

SUMMARY OF INVENTION

[0003a] According to an aspect of the present invention, there is provided a method including:

- 5 storing, by a computing device, a snapshot message in a first buffer, wherein the snapshot message represents a state of a data source at a first time;
- sending, by the computing device, a first snapshot message from the first buffer using the stored snapshot message to a first recipient device; and
- sending, by the computing device, a second snapshot message from the first buffer using the stored snapshot message to a second recipient device;
- 10 storing, by the computer device, a deltasnap message in a second buffer, wherein the deltasnap message represents a difference between the state of the data source at a second time and the state of the data source at the first time;
- sending, by the computing device, a first deltasnap message from the second buffer using the stored deltasnap message to the first recipient device; and
- 15 sending, by the computing device, a second deltasnap message from the second buffer using the stored deltasnap message to the second recipient device.

BRIEF DESCRIPTION OF THE FIGURES

- [0004] Certain embodiments are disclosed with reference to the following drawings.
- 20 [0005] FIG. 1 illustrates a block diagram of an example computing device which may be used to implement certain embodiments.
- [0006] FIG. 2 illustrates a block diagram of an example system for sending tailored messages to one or more receiving devices.
- [0007] FIG. 3 illustrates a block diagram of an example subscription control module
- 25 which may be used to send snapshots and deltasnaps to one or more receiving devices.
- [0008] FIG. 4 illustrates a data flow showing an example using the snapshot technique.
- [0009] FIG. 5 illustrates a data flow showing an example using the delta technique.

- [0010] FIG. 6 illustrates a data flow showing an example using the deltasnap technique.
- [0011] FIGS. 7A and 7B illustrate block diagrams showing example data levels.
- [0012] FIGS. 8A and 8B illustrate block diagrams showing example tailorable messages
5 based on snapshots and deltasnaps.
- [0013] FIG. 9 illustrates a data flow showing an example using the tailored deltasnap technique.
- [0014] FIG. 10 illustrates an example tailorable message in a buffer.
- [0015] FIG. 11 illustrates an example data flow diagram depicting example connections
10 between example receiving devices and the example subscription control module.
- [0016] FIG. 12 is a flow diagram of an example method representative of example machine readable instructions which may be executed to implement the subscription control module of FIGS. 2 and 3.
- [0017] FIG. 13 is a flow diagram of an example method representative of example
15 machine readable instructions which may be executed to implement the data formatter of FIG. 3.

CLAIMS

1. ~~—A method including:~~

~~storing, by a computing device, a snapshot message in a first buffer, wherein the snapshot message represents a state of a data source at a first time;~~

5 ~~sending, by the computing device, a first snapshot message from the first buffer using the stored snapshot message to a first recipient device; and~~

~~sending, by the computing device, a second snapshot message from the first buffer using the stored snapshot message to a second recipient device;~~

10 ~~storing, by the computer device, a deltasnap message in a second buffer, wherein the deltasnap message represents a difference between the state of the data source at a second time and the state of the data source at the first time;~~

~~sending, by the computing device, a first deltasnap message from the second buffer using the stored deltasnap message to the first recipient device; and~~

15 ~~sending, by the computing device, a second deltasnap message from the second buffer using the stored deltasnap message to the second recipient device.~~

2. ~~—The method of claim 1, wherein the first snapshot message is a first portion of the snapshot message in the first buffer, wherein the second snapshot message is a second portion of the snapshot message in the first buffer.~~

20 3. ~~—The method of claim 1, wherein the snapshot message is organized into a plurality of data levels, wherein the plurality of data levels includes a first data level and a second data level.~~

4. ~~—The method of claim 3, wherein the plurality of data levels are organized in descending order of interest.~~

25 5. ~~—The method of claim 3, wherein each data level of the plurality of data levels is associated with a plurality of values.~~

6. ~~—The method of claim 3, wherein the first snapshot message includes the first data level, wherein the second snapshot message includes the first data level and the second data level.~~

7. ~~—The method of claim 1, further including:~~

generating, by the computing device, a first partition table into the first buffer, wherein the first partition table indicates a first partitionable location of the snapshot message and a second partitionable location of the snapshot message.

8. — The method of claim 7, wherein the first snapshot message includes the snapshot message up to the first partitionable location, wherein the second snapshot message includes the snapshot message up to the second partitionable location.

9. — The method of claim 1, wherein the first snapshot message is based on a number of data levels requested by the first recipient device, wherein the second snapshot message is based on a number of data levels requested by the second recipient device.

10. — The method of claim 1, wherein the first snapshot message includes a larger portion of the snapshot message than the second snapshot message.

11. — The method of claim 1, wherein the first deltasnap message includes one or more actions instructing the first recipient device to modify the state represented by the first snapshot message to reflect the state of the data source at the second time, wherein the second deltasnap message includes one or more actions instructing the second recipient device to modify the state represented by the first snapshot message to reflect the state of the data source at the second time.

12. — The method of claim 1, wherein the first deltasnap message is a first portion of the deltasnap message in the second buffer, wherein the second deltasnap message is a second portion of the deltasnap message in the second buffer.

13. — The method of claim 1, wherein the snapshot message is organized into a plurality of data levels, wherein the first deltasnap message includes one or more actions for each of the respective data levels instructing the first recipient device to modify the state represented by the respective data level of the first snapshot message to reflect the state of the data source at the second time, wherein the second deltasnap message includes one or more actions for each of the respective data levels instructing the second recipient device to modify the state represented by the respective data level of the second snapshot message to reflect the state of the data source at the second time.

~~14. — The method of claim 13, wherein the plurality of data levels includes a first data level and a second data level, wherein the first deltasnap message includes actions for the first data level, wherein the second deltasnap message includes actions for the first data level and the second data level.~~

5 ~~15. — The method of claim 1, further including:~~

~~generating, by the computing device, a first partition table into the second buffer, wherein the first partition table indicates a first partitionable location of the deltasnap message and a second partitionable location of the deltasnap message.~~

10 ~~16. — The method of claim 15, wherein the first deltasnap message includes the deltasnap message up to the first partitionable location, wherein the second deltasnap message includes the deltasnap message up to the second partitionable location.~~

~~17. — The method of claim 1, wherein the first deltasnap message is based on a number of data levels requested by the first recipient device, wherein the second deltasnap message is based on a number of data levels requested by the second recipient device.~~

15 ~~18. — The method of claim 1, wherein the first deltasnap message includes a larger portion of the deltasnap message than the second deltasnap message.~~

~~19. — The method of claim 1, wherein the data source represents a market for a tradeable object, wherein the first recipient device is a first electronic trading device, wherein the second recipient device is a second electronic trading device.~~

20 ~~20. — The method of claim 19, wherein the computing device is a gateway in communication with the first electronic trading device and the second electronic trading device.~~

25 ~~21. A computer readable medium having stored thereon instructions for execution by a processor, wherein the instructions are executable to perform the method as claimed in any one of claims 1 to 20.~~

~~22. — A computer system comprising:
at least one processor; and~~

~~at least one memory module having computer-executable instructions stored thereon, the computer-executable instructions configured to, with the at least one processor, cause the computer system to perform the method as claimed in any one of claims 1 to 20.~~

1. A method including:

5 storing, by a computing device, a snapshot message in a first buffer, wherein the snapshot message represents a state of a data source at a first time;

sending, by the computing device, a first snapshot message from the first buffer using the stored snapshot message to a first recipient device; and

10 sending, by the computing device, a second snapshot message from the first buffer using the stored snapshot message to a second recipient device;

storing, by the computing device, a deltasnap message in a second buffer, wherein the deltasnap message represents a difference between the state of the data source at a second time and the state of the data source at the first time;

15 sending, by the computing device, a first deltasnap message from the second buffer using the stored deltasnap message to the first recipient device; and

sending, by the computing device, a second deltasnap message from the second buffer using the stored deltasnap message to the second recipient device.

20 2. The method of claim 1, wherein the first snapshot message is a first portion of the snapshot message in the first buffer, wherein the second snapshot message is a second portion of the snapshot message in the first buffer.

3. The method of claim 1, wherein the snapshot message is organized into a plurality of data levels, wherein the plurality of data levels includes a first data level and a second data level.

25 4. The method of claim 3, wherein the plurality of data levels are organized in descending order of interest.

5. The method of claim 3, wherein each data level of the plurality of data levels is associated with a plurality of values.

30 6. The method of claim 3, wherein the first snapshot message includes the first data level, wherein the second snapshot message includes the first data level and the second data level.

7. The method of claim 1, further including:

generating, by the computing device, a first partition table into the first buffer, wherein the first partition table indicates a first partitionable location of the snapshot message and a second partitionable location of the snapshot message.

5 8. The method of claim 7, wherein the first snapshot message includes the snapshot message up to the first partitionable location, wherein the second snapshot message includes the snapshot message up to the second partitionable location.

10 9. The method of claim 1, wherein the first snapshot message is based on a number of data levels requested by the first recipient device, wherein the second snapshot message is based on a number of data levels requested by the second recipient device.

10. The method of claim 1, wherein the first snapshot message includes a larger portion of the snapshot message than the second snapshot message.

15 11. The method of claim 1, wherein the first deltasnap message includes one or more actions instructing the first recipient device to modify the state represented by the first snapshot message to reflect the state of the data source at the second time, wherein the second deltasnap message includes one or more actions instructing the second recipient device to modify the state represented by the first snapshot message to reflect the state of the data source at the second time.

20 12. The method of claim 1, wherein the first deltasnap message is a first portion of the deltasnap message in the second buffer, wherein the second deltasnap message is a second portion of the deltasnap message in the second buffer.

25 13. The method of claim 1, wherein the snapshot message is organized into a plurality of data levels, wherein the first deltasnap message includes one or more actions for each of the respective data levels instructing the first recipient device to modify the state represented by the respective data level of the first snapshot message to reflect the state of the data source at the second time, wherein the second deltasnap message includes one or more actions for each of the respective data levels instructing the second recipient device to modify the state represented by the respective data level of the second snapshot message to reflect the state of the data source at the second time.

14. The method of claim 13, wherein the plurality of data levels includes a first data level and a second data level, wherein the first deltasnap message includes actions for the first data level, wherein the second deltasnap message includes actions for the first data level and the second data level.

5 15. The method of claim 1, further including:

generating, by the computing device, a first partition table into the second buffer, wherein the first partition table indicates a first partitionable location of the deltasnap message and a second partitionable location of the deltasnap message.

10 16. The method of claim 15, wherein the first deltasnap message includes the deltasnap message up to the first partitionable location, wherein the second deltasnap message includes the deltasnap message up to the second partitionable location.

17. The method of claim 1, wherein the first deltasnap message is based on a number of data levels requested by the first recipient device, wherein the second deltasnap message is based on a number of data levels requested by the second recipient device.

15 18. The method of claim 1, wherein the first deltasnap message includes a larger portion of the deltasnap message than the second deltasnap message.

19. The method of claim 1, wherein the data source represents a market for a tradeable object, wherein the first recipient device is a first electronic trading device, wherein the second recipient device is a second electronic trading device.

20 20. The method of claim 19, wherein the computing device is a gateway in communication with the first electronic trading device and the second electronic trading device.