange rate quote indicating an exchange rate to convert an originating value medium of the sending client to a digital currency; and

based at least in part on the exchange rate quote from the originating exchange, transmit, over the one or more networks, a transaction quote to the sending client, the transaction quote indicating a guaranteed exchange rate to convert the originating value medium to a destination value medium.

50. The non-transitory computer readable medium of claim 49, wherein the executed instructions further cause the computing system to:

receive, over the one or more networks, a confirmation from the sending client to initiate an exchange transaction comprising a value amount in the originating value medium to be converted to a destination value medium and transferred to a receiving client; and

based on receiving the confirmation from the sending client, transmit, over the one or more networks, a credit request to the crediting institution, the credit request instructing the crediting institution to deposit the value amount in the destination medium to an account of the receiving client.

51. The non-transitory computer readable medium of claim 50, wherein the executed instructions further cause the computing system to:

transmit, over the one or more networks, transaction instructions to the originating exchange, the transaction instructions causing the originating exchange to place a hold on transferring digital currency to the downed destination exchange.

52. The non-transitory computer readable medium of claim 51, wherein the transaction instructions further cause the originating exchange to convert the value amount of the sending client in the originating value medium to digital currency prior to placing the hold.

53. The non-transitory computer readable medium of claim 51, wherein the executed instructions further cause the computing system to:

receive, over the one or more networks, an online confirmation that the downed destination exchange is back online;

in response to the online confirmation, terminate the failover state by:

transmitting, over the one or more networks, a release command to the originating exchange, the release command causing the originating exchange to transfer digital currency corresponding to the value amount to the destination exchange.

54. The non-transitory computer readable medium of claim 53, wherein the executed instructions cause the computing system to further terminate the failover state by:

transmitting, over the one or more networks, a settlement command to the destination exchange, the settlement command causing the destination exchange to convert the transferred digital currency to a converted amount in the destination value medium and transfer the converted amount of the destination value medium to the crediting institution in order to at least partially reconcile the credit request.

55. A computer-implemented method of implementing a cross-medium transaction service, the method being performed by one or more processors of a computing system and comprising:

communicating, over one or more networks, with computing systems of exchanges each implementing conversions between a home value medium and a digital currency;

based on a transaction request from a sending client, attempting to establish network communications with an originating exchange and a destination exchange; determining that one of the originating exchange or the destination exchange is experiencing downtime as a downed exchange; and based on determining the downed exchange, initiating a failover state and establish network communications with a crediting institution to bypass the downed exchange and facilitate the transaction request.

56. The method of claim 55, wherein the downed exchange comprises the destination exchange, the method further comprising:

based on the transaction request, transmitting, over the one or more networks, an exchange quote request to the originating exchange;

receiving, over the one or more networks, an exchange rate quote from the originating exchange, the exchange rate quote indicating an exchange rate to convert an originating value medium of the sending client to a digital currency; and

based at least in part on the exchange rate quote from the originating exchange, transmitting, over the one or more networks, a transaction quote to the sending client, the transaction quote indicating a guaranteed exchange rate to convert the originating value medium to a destination value medium.

57. The method of claim 56, further comprising:

receiving, over the one or more networks, a confirmation from the sending client to initiate an exchange transaction comprising a value amount in the originating value medium to be converted to a destination value medium and transferred to a receiving client; and

based on receiving the confirmation from the sending client, transmitting, over the one or more networks, a credit request to the crediting institution, the credit request instructing the crediting institution to deposit the value amount in the destination medium to an account of the receiving client.

58. The method of claim 57, further comprising:

transmitting, over the one or more networks, transaction instructions to the originating exchange, the transaction instructions causing the originating exchange to place a hold on transferring digital currency to the downed destination exchange.

59. The method of claim 58, wherein the transaction instructions further cause the originating exchange to convert the value amount of the sending client in the originating value medium to digital currency prior to placing the hold.

60. The method of claim 58, further comprising:
receiving, over the one or more networks, an online confirmation that the downed destination exchange is back online;
in response to the online confirmation, terminating the failover state by:
transmitting, over the one or more networks, a release command to the originating exchange, the release command causing the originating exchange to transfer digital currency corresponding to the value amount to the destination exchange.

61. A network-based computing system implementing a cross-medium transaction service, comprising:
a database comprising digital wallets of clients of the cross-medium transaction service, each digital wallet storing a respective amount of digital currency;
a network communication interface to communicate, over one or more networks, with computing devices of the clients of the cross-medium transaction service;
one or more processors; and
a memory storing instructions that, when executed by the one or more processors, cause the computing system to:
receive, over the one or more networks, a transaction request from a computing device of a sending client of the cross-medium transaction service;
acquire exchange rate information corresponding to cross-medium exchanges between an originating value medium of the sending client, a digital currency, and a destination value medium of a receiving client;
receive, over the one or more networks, a confirmation from the computing device of the sending client, the confirmation comprising an authorization to perform an exchange transaction to transfer a value amount to the receiving client; and
upon receiving the confirmation, transmit trade instructions to the computing device of the sending client to transfer the value amount in the digital

currency from a digital wallet of the sending client to a digital wallet of the receiving client.

62. The computing system of claim 61, wherein the value amount of the digital currency corresponds to a current exchange rate between the originating value medium and the digital currency.

63. The computing system of claim 62, wherein the receiving client accesses the digital wallet of the receiving client and converts the value amount of the digital currency to the destination value medium.

64. The computing system of claim 61, wherein each digital wallet of each client of the cross-medium transaction service includes a slippage balance used for compensating for exchange rate volatility.

65. The computing system of claim 64, wherein a period of time corresponding to transferring the digital currency between digital wallets exposes the exchange transaction to exchange rate volatility, and wherein the executed instructions further cause the computing system to:

upon transfer of the value amount of the digital currency to the digital wallet of the receiving client, determine whether conversion of the corresponding amount of digital currency to the destination value medium aligns with a guaranteed exchange rate determined by the computing system.

66. The computing system of claim 65, wherein the executed instructions further cause the computing system to:

in response to determining that conversion of the value amount of the digital currency to the destination value medium does not align with the guaranteed exchange rate, transfer an offset amount to or from the slippage balance of the digital wallet of the receiving client such that a final conversion amount of the digital currency to the destination value medium aligns with the guaranteed exchange rate.

67. The computing system of claim 66, wherein the executed instructions further cause the computing system to:

subsequent to finalizing the exchange transaction, determine whether the slippage balance of the digital wallet of the receiving client has dropped below a utilization threshold specific to the receiving client; and

in response to determine that the slippage balance of the digital wallet of the receiving client has dropped below the utilization threshold specific to the receiving client, transfer a top-up amount of the digital currency from an internal digital wallet to the digital wallet of the receiving client.

68. The computing system of claim 67, wherein the utilization threshold of the receiving client corresponds to a percentage of a total exchange transaction amount of the receiving client over a certain time period.

69. The computing system of claim 61, wherein the originating value medium comprises a first fiat currency and the destination value medium comprises a second fiat currency.

70. A non-transitory computer readable medium storing instructions that, when executed by one or more processors of a computing system, cause the computing system to:

store, in a database, digital wallets of clients of the cross-medium transaction service, each digital wallet storing a respective amount of digital currency;

communicate, over one or more networks, with computing devices of the clients of the cross-medium transaction service;

receive, over the one or more networks, a transaction request from a computing device of a sending client of the cross-medium transaction service;

acquire exchange rate information corresponding to cross-medium exchanges between an originating value medium of the sending client, a digital currency, and a destination value medium of a receiving client;

receive, over the one or more networks, a confirmation from the computing device of the sending client, the confirmation comprising an authorization to perform an exchange transaction to transfer a value amount to the receiving client; and

upon receiving the confirmation, transmit trade instructions to the computing device of the sending client to transfer the value amount in the digital currency from a digital wallet of the sending client to a digital wallet of the receiving client.

71. The non-transitory computer readable medium of claim 70, wherein the value amount of the digital currency corresponds to a current exchange rate between the originating value medium and the digital currency.

72. The non-transitory computer readable medium of claim 71, wherein the receiving client accesses the digital wallet of the receiving client and converts the value amount of the digital currency to the destination value medium.

73. The non-transitory computer readable medium of claim 70, wherein each digital wallet of each client of the cross-medium transaction service includes a slippage balance used for compensating for exchange rate volatility.

74. The non-transitory computer readable medium of claim 73, wherein a period of time corresponding to transferring the digital currency between digital wallets exposes the exchange transaction to exchange rate volatility, and wherein the executed instructions further cause the computing system to:

upon transfer of the value amount of the digital currency to the digital wallet of the receiving client, determine whether conversion of the corresponding amount of digital currency to the destination value medium aligns with a guaranteed exchange rate determined by the computing system.

75. The non-transitory computer readable medium of claim 74, wherein the executed instructions further cause the computing system to:

in response to determining that conversion of the value amount of the digital currency to the destination value medium does not align with the guaranteed exchange rate, transfer an offset amount to or from the slippage balance of the digital wallet of the receiving client such that a final conversion amount of the digital currency to the destination value medium aligns with the guaranteed exchange rate.

76. The non-transitory computer readable medium of claim 75, wherein the executed instructions further cause the computing system to:

subsequent to finalizing the exchange transaction, determine whether the slippage balance of the digital wallet of the receiving client has dropped below a utilization threshold specific to the receiving client; and

in response to determine that the slippage balance of the digital wallet of the receiving client has dropped below the utilization threshold specific to the receiving client, transfer a top-up amount of the digital currency from an internal digital wallet to the digital wallet of the receiving client.

77. The non-transitory computer readable medium of claim 76, wherein the utilization threshold of the receiving client corresponds to a percentage of a total exchange transaction amount of the receiving client over a certain time period.

78. The non-transitory computer readable medium of claim 70, wherein the originating value medium comprises a first fiat currency and the destination value medium comprises a second fiat currency.

79. A computer-implemented method of facilitating cross-medium transactions, the method being performed by one or more processors of a computing system and comprising:

storing, in a database, digital wallets of clients of the cross-medium transaction service, each digital wallet storing a respective amount of digital currency;

communicating, over one or more networks, with computing devices of the clients of the cross-medium transaction service;

receiving, over the one or more networks, a transaction request from a computing device of a sending client of the cross-medium transaction service;

acquiring exchange rate information corresponding to cross-medium exchanges between an originating value medium of the sending client, a digital currency, and a destination value medium of a receiving client;

receiving, over the one or more networks, a confirmation from the computing device of the sending client, the confirmation comprising an authorization to perform an exchange transaction to transfer a value amount to the receiving client; and

upon receiving the confirmation, transmitting trade instructions to the computing device of the sending client to transfer the value amount in the digital currency from a digital wallet of the sending client to a digital wallet of the receiving client.

80. The method of claim 79, wherein the value amount of the digital currency corresponds to a current exchange rate between the originating value medium and the digital currency.

WHAT IS CLAIMED IS:

1. A network-based computing system implementing a cross-medium transaction service, comprising:
 - a network communication interface to communicate, over one or more networks, with (i) client devices executing a transaction service application, and (ii) computing systems of exchanges each implementing conversions between a home value medium and a digital currency;
 - one or more processors; and
 - a memory storing instructions that, when executed by the one or more processors, cause the computing system to:
 - receive, over the one or more networks, a transaction request from a sending client, the transaction request indicating an original value amount in an originating value medium, a destination value medium, and a receiving client;
 - based on the originating value medium and the destination value medium, execute (i) a first filtering program establishing asynchronous network communications with an originating exchange, the first filtering program automatically filtering errant messages from the originating exchange that can cause a transaction corresponding to the transaction request to fail and publishing non-errant messages from the originating exchange to an event feed, and (ii) a second filtering program establishing asynchronous network communications with a destination exchange, the second filtering program automatically filtering errant messages from the destination exchange that can cause the transaction to fail and publishing non-errant messages from the destination exchange to the event feed;
 - transmit, over the one or more networks, a first set of transaction instructions to the originating exchange, the first set of transaction instructions causing the originating exchange to (i) convert the value amount in the originating value medium to a corresponding value amount in a digital currency, and (ii) transfer the corresponding value amount in the digital currency to the destination exchange;
 - transmit, over the one or more networks, a second set of transaction instructions to the destination exchange, the second set of transaction instructions causing the destination exchange to (i) convert the corresponding amount in the digital currency to a corresponding value amount in the destination value medium, and (ii) transfer the corresponding value amount in the destination value medium to an account of the receiving client; and
 - execute exchange management logic that causes the computing system to monitor the event feed and communicate with the originating and destination exchanges based at least in part on the non-errant messages published to the event feed via the first and second filtering programs.

2. The computing system of claim 1, wherein the executed instructions further cause the computing system to:

maintain a client pool of the digital currency at the destination exchange.

3. The computing system of claim 2, wherein the executed instructions further cause the computing system to:

receive, over the one or more networks, a status update from the destination exchange, the status update indicating a deviation from the original value amount; and

based on the deviation, transmit, over the one or more networks, an offset instruction to the destination exchange, the offset instruction causing the destination exchange to utilize the client pool to offset the deviation by an offset amount of the digital currency such that the corresponding value amount in the destination value medium equates to the original value amount in the originating value medium based on a guaranteed exchange rate provided by the computing system.

4. The computing system of claim 3, wherein the deviation is caused by exposure to transaction volatility over a period of time between receiving the transaction request and the transfer of the corresponding value amount in the destination value medium to the account of the receiving client.

5. The computing system of claim 3, wherein the transaction request from the sending client comprises a quote request for an exchange rate between the originating value medium and the destination value medium, and wherein the executed instructions further cause the computing system to:

using the established network communications, receive exchange rate quotes from both the originating exchange and the destination exchange; and

based on the exchange rate quotes, generate the guaranteed exchange rate for the sending and receiving clients.

6. The computing system of claim 5, wherein the deviation corresponds to a value difference between the value amount in the digital currency and a correct amount of the digital currency based on the guaranteed exchange rate, and wherein the offset amount compensates for the deviation to provide the guaranteed exchange rate to the sending and receiving clients.

7. The computing system of claim 3, wherein the client pool of the digital currency at the destination exchange is utilized by the computing system for volatility deviations in cross-medium transactions for all receiving clients associated with the destination value medium.

8. The computing system of claim 3, wherein the client pool of the digital currency at the destination exchange comprises a slippage balance in an account of the receiving client, the slippage balance being dedicated for volatility deviations in cross-medium transactions involving the receiving client.

9. The computing system of claim 1, wherein the executed instructions further cause the computing system to:

establish a dedicated messaging schema for the cross-medium transaction service, the dedicated messaging schema enabling secure transmission, over the one or more networks, of messages to facilitate execution of cross-medium transactions;

wherein the network communications with (i) the client devices executing the transaction service application, and (ii) the computing systems of the exchanges are performed in accordance with the dedicated messaging schema.

10. The computing system of claim 1, wherein the originating value medium comprises a first fiat currency, and wherein the destination value medium comprises a second fiat currency.

11. A non-transitory computer readable medium storing instructions that, when executed by one or more processors of a computing system, cause the computing system to:

communicate, over one or more networks, with (i) client devices executing a transaction service application, and (ii) computing systems of exchanges each implementing conversions between a home value medium and a digital currency;

receive, over the one or more networks, a transaction request from a sending client, the transaction request indicating an original value amount in an originating value medium, a destination value medium, and a receiving client;

based on the originating value medium and the destination value medium, execute (i) a first filtering program establishing asynchronous network communications with an originating exchange, the first filtering program automatically filtering errant messages from the originating exchange that can cause a transaction corresponding to the transaction request to fail and publishing non-errant messages from the originating exchange to an event feed, and (ii) a second filtering program establishing asynchronous network communications with a destination exchange, the second filtering program automatically filtering errant messages from the destination exchange that can cause the transaction to fail and publishing non-errant messages from the destination exchange to the event feed;

transmit, over the one or more networks, a first set of transaction instructions to the originating exchange, the first set of transaction instructions causing the originating exchange to (i) convert the value amount in the originating value medium to a corresponding value amount in a

digital currency, and (ii) transfer the corresponding value amount in the digital currency to the destination exchange;

transmit, over the one or more networks, a second set of transaction instructions to the destination exchange, the second set of transaction instructions causing the destination exchange to (i) convert the corresponding amount in the digital currency to a corresponding value amount in the destination value medium, and (ii) transfer the corresponding value amount in the destination value medium to an account of the receiving client; and

execute exchange management logic that causes the computing system to monitor the event feed and communicate with the originating and destination exchanges based at least in part on the non-errant messages published to the event feed via the first and second filtering programs.

12. The non-transitory computer readable medium of claim 11, wherein the executed instructions further cause the computing system to: maintain a client pool of the digital currency at the destination exchange.

13. The non-transitory computer readable medium of claim 12, wherein the executed instructions further cause the computing system to:

receive, over the one or more networks, a status update from the destination exchange, the status update indicating a deviation from the original value amount; and

based on the deviation, transmit, over the one or more networks, an offset instruction to the destination exchange, the offset instruction causing the destination exchange to utilize the client pool to offset the deviation by an offset amount of the digital currency such that the corresponding value amount in the destination value medium equates to the original value amount in the originating value medium based on a guaranteed exchange rate provided by the computing system.

14. The non-transitory computer readable medium of claim 13, wherein the deviation is caused by exposure to transaction volatility over a period of time between receiving the transaction request and the transfer of the corresponding value amount in the destination value medium to the account of the receiving client.

15. The non-transitory computer readable medium of claim 13, wherein the transaction request from the sending client comprises a quote request for an exchange rate between the originating value medium and the destination value medium, and wherein the executed instructions further cause the computing system to:

using the established network communications, receive exchange rate quotes from both the originating exchange and the destination exchange; and

based on the exchange rate quotes, generate the guaranteed exchange rate for the sending and receiving clients.

16. The non-transitory computer readable medium of claim 15, wherein the deviation corresponds to a value difference between the value amount in the digital currency and a correct amount of the digital currency based on the guaranteed exchange rate, and wherein the offset amount compensates for the deviation to provide the guaranteed exchange rate to the sending and receiving clients.

17. The non-transitory computer readable medium of claim 13, wherein the client pool of the digital currency at the destination exchange is utilized by the computing system for volatility deviations in cross-medium transactions for all receiving clients associated with the destination value medium.

18. The non-transitory computer readable medium of claim 13, wherein the client pool of the digital currency at the destination exchange comprises a slippage balance in an account of the receiving client, the slippage balance being dedicated for volatility deviations in cross-medium transactions involving the receiving client.

19. The non-transitory computer readable medium of claim 11, wherein the executed instructions further cause the computing system to:

establish a dedicated messaging schema for the cross-medium transaction service, the dedicated messaging schema enabling secure transmission, over the one or more networks, of messages to facilitate execution of cross-medium transactions;

wherein the network communications with (i) the client devices executing the transaction service application, and (ii) the computing systems of the exchanges are performed in accordance with the dedicated messaging schema.

20. A computer-implemented method of implementing a remote transaction service, the method being performed by one or more processors of a computing system and comprising:

communicating, over one or more networks, with (i) client devices executing a transaction service application, and (ii) computing systems of exchanges each implementing conversions between a home value medium and a digital currency;

receiving, over the one or more networks, a transaction request from a sending client, the transaction request indicating an original value amount in an originating value medium, a destination value medium, and a receiving client;

based on the originating value medium and the destination value medium, executing (i) a first filtering program establishing asynchronous network communications with an originating exchange, the first filtering program automatically filtering errant messages from the originating exchange that

can cause a transaction corresponding to the transaction request to fail and publishing non-errant messages from the originating exchange to an event feed, and (ii) a second filtering program establishing asynchronous network communications with a destination exchange, the second filtering program automatically filtering errant messages from the destination exchange that can cause the transaction to fail and publishing non-errant messages from the destination exchange to the event feed;

transmitting, over the one or more networks, a first set of transaction instructions to the originating exchange, the first set of transaction instructions causing the originating exchange to (i) convert the value amount in the originating value medium to a corresponding value amount in a digital currency, and (ii) transfer the corresponding value amount in the digital currency to the destination exchange;

transmitting, over the one or more networks, a second set of transaction instructions to the destination exchange, the second set of transaction instructions causing the destination exchange to (i) convert the corresponding amount in the digital currency to a corresponding value amount in the destination value medium, and (ii) transfer the corresponding value amount in the destination value medium to an account of the receiving client; and

execute exchange management logic that causes the computing system to monitor the event feed and communicate with the originating and destination exchanges based at least in part on the non-errant messages published to the event feed via the first and second filtering programs.