WHAT IS CLAIMED IS:

1. A method, comprising:

receiving, by a first node in a network at a first receive time, a first periodic beacon from a second node in the network, the first periodic beacon including a first network time associated with the second node;

determining, by the first node, a current time slot number at the second node based on the first network time and an elapsed time since the first receive time;

determining, by the first node, a first transmission time of a first unicast message to the second node based on the current time slot number and a unicast interval between consecutive unicast listening times on the second node; and

transmitting, by the first node, the first unicast message to the second node at the first transmission time.

2. The method of claim 1, further comprising:

estimating, by the first node, a second receive time at which a second periodic beacon is to be received from the second node based on the first network time and the first receive time; and

calculating, by the first node, a first listening window for the second periodic beacon based on the second receive time and at least one of a jitter uncertainty associated with timing jitter in the first node or the second node or a drift uncertainty associated with an anticipated drift in a correction of a timing error between the first node and the second node.

3. The method of claim 1, further comprising storing, by the first node, the first network time and the first receive time in an entry for the second node in a neighborhood table prior to determining the first transmission time.

4. The method of claim 1, wherein:

determining the current time slot number comprises computing the current time slot number based on the elapsed time since the first receive time, a previous time slot number representing the first network time, and a time slot duration, and

determining the first transmission time comprises computing an expected time slot number corresponding to the first transmission time based on the current time slot number and the unicast interval.

5. The method of claim 1, further comprising:

determining, by the first node, a second receive time at which a second unicast message from the second node is to be received based on a second network time that is transmitted via a second periodic beacon to the second node;

calculating, by the first node, a first listening window for the second unicast message based on the second receive time and at least one of a first jitter uncertainty associated with timing jitter in the first node or the second node or a first drift uncertainty associated with an anticipated drift in timing between the first node and the second node; and

listening, by the first node, for the second unicast message during the first listening window.

6. The method of claim 5, wherein determining the second receive time comprises computing a first time slot number corresponding to the second receive time based on a second time slot number corresponding to the second network time and the unicast interval.

7. The method of claim 5, wherein calculating the first listening window comprises determining a start time for the first listening window that precedes the second receive time by a sum of the first jitter uncertainty and the first drift uncertainty.

8. The method of claim 5, wherein calculating the first listening window comprises determining an end time for the first listening window based on a sum of the second

receive time, a duration of a synchronization header for the first unicast message, the first jitter uncertainty, and the first drift uncertainty.

9. The method of claim 5, wherein calculating the first listening window comprises determining the first jitter uncertainty based on a first jitter for the first node and a second jitter for the second node.

10. The method of claim 5, wherein calculating the first listening window comprises obtaining the first drift uncertainty as an attribute associated with a media access control layer of the network.

11. One or more non-transitory computer readable media storing instructions that, when executed by one or more processors of a first node in a network, cause the one or more processors to perform the steps of:

retrieving, from a neighborhood table, a first network time included in a first periodic beacon received from a second node in the network and a first receive time of the first periodic beacon;

determining, by the first node, a current time slot number at the second node based on the first network time and an elapsed time since the first receive time;

determining, by the first node, a first transmission time of a first unicast message to the second node based on the current time slot number and a unicast interval between consecutive unicast listening times on the second node; and

transmitting the first unicast message to the second node at the first transmission time.

12. The one or more non-transitory computer readable media of claim 11, wherein the instructions further cause the one or more processors to perform the steps of:

receiving, from the second node and at a second receive time, a second periodic beacon that includes a second network time associated with the second node;

determining a second transmission time of a second unicast message to the second node based on the second network time and the unicast interval; and

transmitting the second unicast message to the second node at the second transmission time.

13. The one or more non-transitory computer readable media of claim 12, wherein the instructions further cause the one or more processors to perform the steps of:

estimating the second receive time at which the second periodic beacon is to be received from the second node based on the first network time and the first receive time; and

calculating a first listening window for the second periodic beacon based on the second receive time and at least one of a jitter uncertainty associated with timing jitter in the first node or the second node or a drift uncertainty associated with an anticipated drift in a correction of a timing error between the first node and the second node.

14. The one or more non-transitory computer readable media of claim 12, wherein the instructions further cause the one or more processors to perform the step of replacing the first network time and the first receive time in the neighborhood table with the second network time and the second receive time.

15. The one or more non-transitory computer readable media of claim 11, wherein the instructions further cause the one or more processors to perform the steps of:

determining a second receive time at which a second unicast message from the first node is to be received based on a second network time that is transmitted via a second periodic beacon to the second node;

calculating a first listening window for the second unicast message based on the second receive time and at least one of a first jitter uncertainty associated with timing jitter in the first node or the second node or a first drift uncertainty associated with an anticipated drift in timing between the first node and the second node; and

listening for the second unicast message during the first listening window.

16. The one or more non-transitory computer readable media of claim 15, wherein the instructions further cause the one or more processors to perform the steps of:

generating a third unicast message based on a payload of the second unicast message;

determining a second transmission time of the third unicast message to a third node in the network based on a third network time associated with the third node and the unicast interval; and

transmitting the third unicast message to the third node at the second transmission time.

17. The one or more non-transitory computer readable media of claim 15, wherein determining the second receive time comprises computing a time slot number corresponding to the second receive time based on the second network time and the unicast interval.

18. The one or more non-transitory computer readable media of claim 11, wherein:

determining the current time slot number comprises computing the current time slot number based on the elapsed time since the first receive time, a previous time slot number representing the first network time, and a time slot duration, and

determining the first transmission time comprises computing an expected time slot number corresponding to the first transmission time based on the current time slot number and the unicast interval.

19. The one or more non-transitory computer readable media of claim 11, wherein the network comprises a mesh network.

20. A node in a network, comprising:

a memory that stores instructions, and

a processor that is coupled to the memory and, when executing the instructions, is configured to:

receive, from a second node in the network and at a first receive time, a first periodic beacon, the first periodic beacon including a first network time associated with the second node;

determine a current time slot number at the second node based on the first network time and an elapsed time since the first receive time;

determine a first transmission time of a first unicast message to the second node based on the current time slot number and a unicast interval between consecutive unicast listening times on the second node; and

transmit the first unicast message to the second node at the first transmission time.