

CLAIMS

What is claimed is:

1. A computer-implemented method of dynamically configuring a wireless networking system, comprising:

5 obtaining, for each of a plurality of antennas in the wireless networking system, topology information indicating whether and how the antenna is in reach of one or more other antennas in the plurality of antennas, the wireless networking system including two or more Wi-Fi transceivers coupled to each other in parallel, each of which is operable to be selectively coupled to one or more of the plurality of antennas by respective switches;

10 determining, dependent on the obtained topology information, a desired configuration change for the wireless networking system, the desired configuration change including a change in which and how many of the plurality of antennas are coupled to the two or more Wi-Fi transceivers or a change in which or how many of the two or more Wi-Fi transceivers are active; and

15 initiating the desired configuration change.

2. The method of claim 1, wherein initiating the desired configuration change comprises one or more of:

20 initiating an activation of a switch to couple one of the plurality of antennas to one of the two or more Wi-Fi transceivers; and

initiating a deactivation of a switch to decouple one of the plurality of antennas from one of the two or more Wi-Fi transceivers.

3. The method of claim 1, wherein initiating the desired configuration change
25 comprises one or more of:

initiating an activation of one of the two or more Wi-Fi transceivers; and

initiating a deactivation of one of the two or more Wi-Fi transceivers.

4. ~~The method of claim 1, further comprising populating, for each of the plurality
30 of antennas, a respective neighborhood table with the obtained topology information.~~

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4. The method of claim 1, wherein obtaining the topology information comprises using passive telemetry or active telemetry to obtain, during operation of the wireless networking system, the topology information or neighbor information from which the topology
5 information is derived.

~~6. The method of claim 5, wherein the obtained neighbor information includes a respective signal strength associated with a transmission in the wireless networking system.~~

10 75. The method of claim 1, wherein the obtained topology information applies to a combination of antennas from which a transmission is received or a combination of receiving antennas.

86. The method of claim 1, wherein obtaining the topology information comprises
15 correlating transmissions of a transmitting wireless client device between two or more receiving wireless client devices.

97. The method of claim 1, wherein determining the desired configuration change is further dependent on a respective coverage pattern for wireless transmission and reception
20 for one or more of the plurality of antennas.

108. The method of claim 1, wherein determining the desired configuration change comprises determining a set of antennas that, when activated, create a coverage pattern over a collective coverage area that includes at least a desired coverage area.

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~~11. The method of claim 10, further comprising automatically pruning or shaping the collective coverage area dependent on a cell location, a known interference pattern, or a known amount of directionality for an antenna.~~

30 129. The method of claim 1, wherein determining the desired configuration change is further dependent on at least one of: optimality, network needs, operator requests, wireless conditions, and client demand.

~~13~~10. The method of claim 1, wherein:

the antennas coupled to each Wi-Fi transmitter represent a repeated collection of antenna elements each of which contributes to a default coverage pattern for the collection of antenna elements; and

5 determining the desired configuration change comprises determining a configuration change that results in a change to the coverage pattern for the antennas coupled to the one of the two or more Wi-Fi transceivers.

~~14~~11. The method of claim 1, wherein:

10 the wireless networking system comprises at least one of:

a single networking line and a single power line; and

a combined power and networking distribution; and

the single networking line and the single power line or the combined power and networking distribution are arranged along a linear row and are coupled to each of the two or

15 more Wi-Fi transceivers.

~~15~~12. The method of claim 1, wherein determining the desired configuration change comprises using a machine learning model that has been trained to produce a discriminator for evaluating proposed configurations for the wireless networking system.

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~~16~~13. The method of claim ~~15~~12, further comprising:

generating, by the machine learning model, one or more proposed configurations for the wireless networking system;

predicting a respective result of each of the proposed configurations; and

25 selecting, based on the predicting, one of the proposed configurations, the selected proposed configuration including the desired configuration change.

~~17~~14. The method of claim ~~15~~12, further comprising determining, by the machine learning model, a learned response indicating a significance of each of the plurality of antennas.

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~~18~~15. The method of claim ~~15~~12, wherein the machine learning model is trained using weighted configuration propositions produced by a telemetry process and a respective quality

measure associated with a region of the wireless networking system affected by each weighted configuration proposition.

~~19~~

16. The method of claim 1, wherein:

5 the method further comprises determining that a wireless client device should be handed off from one or more currently active antennas over which signals are transmitted or received on behalf of the wireless client device in a first coverage area;

determining the desired configuration change and initiating the desired configuration change are performed in response to determining that the wireless client device should be
10 handed off from the one or more currently active antennas; and

initiating the desired configuration change comprises deactivating at least one of the one or more currently active antennas and activating at least one alternate antenna having a second coverage area.

15 ~~20. The method of claim 19, wherein determining that the wireless client device should be handed off from the one or more currently active antennas comprises determining that the wireless client device is approaching an edge of the first coverage area.~~

~~21. The method of claim 19, wherein:~~

20 ~~the method further comprises~~ 17. The method of claim 16, further comprising:

obtaining, using passive telemetry or active telemetry and during operation of the wireless networking system, a measure of a signal quality, error rate, or data rate associated with the wireless client device and the first Wi-Fi transceiver or a measure of a signal quality, error rate, or data rate associated with the wireless client device and a second Wi-Fi transceiver;

25 and

determining that the wireless client device should be handed off from the one or more currently active antennas is dependent on the signal quality, error rate, or data rate associated with the wireless client device and the first Wi-Fi transceiver, or the signal quality, error rate, or data rate associated with the wireless client device and the second Wi-Fi transceiver.

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~~22~~18. The method of claim ~~19~~16, wherein:

determining the desired configuration comprises:

modifying a configuration proposition or a configuration proposition weighting;
and

initiating production of a new configuration for the wireless networking system
dependent on the modified configuration proposition or configuration proposition

5 weighting; and

the method further comprises generating the new configuration for the wireless
networking system dependent on the modified configuration proposition or configuration
proposition weighting and one or more applicable configuration change constraints.

10 ~~23. The method of claim 22, wherein the one or more applicable configuration
change constraints include:~~

~~a constraint on a distance between the first coverage area and the second coverage area;~~

~~a requirement that the at least one alternate antenna is in a same coherent antenna set as
the one or more currently active antennas; or~~

15 ~~a requirement that the at least one alternate antenna represents a same subset of
elements in a first instance of a repeated collection of antenna elements as a subset of elements
in a second instance of the repeated collection of antenna elements represented by the one or
more currently active antennas.~~

20 ~~24.~~

19. One or more computer-readable non-transitory storage media storing one or
more sequences of instructions which, when executed using one or more processors, cause the
one or more processors to:

25 obtain, for each of a plurality of antennas in a wireless networking system, topology
information indicating whether and how the antenna is in reach of one or more other antennas
in the plurality of antennas, the wireless networking system including two or more Wi-Fi
transceivers coupled to each other in parallel, each of which is operable to be selectively
coupled to one or more of the plurality of antennas by respective switches;

30 determine, dependent on the obtained topology information, a desired configuration
change for the wireless networking system, the desired configuration change including a
change in which and how many of the plurality of antennas are coupled to the two or more Wi-
Fi transceivers or a change in which or how many of the two or more Wi-Fi transceivers are
active; and

initiating the desired configuration change.

2520. The media of claim 2419, wherein to obtain the topology information, the instructions cause the one or more processors to use passive telemetry or active telemetry to
5 obtain, during operation of the wireless networking system, the topology information or neighbor information from which the topology information is derived.

2621. The media of claim 2419, wherein to obtain the topology information, the instructions cause the one or more processors to correlate transmissions of a transmitting
10 wireless client device between two or more receiving wireless client devices.

2722. The media of claim 2419, wherein determining the desired configuration change is further dependent on a respective coverage pattern for wireless transmission and reception for one or more of the plurality of antennas.
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2823. The media of claim 2419, wherein to determine the desired configuration change, the instructions cause the one or more processors to determine a set of antennas that, when activated, create a coverage pattern over a collective coverage area that includes at least a desired coverage area.
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2924. The media of claim 2419, wherein:
the antennas coupled to each Wi-Fi transmitter represent a repeated collection of antenna elements each of which contributes to a default coverage pattern for the collection of antenna elements; and
25 to determine the desired configuration change, the instructions cause the one or more processors to determine a configuration change that results in a change to the coverage pattern for the antennas coupled to the one of the two or more Wi-Fi transceivers.

3025. The media of claim 2419, wherein to determine the desired configuration change, the instructions cause the one or more processors to use a machine learning model that
30 change, the instructions cause the one or more processors to use a machine learning model that has been trained to produce a discriminator for evaluating proposed configurations for the wireless networking system.

~~31~~26. The media of claim ~~30~~25, wherein the instructions further cause the one or more processors to:

generate, by the machine learning model, one or more proposed configurations for the wireless networking system;

5 predict a respective result of each of the proposed configurations; and

select, based on the predicting, one of the proposed configurations, the selected proposed configuration including the desired configuration change.

~~32~~27. The media of claim ~~30~~25, wherein the machine learning model is trained using
10 weighted configuration propositions produced by a telemetry process and a respective quality measure associated with a region of the wireless networking system affected by each weighted configuration proposition.

~~33~~28. The media of claim ~~24~~19, wherein:
15 the instructions further cause the one or more processors to determine that a wireless client device should be handed off from one or more currently active antennas over which signals are transmitted or received on behalf of the wireless client device in a first coverage area;

determining the desired configuration change and the initiating the desired
20 configuration change are performed in response to determining that the wireless client device should be handed off from the one or more currently active antennas; and

to perform initiating the desired configuration change, the instructions cause the one or more processors to deactivate at least one of the one or more currently active antennas and activate at least one alternate antenna having a second coverage area.

~~34. The media of claim 33, wherein to determine that the wireless client device should be handed off from the one or more currently active antennas, the instructions cause the one or more processors to determine that the wireless client device is approaching an edge of the first coverage area.~~
25

~~35. The media of claim 33, wherein:~~
30 ~~29. The media of claim 28, wherein:~~

the instructions further cause the one or more processors to obtain, using passive telemetry or active telemetry and during operation of the wireless networking system, a

measure of a signal quality, error rate, or data rate associated with the wireless client device and the first Wi-Fi transceiver or a measure of a signal quality, error rate, or data rate associated with the wireless client device and a second Wi-Fi transceiver; and

5 determining that the wireless client device should be handed off from the one or more currently active antennas is dependent on the signal quality, error rate, or data rate associated with the wireless client device and the first Wi-Fi transceiver, or the signal quality, error rate, or data rate associated with the wireless client device and the second Wi-Fi transceiver.

3630. The media of claim 3328, wherein:
10 to determine the desired configuration, the instructions cause the one or more processors to:
modify a configuration proposition or a configuration proposition weighting;
and
initiate production of a new configuration for the wireless networking system
15 dependent on the modified configuration proposition or configuration proposition weighting; and
the instructions further cause the one or more processors to generate the new configuration for the wireless networking system dependent on the modified configuration proposition or configuration proposition weighting and one or more applicable configuration
20 change constraints.

~~37.— The media of claim 36, wherein the one or more applicable configuration change constraints include:
a constraint on a distance between the first coverage area and the second coverage area;
25 a requirement that the at least one alternate antenna is in a same coherent antenna set as the one or more currently active antennas; or
a requirement that the at least one alternate antenna represents a same subset of elements in a first instance of a repeated collection of antenna elements as a subset of elements in a second instance of the repeated collection of antenna elements represented by the one or
30 more currently active antennas.~~

~~38~~ 31. A computer-implemented method of dynamically configuring a wireless networking system, comprising:

obtaining, for each of a plurality of antennas in the wireless networking system, topology information indicating whether and how the antenna is in reach of one or more other
5 antennas in the plurality of antennas, the wireless networking system including two or more Wi-Fi transceivers coupled to each other in parallel, each of which is operable to be selectively coupled to one or more of the plurality of antennas by respective switches, and the obtained topology information representing one or more configuration propositions for the wireless networking system;

10 determining, using a machine learning model that has been trained to produce a discriminator for evaluating proposed configurations for the wireless networking system and dependent on the obtained topology information, a respective predicted result of each of the one or more configuration propositions; and

determining, dependent on the predicted results, a set of antennas selected from among
15 the plurality of antennas to be activated in the wireless networking system following a configuration change to the wireless networking system, the configuration change including a change in which and how many of the plurality of antennas are coupled to the two or more Wi-Fi transceivers or a change in which or how many of the two or more Wi-Fi transceivers are active.

20 ~~39~~

32. The method of claim ~~38~~31, further comprising determining, by the machine learning model, a learned response indicating a significance of each of the plurality of antennas.

~~40~~33. The method of claim ~~38~~31, wherein the machine learning model is trained using
25 the one or more configuration propositions as weighted by a telemetry process and a respective quality measure associated with a region of the wireless networking system affected by each weighted configuration proposition.

~~41~~34. The method of claim ~~38~~31, wherein obtaining the topology information
30 comprises using passive telemetry or active telemetry to obtain, during operation of the wireless networking system, the topology information or neighbor information from which the topology information is derived.

4235. The method of claim 3831, wherein the obtained topology information applies to a combination of antennas from which a transmission is received or a combination of receiving antennas.

5 4336. The method of claim 3831, wherein determining the set of antennas is further dependent on a respective coverage pattern for wireless transmission and reception for one or more of the plurality of antennas.

10 4437. The method of claim 3831, wherein determining the set of antennas comprises determining a set of antennas that, when activated, create a coverage pattern over a collective coverage area that includes at least a desired coverage area.

15 4538. The method of claim 3831, wherein determining the set of antennas is further dependent on at least one of: optimality, network needs, operator requests, wireless conditions, and client demand.

4639. The method of claim 38, further comprising ~~initiating the configuration change;~~

20 47. ~~The method of claim 46, wherein:~~
~~the method further comprises~~ determining that a wireless client device should be handed off from one or more currently active antennas over which signals are transmitted or received on behalf of the wireless client device in a first coverage area;

determining the respective predicted results and determining the set of antennas are performed in response to determining that the wireless client device should be handed off from
25 the one or more currently active antennas; and

initiating the configuration change comprises deactivating at least one of the one or more currently active antennas and activating at least one alternate antenna having a second coverage area.

30 48. ~~The method of claim 47, wherein determining that the wireless client device should be handed off from the one or more currently active antennas comprises determining that the wireless client device is approaching an edge of the first coverage area.~~

40. The method of claim 39, further comprising:

~~49. —The method of claim 47, wherein:~~

~~the method further comprises~~ obtaining, using passive telemetry or active telemetry and during operation of the wireless networking system, a measure of a signal quality, error rate,
5 or data rate associated with the wireless client device and the first Wi-Fi transceiver or a measure of a signal quality, error rate, or data rate associated with the wireless client device and a second Wi-Fi transceiver; and

determining that the wireless client should be handed off from the one or more currently active antennas is dependent on the signal quality, error rate, or data rate associated with the
10 wireless client device and the first Wi-Fi transceiver, or the signal quality, error rate, or data rate associated with the wireless client device and the second Wi-Fi transceiver.

~~50~~41. The method of claim ~~47~~39, wherein:

determining the set of antennas comprises:

15 modifying a configuration proposition or a configuration proposition weighting;
and

initiating production of a new configuration for the wireless networking system dependent on the modified configuration proposition or configuration proposition weighting; and

20 the method further comprises generating the new configuration for the wireless networking system dependent on the modified configuration proposition or configuration proposition weighting and one or more applicable configuration change constraints.

~~51. —The method of claim 50, wherein the one or more applicable configuration~~
25 ~~change constraints include:~~

~~a constraint on a distance between the first coverage area and the second coverage area;~~
~~a requirement that the at least one alternate antenna is in a same coherent antenna set as~~
~~the one or more currently active antennas; or~~

~~a requirement that the at least one alternate antenna represents a same subset of~~
30 ~~elements in a first instance of a repeated collection of antenna elements as a subset of elements~~
~~in a second instance of the repeated collection of antenna elements represented by the one or~~
~~more currently active antennas.~~

5242. One or more computer-readable non-transitory storage media storing one or more sequences of instructions which, when executed using one or more processors, cause the one or more processors to:

obtain, for each of a plurality of antennas in a wireless networking system, topology
5 information indicating whether and how the antenna is in reach of one or more other antennas
in the plurality of antennas, the wireless networking system including two or more Wi-Fi
transceivers coupled to each other in parallel, each of which is operable to be selectively
coupled to one or more of the plurality of antennas by respective switches, and the obtained
topology information representing one or more configuration propositions for the wireless
10 networking system;

determine, using a machine learning model that has been trained to produce a
discriminator for evaluating proposed configurations for the wireless networking system and
dependent on the obtained topology information, a respective predicted result of each of the
one or more configuration propositions; and

15 determine, dependent on the predicted results, a set of antennas selected from among
the plurality of antennas to be activated in the wireless networking system following a
configuration change to the wireless networking system, the configuration change including a
change in which and how many of the plurality of antennas are coupled to the two or more Wi-
Fi transceivers or a change in which or how many of the two or more Wi-Fi transceivers are
20 active.

5343. The media of claim 5242, wherein the machine learning model is trained using
the one or more configuration propositions as weighted by a telemetry process and a respective
quality measure associated with a region of the wireless networking system affected by each
25 weighted configuration proposition.

5444. The media of claim 5242, wherein to obtain the topology information, the
instructions cause the one or more processors to use passive telemetry or active telemetry to
obtain, during operation of the wireless networking system, the topology information or
30 neighbor information from which the topology information is derived.

~~55~~45. The media of claim ~~52~~42, wherein determining the set of antennas is further dependent on a respective coverage pattern for wireless transmission and reception for one or more of the plurality of antennas.

5 ~~56~~46. The media of claim ~~52~~42, wherein to determine the set of antennas, the instructions cause the one or more processors to determine a set of antennas that, when activated, create a coverage pattern over a collective coverage area that includes at least a desired coverage area.

10 ~~57~~47. The media of claim ~~52~~42, wherein the instructions further cause the one or more processors to initiate the configuration change.

~~58~~48. The media of claim ~~52~~42, wherein:

15 the instructions further cause the one or more processors to determine that a wireless client device should be handed off from one or more currently active antennas over which signals are transmitted or received on behalf of the wireless client device in a first coverage area;

20 determining the respective predicted results and determining the set of antennas are performed in response to determining that the wireless client device should be handed off from the one or more currently active antennas; and

to initiate the configuration change, the instructions cause the one or more processors to deactivate at least one of the one or more currently active antennas and to activate at least one alternate antenna having a second coverage area.

25 ~~49. 59. — The media of claim 58, wherein to determine that the wireless client device should be handed off from the one or more currently active antennas, the instructions cause the one or more processors to determine that the wireless client device is approaching an edge of the first coverage area.~~

30 ~~60. — The media of claim 58, wherein:~~ The media of claim 48, wherein:

the instructions further cause the one or more processors to obtain, using passive telemetry or active telemetry and during operation of the wireless networking system, a measure of a signal quality, error rate, or data rate associated with the wireless client device

and the first Wi-Fi transceiver or a measure of a signal quality, error rate, or data rate associated with the wireless client device and a second Wi-Fi transceiver; and

determining that the wireless client device should be handed off from the one or more currently active antennas is dependent on the signal quality, error rate, or data rate associated with the wireless client device and the first Wi-Fi transceiver, or the signal quality, error rate, or data rate associated with the wireless client device and the second Wi-Fi transceiver.

~~61~~

50. The media of claim ~~58~~48, wherein:

to determine the set of antennas, the instructions cause the one or more processors to:

10 modify a configuration proposition or a configuration proposition weighting;
and

initiate production of a new configuration for the wireless networking system dependent on the modified configuration proposition or configuration proposition weighting; and

15 the instructions further cause the one or more processors to generate the new configuration for the wireless networking system dependent on the modified configuration proposition or configuration proposition weighting and one or more applicable configuration change constraints.

20 ~~62.—The media of claim 61, wherein the one or more applicable configuration change constraints include:~~

~~a constraint on a distance between the first coverage area and the second coverage area;~~

~~a requirement that the at least one alternate antenna is in a same coherent antenna set as the one or more currently active antennas; or~~

25 ~~a requirement that the at least one alternate antenna represents a same subset of elements in a first instance of a repeated collection of antenna elements as a subset of elements in a second instance of the repeated collection of antenna elements represented by the one or more currently active antennas.~~

30 ~~63~~ 51. A computer-implemented method of performing an antenna handoff in a wireless networking system, comprising:

determining that a wireless client device should be handed off from one or more currently active antennas over which signals are transmitted or received on behalf of the

wireless client device in a first coverage area, the wireless networking system including two or more Wi-Fi transceivers coupled to each other in parallel, each of which is operable to be selectively coupled to one or more of a plurality of antennas by respective switches, and the one or more currently active antennas being coupled to a first one of the two or more Wi-Fi

5 transceivers; and

initiating a configuration change in the wireless networking system, the configuration change including deactivating at least one of the one or more currently active antennas and activating at least one alternate antenna having a second coverage area.

~~64. The method of claim 63, wherein determining that the wireless client device~~
10 ~~should be handed off from the one or more currently active antennas comprises determining that the wireless client device is approaching an edge of the first coverage area.~~

~~65. The method of claim 63~~

52. The method of claim 51, wherein the at least one alternate antenna is coupled to
15 the first one of the two or more Wi-Fi transceivers.

~~66~~53. The method of claim 63, ~~wherein the at least one alternate antenna is coupled to a second one of the two or more Wi-Fi transceivers.~~

20 ~~67. The method of claim 66, further comprising deactivating the first one of the two or more Wi-Fi transceivers.~~

~~68. The method of claim 63~~51, wherein determining that the wireless client device should be handed off from the one or more currently active antennas is dependent on a signal
25 quality, error rate, or data rate associated with the wireless client device and the first Wi-Fi transceiver or a signal quality error rate, or data rate associated with the wireless client device and a second Wi-Fi transceiver.

~~69~~54. The method of claim ~~68~~53, further comprising obtaining, using passive
30 telemetry or active telemetry and during operation of the wireless networking system, a measure of the signal quality, error rate, or data rate associated with the wireless client device and the first or second Wi-Fi transceiver.

~~70~~55. The method of claim ~~63~~51, wherein initiating the configuration change comprises controlling one or more of the respective switches to deactivate the one or more antennas and to activate the at least one alternate antenna.

5 ~~71~~56. The method of claim ~~63~~51, wherein initiating the configuration change comprises:

selecting a first preconfigured set of antennas including the at least one alternate antenna from among a plurality of preconfigured sets of antennas; and

controlling one or more of the respective switches to effect a move of signals
10 transmitted or received on behalf of the wireless client device from a second preconfigured set of antennas including the one or more currently active antennas to the first preconfigured set of antennas.

~~72~~57. The method of claim ~~63~~51, wherein initiating the configuration change
15 comprises:

modifying a configuration proposition or a configuration proposition weighting; and

initiating production of a new configuration for the wireless networking system dependent on the modified configuration proposition or configuration proposition weighting.

20 ~~73~~58. The method of claim ~~72~~57, further comprising generating the new configuration for the wireless networking system dependent on the modified configuration proposition or configuration proposition weighting and one or more applicable configuration change constraints.

25 ~~74~~59. The method of claim ~~73~~, wherein the one or more applicable configuration change constraints include a constraint on a distance between the first coverage area and the second coverage area.

~~75~~.—The method of claim ~~73~~, wherein:

30 the plurality of antennas includes a plurality of coherent antenna sets, each including multiple antennas; and

~~the one or more applicable configuration change constraints include a requirement that the at least one alternate antenna is in a same coherent antenna set as the one or more currently active antennas.~~

5 ~~76.~~—The method of claim ~~73~~58, wherein:

the plurality of antennas includes a repeated collection of antenna elements each of which contributes to a default coverage pattern for the collection of antenna elements;

the currently active antennas represent a subset of the elements in a first instance of the repeated collection of antenna elements; and

10 the one or more applicable configuration change constraints include a requirement that the at least one alternate antenna represents the same subset of elements in a second instance of the repeated collection of antenna elements.

~~77~~60. The method of claim ~~63~~51, further comprising:

15 obtaining, for each of the plurality of antennas, topology information indicating whether and how the antenna is in reach of one or more other antennas in the plurality of antennas; and

determining, dependent on the obtained topology information, the configuration change.

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~~78~~61. The method of claim ~~77~~60, wherein obtaining the topology information comprises using passive telemetry or active telemetry to obtain, during operation of the wireless networking system, the topology information or neighbor information from which the topology information is derived.

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~~79~~62. The method of claim ~~77~~60, wherein determining the configuration change comprises determining a set of antennas that, when activated, create a coverage pattern over a collective coverage area that includes at least the second coverage area.

30 ~~80~~63. The method of claim ~~77~~60, wherein determining the configuration change comprises using a machine learning model that has been trained to produce a discriminator for evaluating proposed configurations for the wireless networking system.

~~81~~64. The method of claim ~~80~~63, further comprising:

generating, by the machine learning model, one or more proposed configurations for the wireless networking system;

predicting a respective result of each of the proposed configurations; and

5 selecting, based on the predicting, one of the proposed configurations, the selected proposed configuration including the configuration change.

~~82~~65. The method of claim ~~80~~63, wherein the machine learning model is trained using

weighted configuration propositions produced by a telemetry process and a respective quality
10 measure associated with a region of the wireless networking system affected by each weighted configuration proposition.

~~83~~66. One or more computer-readable non-transitory storage media storing one or more sequences of instructions which, when executed using one or more processors, cause the

15 one or more processors to:

determine, for a wireless networking system, that a wireless client device should be handed off from one or more currently active antennas over which signals are transmitted or received on behalf of the wireless client device in a first coverage area, the wireless networking system including two or more Wi-Fi transceivers coupled to each other in parallel, each of
20 which is operable to be selectively coupled to one or more of a plurality of antennas by respective switches, and the one or more currently active antennas being coupled to a first one of the two or more Wi-Fi transceivers;

initiate a configuration change in the wireless networking system, the configuration change including deactivating at least one of the one or more currently active antennas and
25 activating at least one alternate antenna having a second coverage area.

~~84. — The media of claim 83, wherein to determine that the wireless client device should be handed off from one or more currently active antennas, the instructions cause the one or more processors to determine that the wireless client device is approaching an edge of
30 the first coverage area.~~

~~85. — The media of claim 83, wherein:~~ 67. The media of claim 66, wherein:

the instructions further cause the one or more processors to obtain, using passive telemetry or active telemetry and during operation of the wireless networking system, a measure of a signal quality, error rate, or data rate associated with the wireless client device and the first Wi-Fi transceiver or a measure of a signal quality, error rate, or data rate associated with the wireless client device and a second Wi-Fi transceiver; and

determining that the wireless client device should be handed off from one or more currently active antennas is dependent on the signal quality, error rate, or data rate associated with the wireless client device and the first Wi-Fi transceiver, or the signal quality, error rate, or data rate associated with the wireless client device and the second Wi-Fi transceiver.

~~866~~8. The media of claim ~~8366~~, wherein to initiate the configuration change, the instructions cause the one or more processors to:

select a first preconfigured set of antennas including the at least one alternate antenna from among a plurality of preconfigured sets of antennas; and

control one or more of the respective switches to effect a move of signals transmitted or received on behalf of the wireless client device from a second preconfigured set of antennas including the one or more currently active antennas to the first preconfigured set of antennas.

~~87~~

~~69~~. The media of claim ~~8366~~, wherein to initiate the configuration change, the instructions cause the one or more processors to:

modify a configuration proposition or a configuration proposition weighting;

initiate production of a new configuration for the wireless networking system dependent on the modified configuration proposition or configuration proposition weighting; and

generate the new configuration for the wireless networking system dependent on the modified configuration proposition or configuration proposition weighting and one or more applicable configuration change constraints.

~~8870~~. The media of claim ~~87~~, ~~wherein the one or more applicable configuration change constraints include:~~

~~a constraint on a distance between the first coverage area and the second coverage area;~~
~~a requirement that the at least one alternate antenna is in a same coherent antenna set as the one or more currently active antennas; or~~

~~a requirement that the at least one alternate antenna represents a same subset of elements in a first instance of a repeated collection of antenna elements as a subset of elements in a second instance of the repeated collection of antenna elements represented by the one or more currently active antennas.~~

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~~89.~~ The media of claim ~~83~~66, wherein the instructions further cause the one or more processors to:

obtain, for each of the plurality of antennas, topology information indicating whether and how the antenna is in reach of one or more other antennas in the plurality of antennas; and
10 determine, dependent on the obtained topology information, the configuration change.

~~90~~71. The media of claim ~~89~~70, wherein to obtain the topology information, the instructions cause the one or more processors to use passive telemetry or active telemetry to obtain, during operation of the wireless networking system, the topology information or
15 neighbor information from which the topology information is derived.

~~91~~72. The media of claim ~~89~~70, wherein to determine the configuration change, the instructions cause the one or more processors to determine a set of antennas that, when activated, create a coverage pattern over a collective coverage area that includes at least the
20 second coverage area.

~~92~~73. The media of claim ~~89~~70, wherein to determine the configuration change, the instructions cause the one or more processors to use a machine learning model that has been trained to produce a discriminator for evaluating proposed configurations for the wireless
25 networking system.

~~93~~74. The media of claim ~~92~~73, wherein the instructions further cause the one or more processors to:

generate, by the machine learning model, one or more proposed configurations for the
30 wireless networking system;
predict a respective result of each of the proposed configurations; and
select, based on the predicting, one of the proposed configurations, the selected proposed configuration including the configuration change.

9475. The media of claim ~~92~~73, wherein the machine learning model is trained using weighted configuration propositions produced by a telemetry process and a respective quality measure associated with a region of the wireless networking system affected by each weighted
5 configuration proposition.