CLAIMS

1. A computer-implemented method in an electronic trading environment, the method comprising:

providing, at a first market center, an electronic trading system comprising: (a) a matching engine configured to receive and execute trading orders, (b) a storage medium configured to record an order book, and (c) at least one communication interface configured to communicate electronic data with trade participants, the electronic data including incoming trading orders from the trade participants and outgoing market data updates to the trade participants;

configuring at least one of the matching engine and the at least one communication interface to selectively process the electronic data by performing at least one of:

(1) imposing a first additional latency on the electronic data of the incoming trading orders to the matching engine, such that, prior to the matching engine receiving or executing an electronic trading order, the first market center has sufficient time to process a market data update which has been generated at a second market center prior to the first market center's receipt of said electronic trading order, and

(2) imposing a second additional latency on dissemination of the electronic data of the outgoing market data updates.

2. The computer-implemented method of claim 1, wherein at least one of said first additional latency and said second additional latency is imposed by the matching engine.

3. The computer-implemented method of claim 1, wherein at least one of said first additional latency and said second additional latency is imposed by the at least one communication interface.

4. The computer-implemented method of claim 1, wherein at least one of said first additional latency and said second additional latency is of a predetermined, fixed amount.

5. The computer-implemented method of claim 1, wherein at least one of said first additional latency and said second additional latency is of a variable amount.

6. The computer-implemented method of claim 1, wherein at least one of said first additional latency and said second additional latency is imposed by routing the electronic data through a transmission medium of a physical characteristic chosen to cause a desired amount of latency.

7. The computer-implemented method of claim 6, wherein said transmission medium comprises a physical cable of dimensions chosen to achieve the desired amount of latency.

8. The computer-implemented method of claim 7, wherein said physical cable is a coiled fiber-optic cable of a selected length.

9. The computer-implemented method of claim 6, wherein said transmission medium is a physical medium.

10. The computer-implemented method of claim 6, wherein said transmission medium comprises a wireless or microwave channel.

11. The computer-implemented method of claim 1, wherein at least one of said first additional latency and said second additional latency is imposed by programming the matching engine with a software.

12. The computer-implemented method of claim 1, wherein the first market center is selected from a group consisting of:

a trading exchange for securities, currencies, or other financial instruments;
a dark pool for trading securities, currencies, or other financial instruments;
an alternative trading system;
an Electronic Communication Network (ECN);
a matching engine;

an advertising exchange;

an electronic market;

an auction-based online shopping system;

a ticket or hotel booking system;

a multiplayer online gaming system; and

a virtual in-game market.

13. An electronic trading system of a first market center, the system comprising:

a matching engine configured to receive and execute trading orders;

a storage medium configured to record an order book; and

at least one communication interface configured to communicate electronic data with trade participants, the electronic data including incoming trading orders from the trade participants and outgoing market data updates to the trade participants;

wherein at least one of the matching engine and the at least one communication interface is configured to selectively process the electronic data by performing at least one of:

(1) imposing a first additional latency on the electronic data of the incoming trading orders to the matching engine, such that, prior to the matching engine receiving or executing an electronic trading order, the first market center has sufficient time to process a market data update which has been generated at a second market center prior to the first market center's receipt of said electronic trading order, and

(2) imposing a second additional latency on dissemination of the electronic data of the outgoing market data updates.

14. The electronic trading system of claim 13, wherein at least one of said first additional latency and said second additional latency is imposed by the matching engine.

15. The electronic trading system of claim 13, wherein at least one of said first additional latency and said second additional latency is imposed by the at least one communication interface.

16. The electronic trading system of claim 13, wherein at least one of said first additional latency and said second additional latency is of a predetermined, fixed amount.

17. The electronic trading system of claim 13, wherein at least one of said first additional latency and said second additional latency is of a variable amount.

18. The electronic trading system of claim 13, wherein at least one of said first additional latency and said second additional latency is imposed by routing the electronic data through a transmission medium of a physical characteristic chosen to cause a desired amount of latency.

19. The electronic trading system of claim 18, wherein said transmission medium comprises a physical cable of dimensions chosen to achieve the desired amount of latency.

20. The electronic trading system of claim 19, wherein said physical cable is a coiled fiber-optic cable of a selected length.

21. The electronic trading system of claim 18, wherein said transmission medium is a physical medium.

22. The electronic trading system of claim 18, wherein said transmission medium comprises a wireless or microwave channel.

23. The electronic trading system of claim 13, wherein at least one of said first additional latency and said second additional latency is imposed by programming the matching engine with a software.

24. The electronic trading system of claim 13, wherein the first market center is selected from a group consisting of:

a trading exchange for securities, currencies, or other financial instruments;

a dark pool for trading securities, currencies, or other financial instruments;

an alternative trading system;

an Electronic Communication Network (ECN);
a matching engine;
an advertising exchange;
an electronic market;
an auction-based online shopping system;
a ticket or hotel booking system;
a multiplayer online gaming system; and
a virtual in-game market.

25. A computer system for TCP-to-multicast (T2M) communications in a computer network having a front-end server and a plurality of back-end services, the computer system comprising:

at least one computer processor configured as part of a front-end server in an electronic network;

at least one first communication interface configured for one-to-one communications with each of one or more client computers based on Transmission Control Protocol (TCP); and

at least one second communication interface configured for one-to-many communications whereby at least a portion of information received from one of the one or more client computers is transmitted simultaneously to the plurality of back-end services based on User Datagram Protocol (UDP).

26. The computer system according to claim 25, wherein the at least one first communication interface is configured for maintaining a TCP connection with each of the one or more client computers via a single communication port.

27. The computer system according to claim 25, wherein the plurality of back-end services are provided by multiple back-end servers.

28. The computer system according to claim 25, wherein at least one of the plurality of back-end services is configured to transmit at least the portion of said information to at least one further back-end service.

29. The computer system according to claim 25, wherein the one-to-many communications with the plurality of back-end services are shielded from the one or more client computers.

30. The computer system according to claim 29, wherein the plurality of back-end services are configured to be scaled independently from the front-end server.

31. The computer system according to claim 29, wherein at least the portion of said information is streamed independently and in parallel for real-time quality analysis.

32. A method for TCP-to-multicast (T2M) communications in a computer network having a front-end server and a plurality of back-end services, the method comprising:

receiving, by the front-end server, information from each of one or more client computers via one-to-one communications based on Transmission Control Protocol (TCP); and

transmitting, via one-to-many communications, at least a portion of said information simultaneously to the plurality of back-end services based on User Datagram Protocol (UDP).

33. The method according to claim 32, further comprising:

maintaining a TCP connection with each of the one or more client computers via a single communication port.

34. The method according to claim 32, wherein the plurality of back-end services are provided by multiple back-end servers.

35. The method according to claim 32, further comprising:

transmitting, by at least one of the plurality of back-end services, at least the portion of the said information to at least one further back-end service.

36. The method according to claim 32, wherein the one-to-many communications with the plurality of back-end services are shielded from the one or more client computers.

37. The method according to claim 36, further comprising:

scaling the plurality of back-end services independently from the front-end server.

38. The method according to claim 36, further comprising:

streaming at least the portion of said information independently and in parallel for real-time quality analysis.

39. A non-transitory computer-readable medium having code for causing at least one computer processor to implement TCP-to-multicast (T2M) communications in a computer network having a front-end server and a plurality of back-end services, the computer-readable medium comprising:

code for receiving, by the front-end server, information from each of one or more client computers via one-to-one communications based on Transmission Control Protocol (TCP); and

code for transmitting, via one-to-many communications, at least a portion of said information simultaneously to the plurality of back-end services based on User Datagram Protocol (UDP).

40. The computer-readable medium according to claim 39, further comprising:

code for maintaining a TCP connection with each of the one or more client computers via a single communication port.

41. The computer-readable medium according to claim 39, wherein the plurality of back-end services are provided by multiple back-end servers.

42. The computer-readable medium according to claim 39, wherein at least one of the plurality of back-end services is configured to transmit at least the portion of said information to at least one further back-end service.

43. The computer-readable medium according to claim 39, wherein the one-to-many communications with the plurality of back-end services are shielded from the one or more client computers.

44. The computer-readable medium according to claim 39, wherein the plurality of back-end services are configured to be scaled independently from the front-end server.

45. The computer-readable medium according to claim 39, wherein at least the portion of said information is streamed independently and in parallel for real-time quality analysis.

46. A computer-implemented method for posting orders in an electronic trading system, the method comprising:

maintaining an electronic order book that records orders in a storage medium;

determining, by at least one processor, whether a buy or sell price of an order is more aggressive than a midpoint price of a national best bid/offer (NBBO);

posting said order to said electronic book with a revised buy or sell price equaling said midpoint price if said buy or sell price is more aggressive than said midpoint price; and

posting said order to said electronic book without revising said buy or sell price if said buy or sell price is not more aggressive than said midpoint price.

47. The method according to claim 46, further comprising:

re-evaluating a posted order based on an updated midpoint price of an updated national best bid/offer (NBBO).

48. The method according to claim 46, wherein posting said order to said electronic book with said revised buy or sell price is independent of an arrival time of said order relative to an arrival time of another order having a buy or sell price more aggressive than said midpoint price of said NBBO.

49. The method according to claim 46, further comprising:

comparing said buy or sell price of said order to a buy or sell price of a contra-side order.

50. The method according to claim 49, wherein comparing said buy or sell price of said order to said buy or sell price of said contra-side order is prior to determining, by at least one

processor, whether said buy or sell price of said order is more aggressive than said midpoint price of said national best bid/offer (NBBO).

51. The method according to claim 46, further comprising:

determining said midpoint price of said NBBO upon a change in market data.

52. The method according to claim 51, wherein determining said midpoint price of said NBBO upon said change in market data is prior to determining, by at least one processor, whether said buy or sell price of said order is more aggressive than said midpoint price of said national best bid/offer (NBBO).

53. A computer system for posting orders in an electronic trading system, the computer system comprising:

at least one storage medium for maintaining an electronic order book that records orders;

at least one processor coupled to the at least one storage medium and configured to:

determine whether a buy or sell price of an order is more aggressive than a midpoint price of a national best bid/offer (NBBO);

post said order to said electronic book with a revised buy or sell price equaling said midpoint price if said buy or sell price is more aggressive than said midpoint price; and

post said order to said electronic book without revising said buy or sell price if said buy or sell price is not more aggressive than said midpoint price.

54. The system according to claim 53, further configured to:

re-evaluate a posted order based on an updated midpoint price of an updated national best bid/offer (NBBO).

55. The system according to claim 53, wherein posting said order to said electronic book with said revised buy or sell price is independent of an arrival time of said order relative to an arrival time of another order having a buy or sell price more aggressive than said midpoint price of said NBBO.

56. The system according to claim 53, wherein said at least one processor is further configured to:

compare said buy or sell price of said order to a buy or sell price of a contra-side order.

57. The system according to claim 56, wherein comparing said buy or sell price of said order to said buy or sell price of said contra-side order is prior to determining whether said buy or sell price of said order is more aggressive than said midpoint price of said national best bid/offer (NBBO).

58. The system according to claim 53, wherein said at least one processor is further configured to:

determine said midpoint price of said NBBO upon a change in market data.

59. The system according to claim 58, wherein determining said midpoint price of said NBBO upon said change in market data is prior to determining whether said buy or sell price of said order is more aggressive than said midpoint price of said national best bid/offer (NBBO).

60. A non-transitory computer-readable medium having code for causing at least one computer processor to post orders in an electronic trading system, the computer-readable medium comprising:

code for maintaining an electronic order book that records orders in a storage medium;

code for determining whether a buy or sell price of an order is more aggressive than a midpoint price of a national best bid/offer (NBBO);

code for posting said order to said electronic book with a revised buy or sell price equaling said midpoint price if said buy or sell price is more aggressive than said midpoint price; and

code for posting said order to said electronic book without revising said buy or sell price if said buy or sell price is not more aggressive than said midpoint price.

61. The computer-readable medium according to claim 60, further comprising:

code for re-evaluating a posted order based on an updated midpoint price of an updated national best bid/offer (NBBO).

62. The computer-readable medium according to claim 60, wherein posting said order to said electronic book with said revised buy or sell price is independent of an arrival time of said order relative to an arrival time of another order having a buy or sell price more aggressive than said midpoint price of said NBBO.

63. The computer-readable medium according to claim 60, further comprising:

code for comparing said buy or sell price of said order to a buy or sell price of a contra-side order.

64. The computer-readable medium according to claim 63, wherein said code for comparing said buy or sell price of said order to said buy or sell price of said contra-side order is executed prior to said code for determining whether said buy or sell price of said order is more aggressive than said midpoint price of said national best bid/offer (NBBO).

65. The computer-readable medium according to claim 60, further comprising:

code for determining said midpoint price of said NBBO upon a change in market data.

66. The computer-readable medium according to claim 65, wherein said code for determining said midpoint price of said NBBO upon said change in market data is executed prior to said code for determining whether said buy or sell price of said order is more aggressive than said midpoint price of said national best bid/offer (NBBO).