

CLAIMS

WHAT IS CLAIMED IS:

- 5 1. A method comprising:
- determining a particular data channel, from a plurality of data channels, for
broadcasting data;
- broadcasting a prepare-to-broadcast message via a control channel, the
prepare-to-broadcast message indicating that the data will be broadcast on the
10 particular data channel;
- switching to the particular data channel;
- broadcasting the data via the particular data channel without having
received a communication from a neighboring node that indicates an availability of
the neighboring node to receive the data; and
- 15 switching to the control channel after the data has been broadcast.
2. The method of claim 1, wherein:
- the broadcasting the data includes broadcasting the data to a plurality of
nodes; and
- 20 the switching to the control channel includes switching to the control channel
without receiving an acknowledgement message from any of the plurality of nodes.
3. The method of claim 1, wherein the particular data channel is determined by
a media access control layer.

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4. The method of claim 1, wherein:

the control channel is located on a first channel of a multi-channel network when the prepare-to-broadcast message is broadcast via the control channel; and

the method further comprises:

frequency hopping the control channel from the first channel to a second channel of the multi-channel network; and

rebroadcasting the prepare-to-broadcast message via the control channel which is located on the second channel.

5. One or more non-transitory computer-readable media storing executable instructions that, when executed by one or more processors, cause the one or more processors to perform the method of claim 1.

6. A method comprising:

receiving a message from a neighboring node via a control channel, the message indicating that data will be broadcast via a particular data channel of a plurality of data channels;

without sending a communication to the neighboring node indicating an availability to receive the data:

switching to the particular data channel; and

listening for a broadcast of the data from the neighboring node via the particular data channel; and

switching to the control channel after the data has been received or a predetermined time period has expired.

7. The method of claim 6, wherein the listening for the broadcast of the data includes listening for a broadcast of the data after a predetermined time interval has expired since the message was received via the control channel, the predetermined time interval comprising a short inter-frame space.

8. The method of claim 6, further comprising:
determining that the data has not been previously received;
wherein the switching to the particular data channel is performed in
response to determining that the data has not been previously received.

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9. The method of claim 6, further comprising:
receiving the data via the particular data channel after switching to the
particular data channel;
wherein the switching to the control channel includes switching to the control
10 channel after receiving the data via the particular data channel.

10. The method of claim 6, wherein the message indicates a modulation
technique that will be used to broadcast the data and a data rate at which the data
will be broadcast.

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11. The method of claim 6, wherein the data includes a greater number of bits
or bytes than the message.

12. One or more non-transitory computer-readable media storing executable
20 instructions that, when executed by one or more processors, cause the one or
more processors to perform the method of claim 6.

13. A network computing device comprising:
one or more processors;
memory communicatively coupled to the one or more processors; and
one or more modules stored in the memory and executable by the one or
5 more processors to perform acts including:

identifying a particular data channel from a plurality of data channels
for broadcasting data;

transmitting a message indicating that data will be broadcast via the
particular data channel of the plurality of data channels; and

10 broadcasting the data via the particular data channel without having
received a communication from a neighboring node that indicates an
availability of the neighboring node to receive the data.

14. The network computing device of claim 13, wherein the acts further include:
15 confirming that a number of bits or bytes of the data is greater than a number
of bits or bytes of the message;

wherein the message is transmitted in response to confirming that the
number of bits or bytes of the data is greater than the number of bits or bytes of
the message.

20 15. The network computing device of claim 13, wherein the communication from
the neighboring node comprises a clear-to-send message.

16. The network computing device of claim 13, wherein the acts further include:
25 determining a modulation technique to utilize to broadcast the data via the
particular data channel, the determined modulation technique provides a longest
communication range from among a plurality of modulation techniques that are
available to nodes located within a predetermined proximity to the network
computing device.

17. The network computing device of claim 13, wherein the acts further include:
retransmitting the message via the control channel a predetermined number
of times; and

rebroadcasting the data via the particular data channel after each
5 retransmission of the message.

18. The network computing device of claim 13, wherein the acts further include:
redefining the control channel from a first channel, where the control channel
is located when broadcasting the data, to a second channel; and

10 retransmitting the message via the control channel when the control channel
is redefined to the second channel.

19. The network computing device of claim 13, further comprising:

a metrology module stored in the memory and executable by the one or
15 more processors to collect the data for broadcasting, the data comprising
consumption data of a resource.

20. The network computing device of claim 13, wherein the network computing
device comprises at least one of a utility meter, a control device, a sensor, a
20 transformer, a router, a server, a relay, a switch, or a valve.

CLAIMS

WHAT IS CLAIMED IS:

1. A method implemented in a multi-channel network having a control channel and a plurality of data channels, comprising:

5 under control of a node configured with computer-executable instructions:

transmitting or receiving, by the node, a message on the control channel indicating: (i) data will be broadcast on a particular data channel of the plurality of data channels, and (ii) a modulation technique of the broadcast;

10 switching, at the node, to the particular data channel based at least in part on the transmitted or received message;

broadcasting or listening for a broadcast of the data on the particular data channel based at least in part on the modulation technique; and

switching, at the node, to the control channel after the data has been broadcast or a predetermined time period has expired.

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2. The method of claim 1, further comprising:

determining the particular data channel, the modulation technique, and a data rate for broadcasting the data; and

20 confirming that a number of bits or bytes of the data is greater than a number of bits or bytes of the message,

wherein the message indicates that the data will be broadcast on the determined particular data channel with the determined modulation technique and at the determined data rate if the number of bits or bytes of the data is greater than a number of bits or bytes of the message.

3. The method of claim 2, wherein the determining includes determining the modulation technique based at least in part on capabilities of other nodes located within a predetermined proximity to the node.

4. The method of claim 2, wherein the determined modulation technique comprises a modulation technique that provides a longest communication range from among a plurality of modulation techniques that are available to other nodes located within a predetermined proximity to the node.

5. The method of claim 1, further comprising:
receiving, at a media access control sub-layer of the node and from another layer of the node, a command requesting to broadcast the data with the modulation technique, and

wherein the modulation technique indicated in the message comprises the modulation technique identified in the command.

6. The method of claim 1, wherein the broadcasting or listening for a broadcast of the data includes broadcasting or listening for a broadcast of the data after a predetermined time interval has expired since the message was transmitted or received on the control channel, the predetermined time interval comprising a short inter-frame space.

7. The method of claim 1, wherein:
transmitting or receiving the message includes transmitting the message on the control channel, and

— broadcasting or listening for a broadcast of the data includes broadcasting the data
on the particular data channel.

8. The method of claim 1, wherein:

5 transmitting or receiving the message includes receiving the message on the
control channel,

broadcasting or listening for a broadcast of the data includes listening for the
broadcast of the data on the particular data channel.

10 9. The method of claim 1, further comprising:

determining that the data has not been previously received,

wherein the switching to the particular data channel includes switching to the
particular data channel in response to determining that the data has not been previously
received.

15 10. The method of claim 1, further comprising:
receiving the data on the particular data channel after switching to the particular

data channel,

20 wherein the switching to the control channel includes switching to the control
channel after receiving the data on the particular data channel.

11. One or more computer-readable media storing the computer-executable
instructions that, when executed by one or more processors of the node, configure the
node to perform the method of any of the preceding claims.

12. A network computing device of a multi-channel network having a control channel and a plurality of data channels, comprising:

one or more processors;

memory communicatively coupled to the one or more processors; and

5 one or more modules stored in the memory and executable on the one or more processors to perform acts including:

determining (i) a particular data channel from the plurality of data channels for broadcasting data, and (ii) a modulation technique for broadcasting the data;

10 transmitting a message over the control channel indicating that the data will be broadcast on the particular data channel according to the modulation technique, the data comprising a number of bits or bytes that is greater than a number of bits or bytes of the message;

switching to the particular data channel;

15 broadcasting the data over the particular data channel based at least in part on the modulation technique; and

switching to the control channel after the data has been broadcast.

13. The network computing device of claim 12, wherein the acts further include:

20 retransmitting the message over the control channel a predetermined number of times that is specified by an upper layer above a media access control sub-layer of the network computing device; and

rebroadcasting the data over the particular data channel after each retransmission of the message.

14. The network computing device of claim 12, wherein:

the transmitting the message includes transmitting the message over the control channel which is located on a first channel of the network, and

the acts further include:

5 redefining the control channel from the first channel to a second channel of the network; and

 retransmitting the message over the control channel when the control channel is redefined to the second channel.

10 15. The network computing device of claim 14, wherein the acts further include:

 rebroadcasting the data over a data channel of the plurality of data channels after the control channel has been redefined to the second channel and the message has been retransmitted.