What is claimed is:

1. A method, comprising:

defining an address book for a distributed database, the address book including an identifier for each compute device from a plurality of compute devices that implements the distributed database via a network;

receiving, from a compute device from the plurality of compute devices, an event including a transaction to update the address book;

calculating an attribute for each event from a plurality of events, the event included in the plurality of events;

calculating, based on a consensus protocol of the distributed database that uses the address book, a received round for the event that is based on a threshold number of events from a set of events being descendants of the event;

updating the address book based on the transaction to define an updated address book a predetermined number of rounds after at least one of the received round for the event or a previous update to the address book, the predetermined number of rounds being greater than one;

recalculating, using the updated address book, the attribute for a first event from the plurality of events in response to the first event not having a descendent event from the set of events; and

excluding the attribute for a second event from the plurality of events from being recalculated using the updated address book in response to the second event having a descendant event from the set of events.

2. The method of claim 1, wherein the transaction to update the address book includes at least one of adding a compute device to the plurality of compute devices that implements the distributed database or removing a compute device from the plurality of compute devices that implements the distributed database.

3. The method of claim 1, wherein the address book includes a stake value for each compute device from the plurality of compute devices that implements the distributed database, the transaction to update the address book includes modifying the stake value for at least one compute device from the plurality of compute devices.

4. The method of claim 1, wherein a received round for each event from the plurality of events associated with the distributed database is based on a set of descendant events for that event, the set of descendant events being calculated using the address book prior to the updating, the set of descendant events being calculated using the updated address book after the updating.

5. The method of claim 1, wherein the updating includes defining the updated address book the predetermined number of rounds after the previous update to the address book, the updated address book including updates to the address book within events having a received round number between a round in which the previous update to the address book occurred and a round in which the updated address book is defined.

6. The method of claim 1, wherein the identifier for each compute device from the plurality of compute devices is a public key for that compute device from the plurality of compute devices.

7. An apparatus, comprising:

a memory of a compute device associated with a distributed database implemented by a plurality of compute devices via a network operatively coupled to the plurality of compute devices; and

a processor operatively coupled to the memory, the processor configured to:

define an address book for the distributed database, the address book including an identifier for each compute device from the plurality of compute devices that implements the distributed database;

receive, from a compute device from the plurality of compute devices, an event including a transaction to update the address book;

calculate an attribute for each event from a plurality of events, the event included in the plurality of events;

calculate, based on a consensus protocol of the distributed database that uses the address book, a received round for the event, the received round being based on a threshold number of events from a set of events being descendants of the event;

update the address book based on the transaction to define an updated address book a predetermined number of rounds after at least one of the received round for the

event or a previous update to the address book, the predetermined number of rounds being greater than one;

recalculate, using the updated address book, the attribute for a first event from the plurality of events in response to the first event not having a descendent event from the set of events; and

exclude the attribute for a second event from the plurality of events from being recalculated in response to the second event having a descendant event from the set of events.

8. The apparatus of claim 7, wherein the processor is configured to update the address book based on the transaction to define the updated address book the predetermined number of rounds after the received round for the event, the predetermined number of rounds being greater than one.

9. The apparatus of claim 7, wherein the processor is configured to update the address book based on the transaction to define the updated address book the predetermined number of rounds after the previous update to the address book, the updated address book including updates to the address book within events having a received round number between a round in which the previous update to the address book occurred and a round in which the updated address book is defined.

10. The apparatus of claim 7, wherein the transaction to update the address book includes at least one of adding a compute device to the plurality of compute devices that implements the distributed database or removing a compute device from the plurality of compute devices that implements the distributed database.

11. The method of claim 1, wherein the compute device is a first compute device, the method further comprising:

defining a state of the distributed database based on a plurality of received rounds for the plurality of events and including the received round for the event; and

sending the state of the distributed database to a second compute device from the plurality of compute devices, the state (1) being associated with a completed round of the consensus protocol, (2) including an indication of a core set of events that (a) is associated with

the completed round and (b) includes fewer events than the set of events, and (3) being used to generate a directed acyclic graph (DAG) at the second compute device.

12. The apparatus of claim 7, wherein the compute device is a first compute device and the processor is further configured to:

define a state of the distributed database based on a plurality of received rounds for the plurality of events and including the received round for the event; and

send the state of the distributed database to a second compute device from the plurality of compute devices, the state (1) being associated with a completed round of the consensus protocol, (2) including an indication of a core set of events that (a) is associated with the completed round and (b) includes fewer events than the set of events, and (3) being used to generate a directed acyclic graph (DAG) at the second compute device.