WHAT IS CLAIMED IS:

1. A method comprising:

attempting to detect, with a first transceiver associated with a first node,

a network discovery signal from a second node, wherein the attempting is performed according to (a) a first listening schedule associated with a first physical layer mode and (b) a second listening schedule associated with a second physical layer mode;

detecting, with the first transceiver, the network discovery signal during a slot associated with the first listening schedule; and

in response to detecting the network discovery signal, establishing, with the first node, a connection between the first node and the second node using the first physical layer mode.

2. The method of claim 1, wherein the network discovery signal comprises at least a header portion of a network discovery frame.

3. The method of claim 1, wherein the network discovery signal is received from the second node attempting to join a network that includes the first node.

4. The method of claim 1, wherein the first physical layer mode comprises a first data rate and the second physical layer mode comprises a second data rate that is different than the first data rate.

5. The method of claim 1, wherein the first physical layer mode comprises a first data rate and the second physical layer mode comprises a second data rate that is lower than the first data rate.

6. The method of claim 5, wherein the second listening schedule includes a slot that has an active period in which the network discovery signal can be detected and an inactive period in which the network discovery signal cannot be detected.

7. The method of claim 6, wherein each slot included in the second listening schedule has a respective active period in which the network discovery signal can be detected and a respective inactive period in which the network discovery signal cannot be detected.

8. The method of claim 6, wherein the inactive period temporally overlaps one or more slots associated with the first listening schedule.

9. The method of claim 6, wherein the active period has a longer duration than the slot associated with the first listening schedule.

10. The method of claim 1, wherein:

the first listening schedule comprises a first frequency-hopping sequence for a first set of frequency bands;

the second listening schedule comprises a second frequency-hopping sequence for a second set of frequency bands; and

the first set of frequency bands includes different frequency bands than the second set of frequency bands.

11. The method of claim 1, wherein attempting to detect the network discovery signal according to the first listening schedule and the second listening schedule comprises attempting to detect the network discovery signal via a hybrid listening schedule that includes the first listening schedule and the second listening schedule.

12. A method comprising:

transmitting, with a first transceiver of a first node, a first network discovery signal using a first physical layer mode of the first transceiver for a first time interval;

upon expiration of the first time interval without receiving a response with the first transceiver to the first network discovery signal, transmitting, with the first transceiver, a second network discovery signal using a second physical layer mode of the first transceiver for a second time interval; and

in response to the first transceiver receiving a response to the second network discovery signal from a second node, establishing, with the first transceiver, a connection between the first node and the second node using the second physical layer mode.

13. The method of claim 12, wherein:

transmitting the first network discovery signal using the first physical layer mode comprises transmitting the first network discovery signal with a first data rate associated with the first physical layer mode;

transmitting the second network discovery signal using the second physical layer mode comprises transmitting the second network discovery signal with a second data rate associated with the second physical layer mode; and

the first data rate is different than the second data rate.

14. The method of claim 13, wherein the first data rate is greater than the second data rate.

15. The method of claim 12, wherein transmitting the first network discovery signal using the first physical layer mode for the first time interval comprises:

transmitting for a first time, with the first transceiver, the first network discovery signal using the first physical layer mode; and

upon expiration of a first response period without receiving a response to the first network discovery signal, transmitting for a second time, using the first transceiver, the first network discovery signal using the first physical layer mode.

16. The method of claim 15, wherein transmitting the first network discovery signal for the first time comprises transmitting, with the first transceiver, the first network discovery signal via a first channel associated with the first physical layer mode, and transmitting the first network discovery signal for the second time comprises transmitting, with the first transceiver, the first network discovery signal via a second channel associated with the first physical layer mode.

17. The method of claim 16, further comprising, upon expiration of a second response period without receiving a response via the second channel to the first network discovery signal, transmitting, with the first transceiver, the first network discovery signal via a third channel associated with the first physical layer mode, wherein the second response period has a different duration than the first response period.

18. The method of claim 15, wherein the first response period is based on a random function.

19. The method of claim 12, wherein transmitting the second network discovery signal using the second physical layer mode for the second time interval comprises:

transmitting for a first time, with the first transceiver, the second network discovery signal using the second physical layer mode; and

upon expiration of a second response period without receiving a response to the second network discovery signal, transmitting for a second time, using the first transceiver, the second network discovery signal using the second physical layer mode.

20. A non-transitory computer readable medium storing instructions that, when executed by a processor, cause the processor to perform operations comprising:

attempting to receive, with a first transceiver associated with a first node, a network discovery signal from a second node, wherein the attempting is performed according to (a) a first channel-hopping sequence associated with a first physical layer mode and (b) a second channel hopping-sequence associated with a second physical layer mode;

detecting, with the first transceiver, the network discovery signal during a slot associated with the first channel-hopping sequence; and

in response to receiving the network discovery signal, establishing, with the first node, a connection between the first node and the second node using the first physical layer mode.