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(54) **MOBILE DIRECTIONAL ANTENNA**

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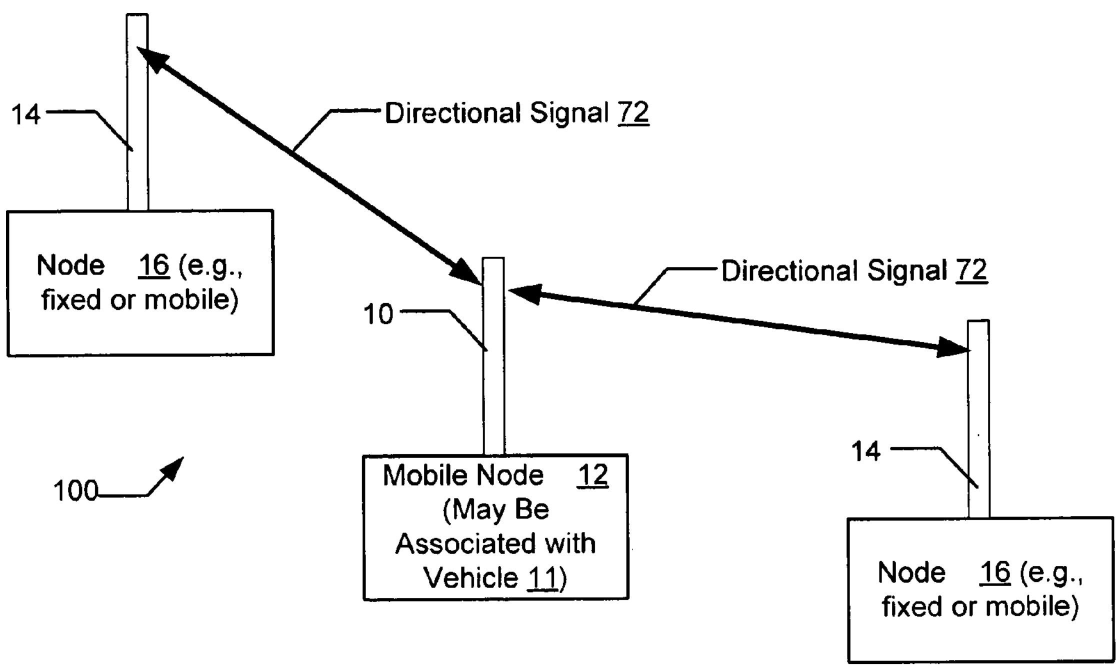
(52) **U.S. Cl.** **455/63.4**

(57) **ABSTRACT**

In one aspect, adjusting a directional antenna from a first state to a second state to improve a network operation of the directional antenna relative to a mobile node to at least partially compensate for motion of the mobile node. In another aspect, identifying a network operational characteristic; determining a desired directional antenna configuration to direct a directional antenna at least partially with respect to a first mobile node at least partially according to the network operational characteristic; and establishing a directional antenna directionality at least partially according to a desired directional antenna direction.



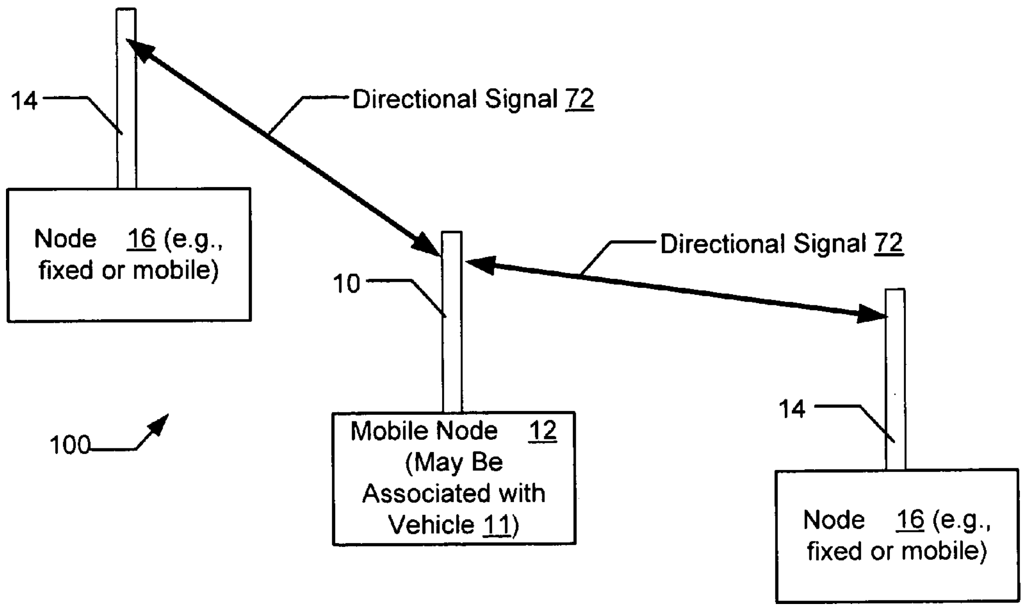

14
Directional Signal 72
Node 16 (e.g., fixed or mobile)
10
Directional Signal 72
14
100
Mobile Node 12 (May Be Associated with Vehicle 11)
Node 16 (e.g., fixed or mobile)

FIG. 1

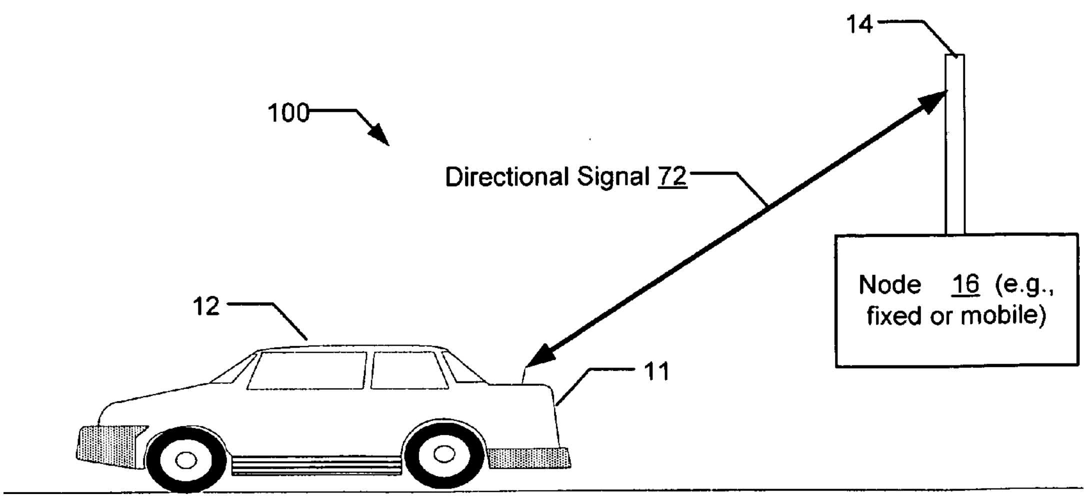

14
100
Directional Signal 72
Node 16 (e.g., fixed or mobile)
12
11

FIG. 2

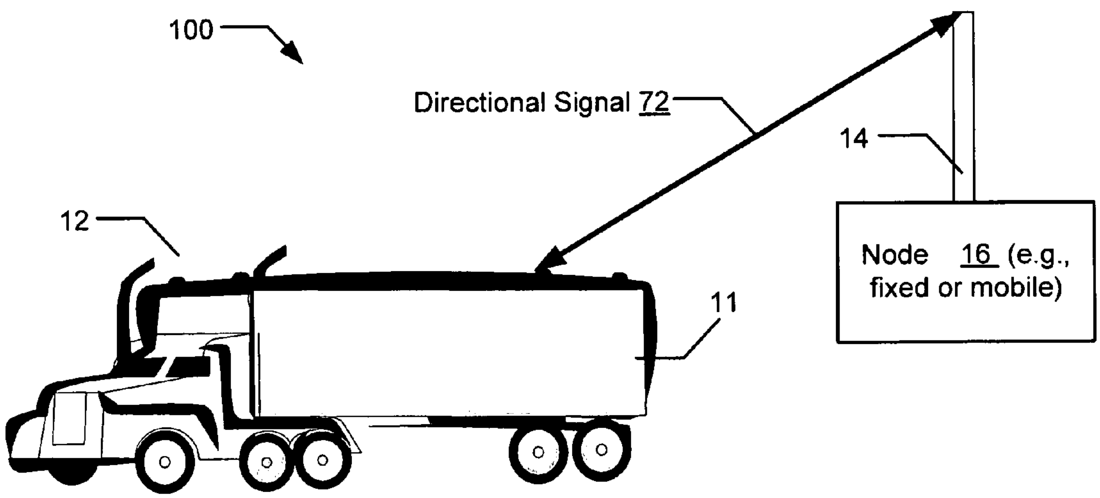

100
Directional Signal 72
14
12
Node 16 (e.g., fixed or mobile)
11

FIG. 3

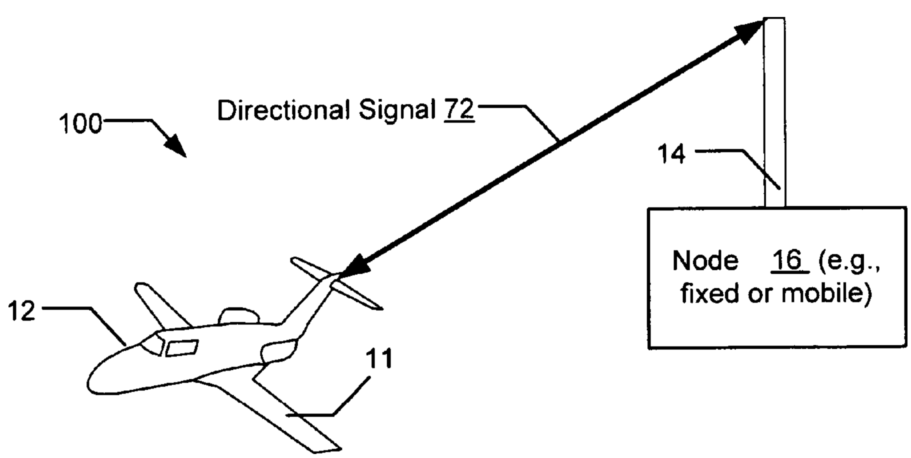

100
Directional Signal 72
14
Node 16 (e.g., fixed or mobile)
12
11

FIG. 4

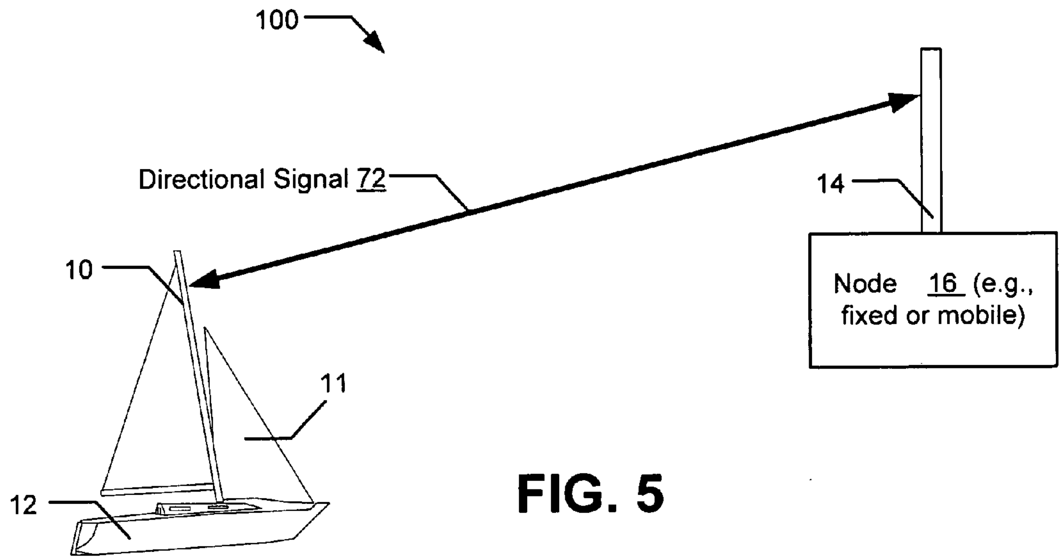

100
Directional Signal 72
14
10
Node 16 (e.g., fixed or mobile)
11
12

FIG. 5

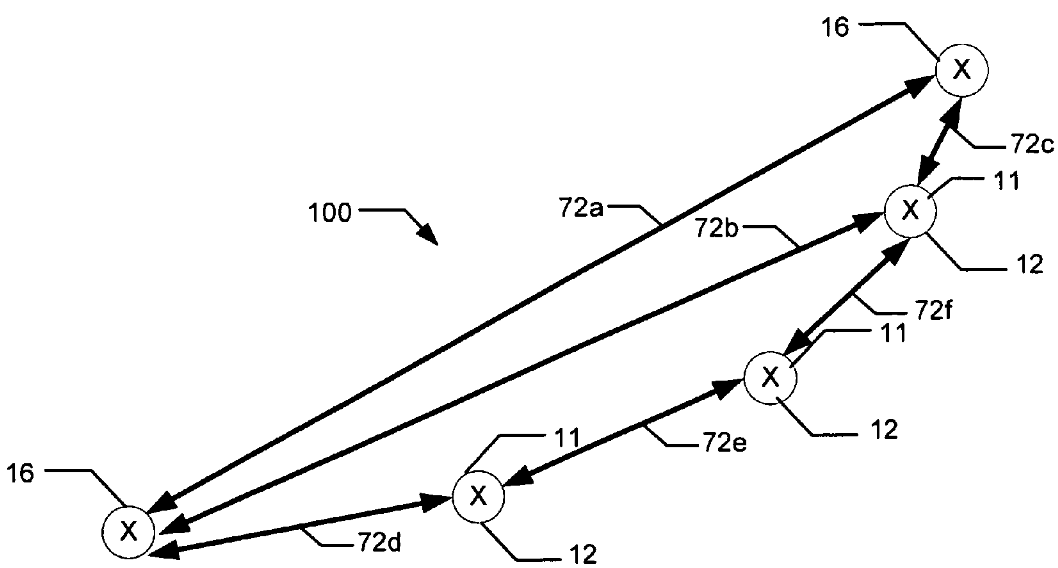

16
X
72c
11
100
72a
72b
12
72f
11
16
11
72e
12
72d
12

FIG. 6

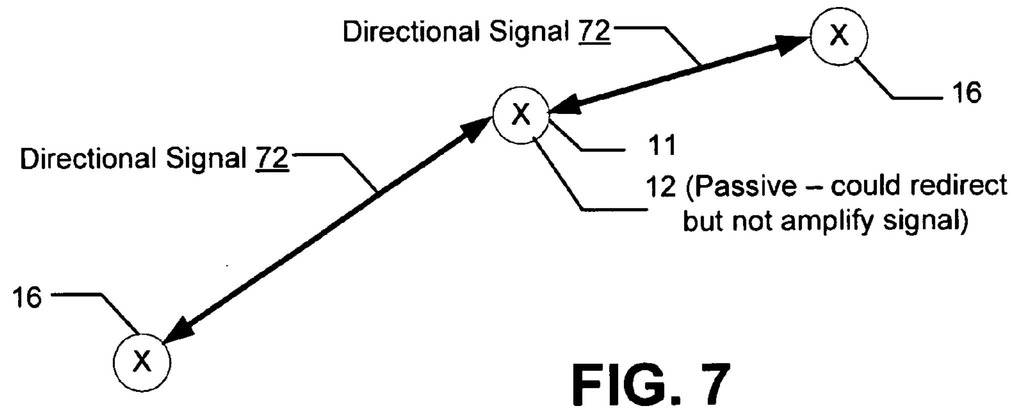


FIG. 7

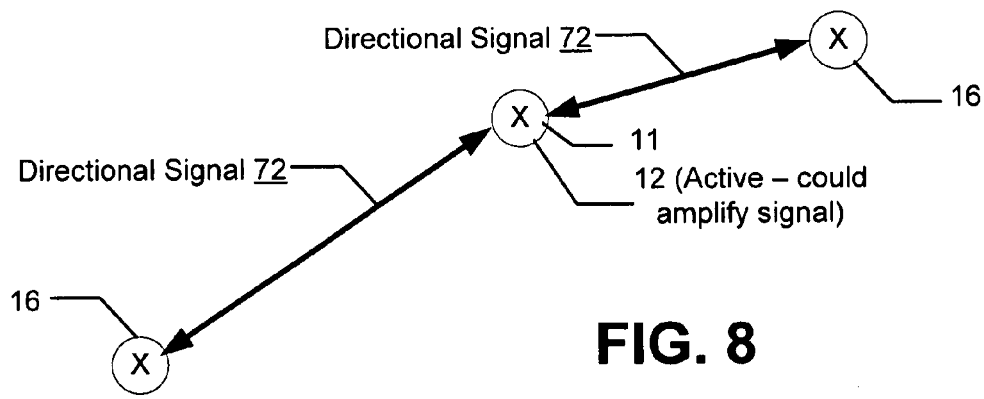


FIG. 8

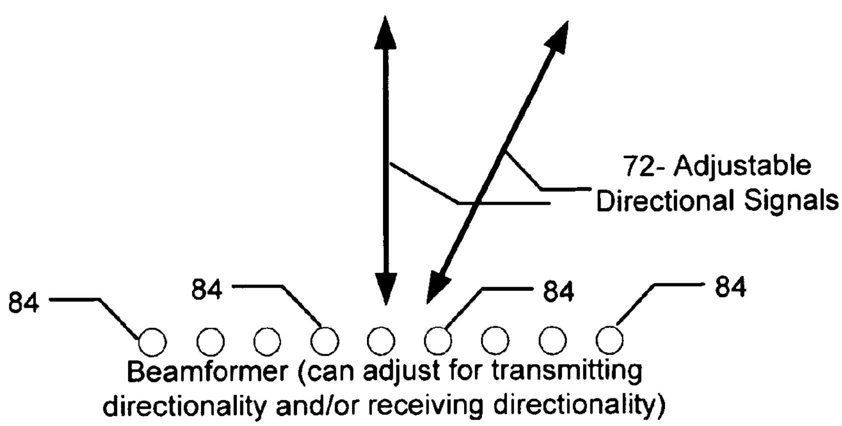


FIG. 9

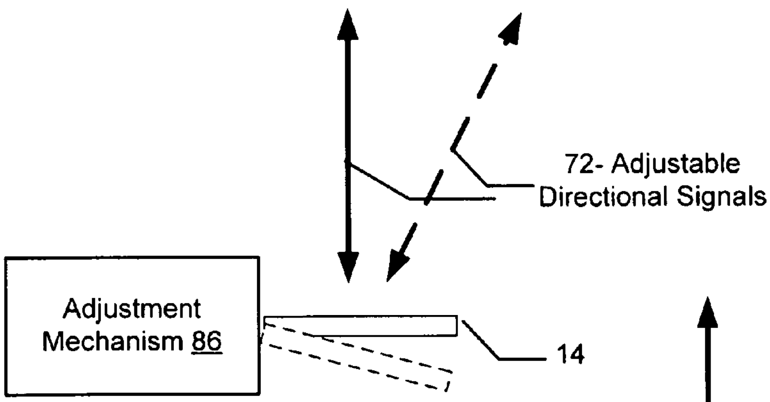


FIG. 10

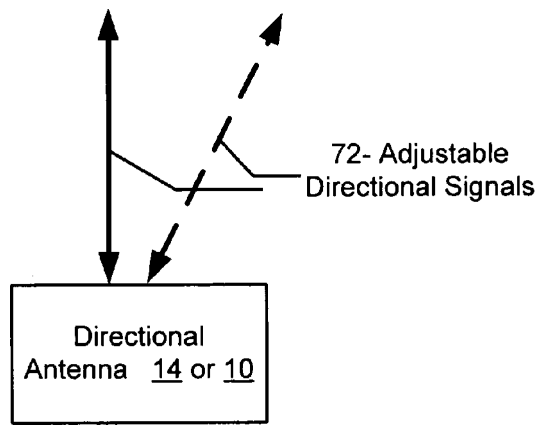


FIG. 11

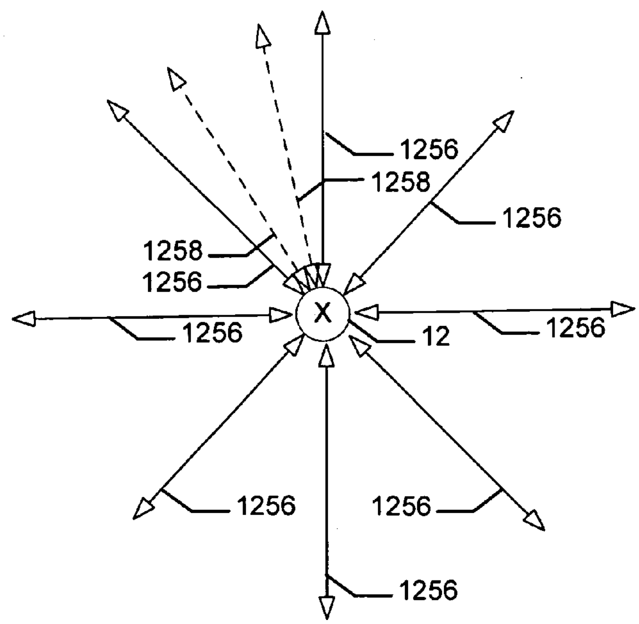


FIG. 12

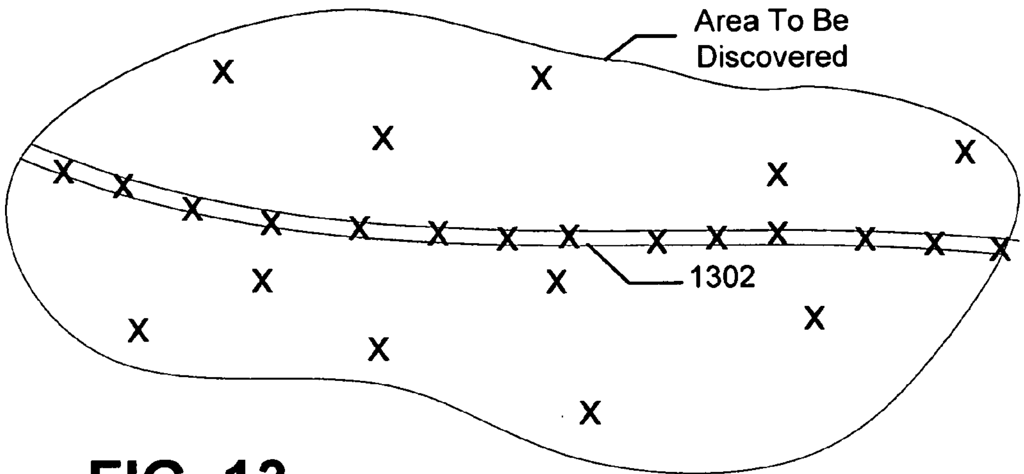


FIG. 13

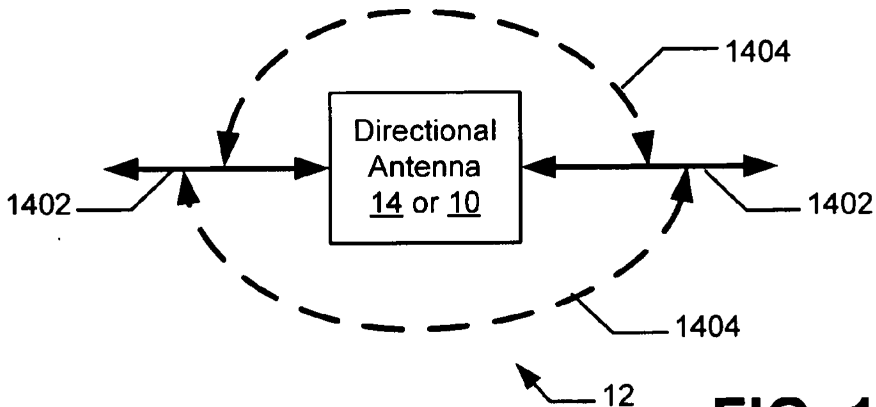


FIG. 14

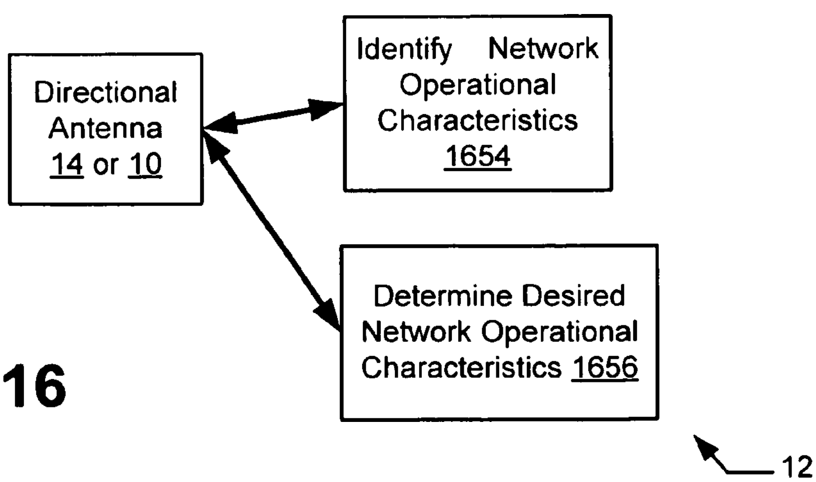


FIG. 16

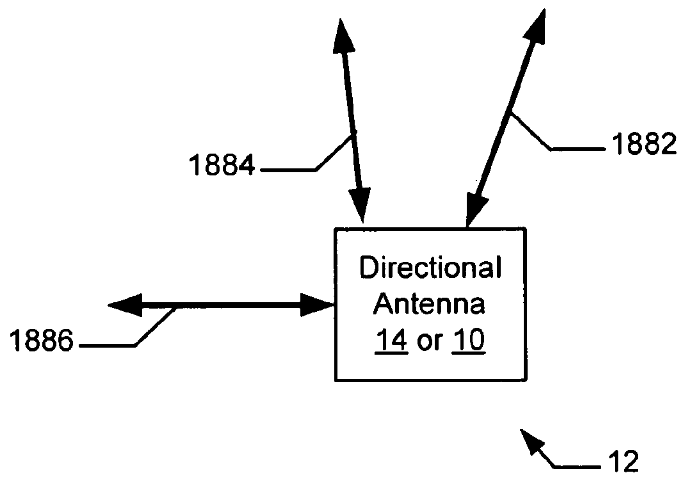

1884
1882
Directional
Antenna
14 or 10
1886
12

FIG. 18

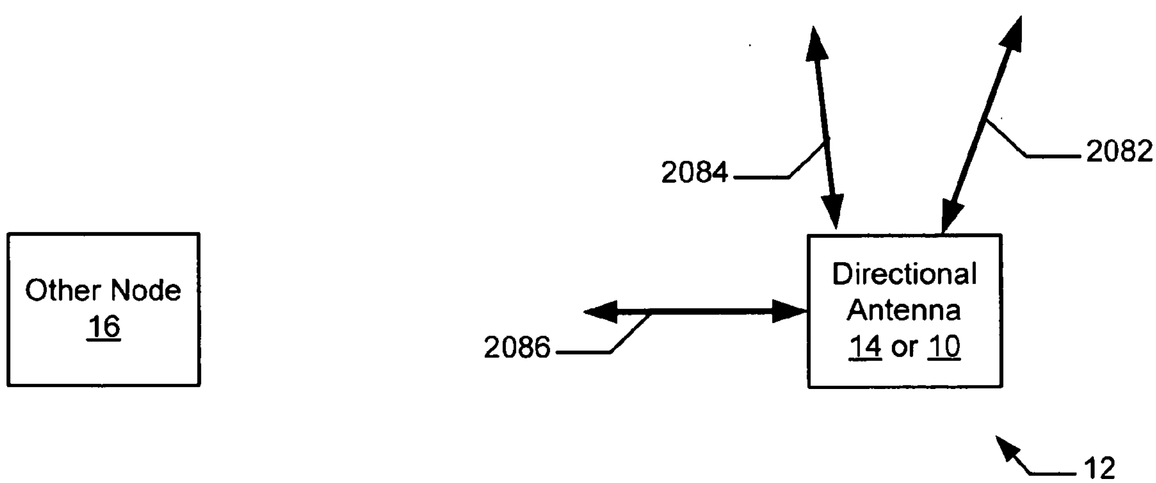

2084
2082
Other Node
16
Directional
Antenna
14 or 10
2086
12

FIG. 20

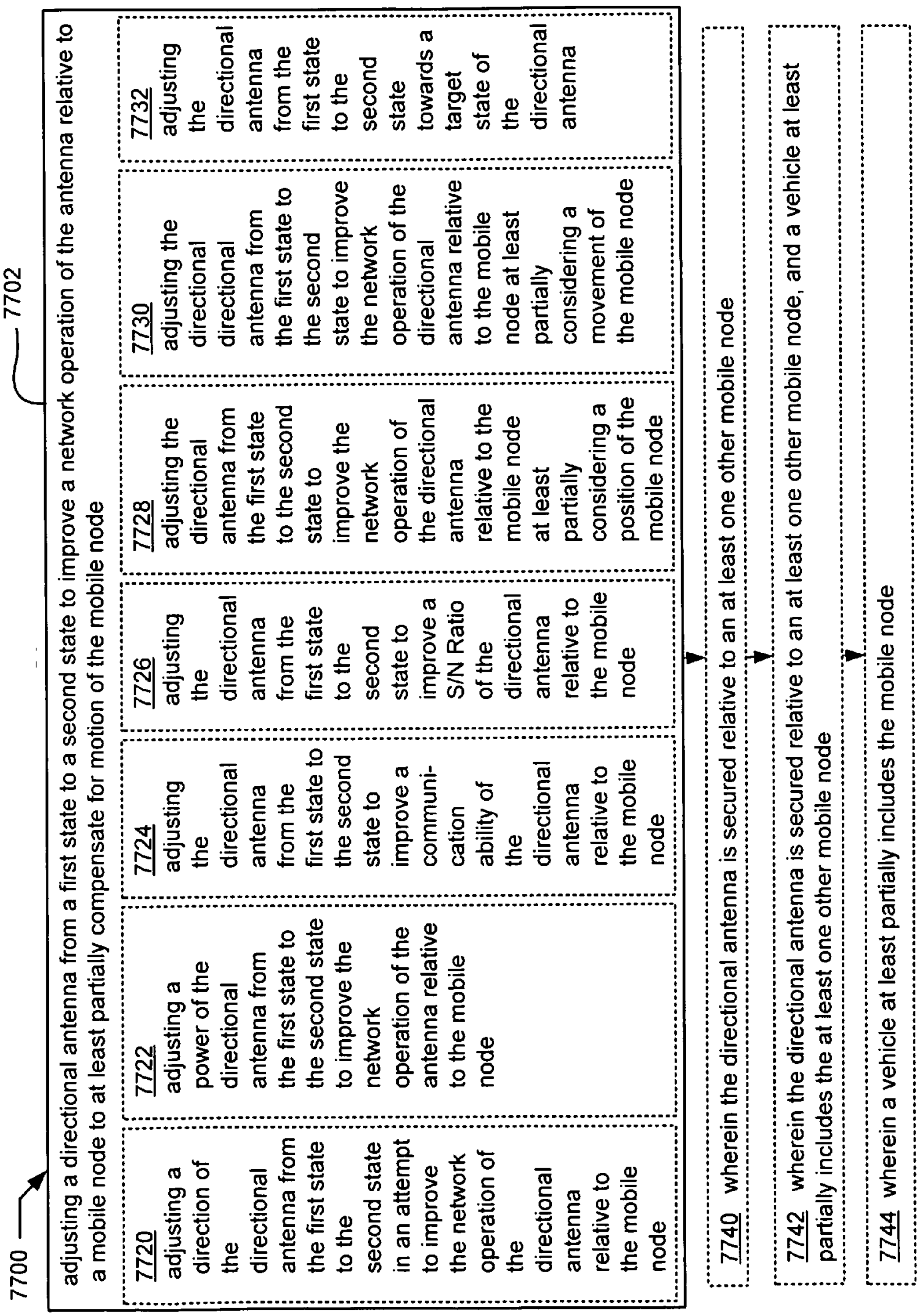

7700
7702
adjusting a directional antenna from a first state to a second state to improve a network operation of the antenna relative to a mobile node to at least partially compensate for motion of the mobile node
7720 adjusting a direction of the directional antenna from the first state to the second state in an attempt to improve the network operation of the directional antenna relative to the mobile node
7722 adjusting a power of the directional antenna from the first state to the second state to improve the network operation of the antenna relative to the mobile node
7724 adjusting the directional antenna from the first state to the second state to improve a communi-cation ability of the directional antenna relative to the mobile node
7726 adjusting the directional antenna from the first state to the second state to improve a S/N Ratio of the directional antenna relative to the mobile node
7728 adjusting the directional antenna from the first state to the second state to improve the network operation of the directional antenna relative to the mobile node at least partially considering a position of the mobile node
7730 adjusting the directional directional antenna from the first state to the second state to improve the network operation of the directional antenna relative to the mobile node at least partially considering a movement of the mobile node
7732 adjusting the directional antenna from the first state to the second state towards a target state of the directional antenna
7740 wherein the directional antenna is secured relative to an at least one other mobile node
7742 wherein the directional antenna is secured relative to an at least one other mobile node, and a vehicle at least partially includes the at least one other mobile node
7744 wherein a vehicle at least partially includes the mobile node

FIG. 15

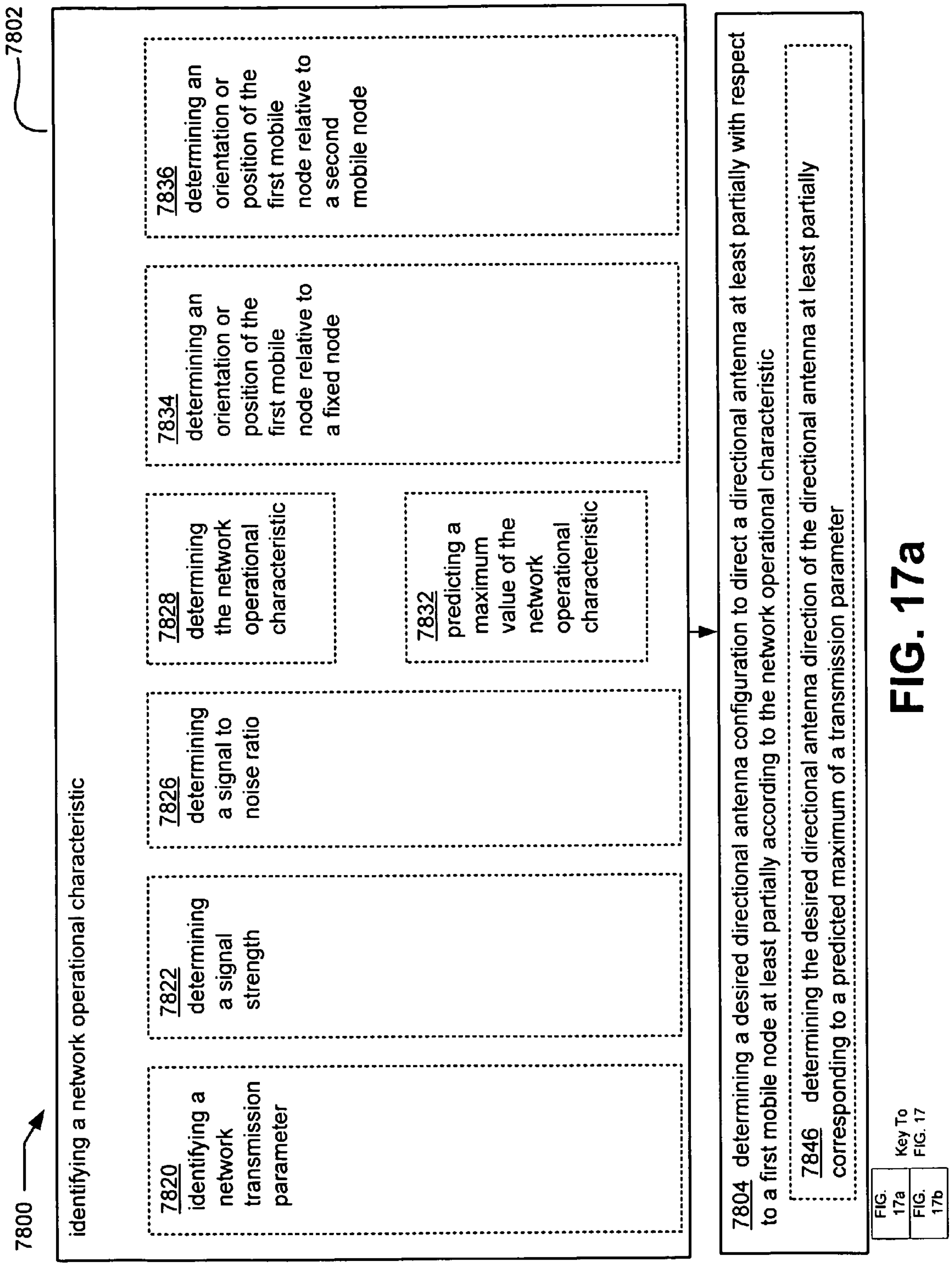

7800
7802
identifying a network operational characteristic
7820 identifying a network transmission parameter
7822 determining a signal strength
7826 determining a signal to noise ratio
7828 determining the network operational characteristic
7832 predicting a maximum value of the network operational characteristic
7834 determining an orientation or position of the first mobile node relative to a fixed node
7836 determining an orientation or position of the first mobile node relative to a second mobile node
7804 determining a desired directional antenna configuration to direct a directional antenna at least partially with respect to a first mobile node at least partially according to the network operational characteristic
7846 determining the desired directional antenna direction of the directional antenna at least partially corresponding to a predicted maximum of a transmission parameter
FIG. 17a
FIG. 17b
Key To FIG. 17

FIG. 17a

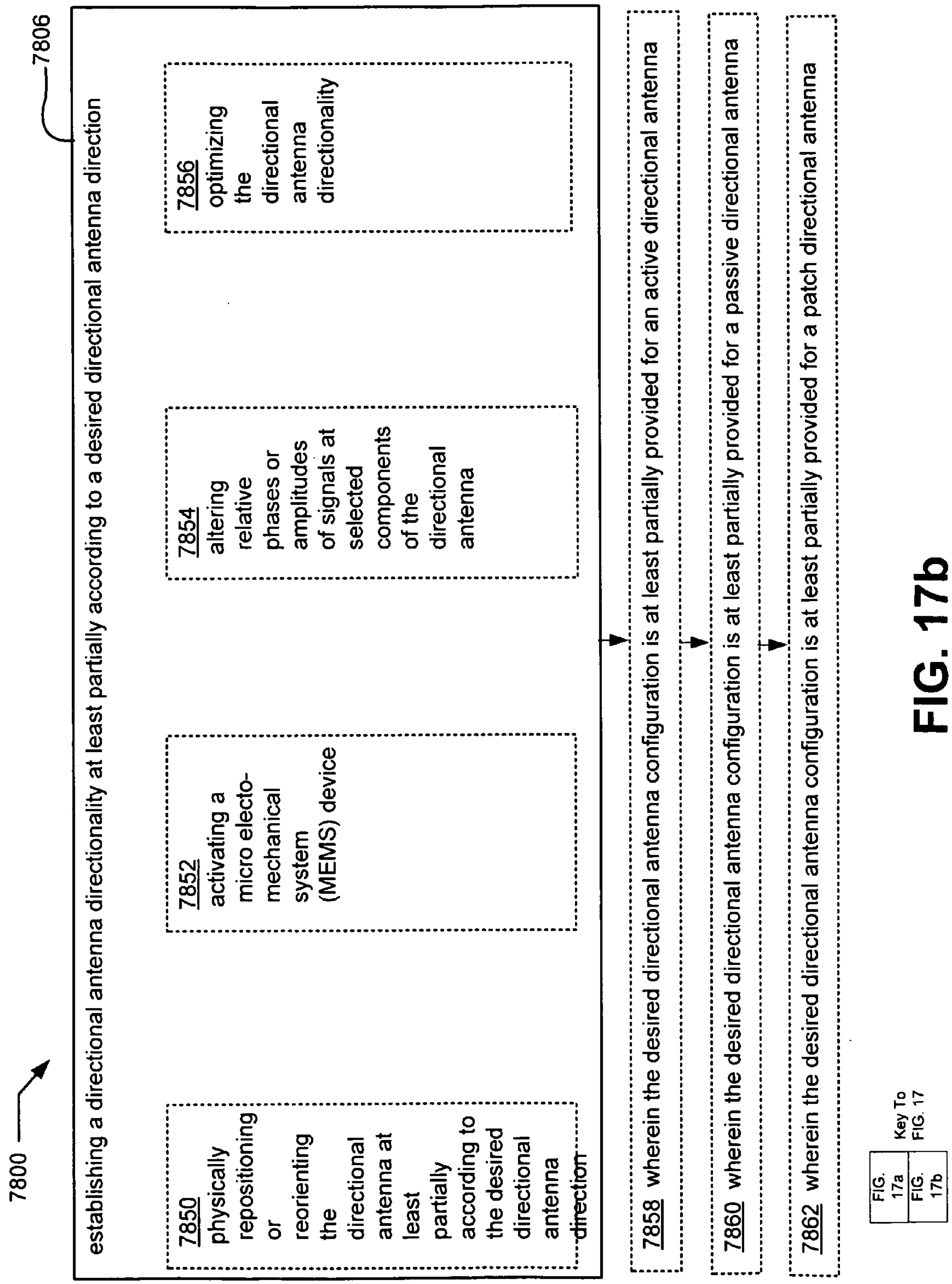

7800
7806
establishing a directional antenna directionality at least partially according to a desired directional antenna direction
7850 physically repositioning or reorienting the directional antenna at least partially according to the desired directional antenna direction
7852 activating a micro electo-mechanical system (MEMS) device
7854 altering relative phases or amplitudes of signals at selected components of the directional antenna
7856 optimizing the directional antenna directionality
7858 wherein the desired directional antenna configuration is at least partially provided for an active directional antenna
7860 wherein the desired directional antenna configuration is at least partially provided for a passive directional antenna
7862 wherein the desired directional antenna configuration is at least partially provided for a patch directional antenna
FIG. 17a
FIG. 17b
Key To FIG. 17

FIG. 17b

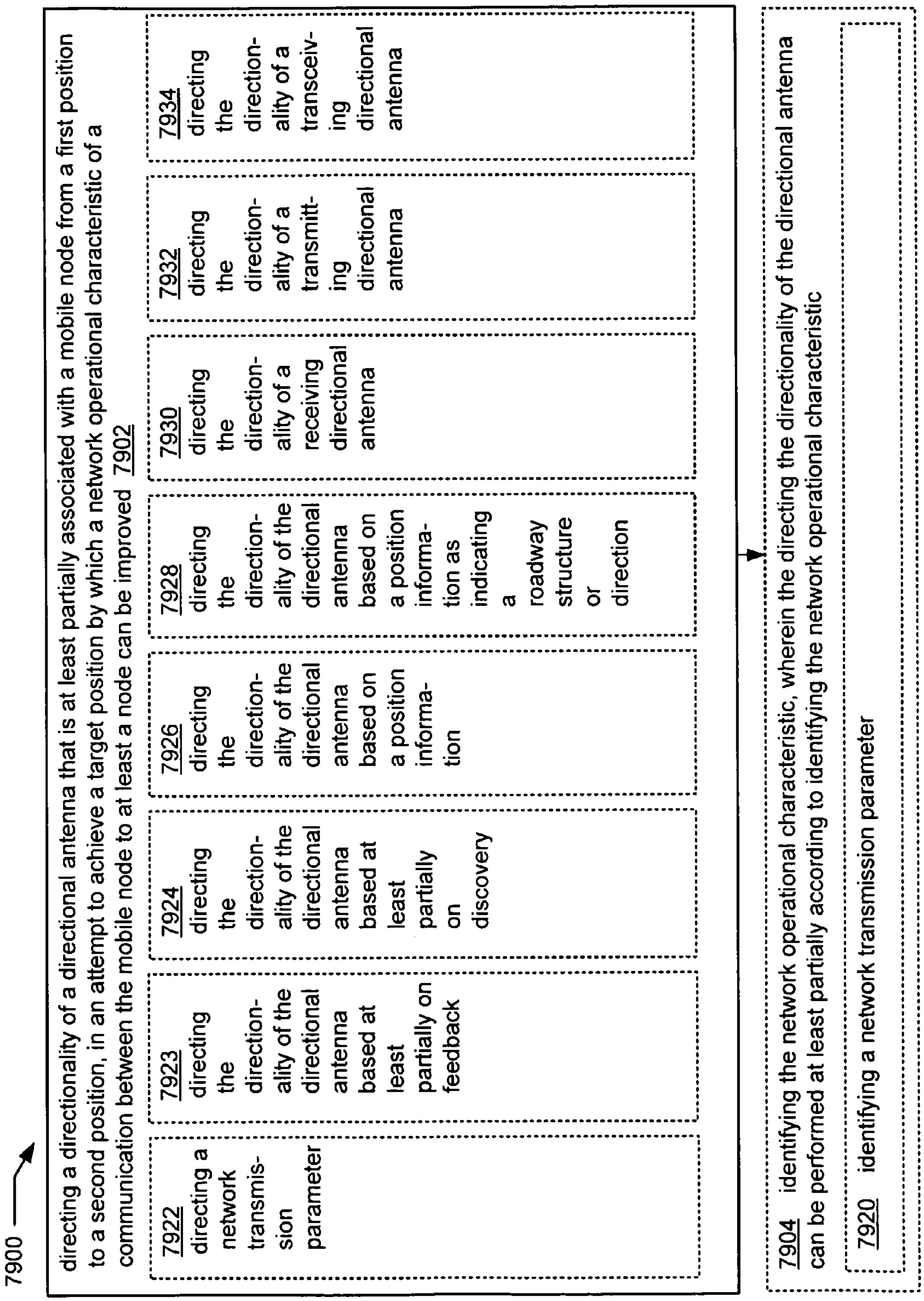

7900
directing a directionality of a directional antenna that is at least partially associated with a mobile node from a first position to a second position, in an attempt to achieve a target position by which a network operational characteristic of a communication between the mobile node to at least a node can be improved 7902
7922 directing a network transmission parameter
7923 directing the directionality of the directional antenna based at least partially on feedback
7924 directing the directionality of the directional antenna based at least partially on discovery
7926 directing the directionality of the directional antenna based on a position information
7928 directing the directionality of the directional antenna based on a position information as indicating a roadway structure or direction
7930 directing the directionality of a receiving directional antenna
7932 directing the directionality of a transmitting directional antenna
7934 directing the directionality of a transceiving directional antenna
7904 identifying the network operational characteristic, wherein the directing the directionality of the directional antenna can be performed at least partially according to identifying the network operational characteristic
7920 identifying a network transmission parameter

FIG. 19

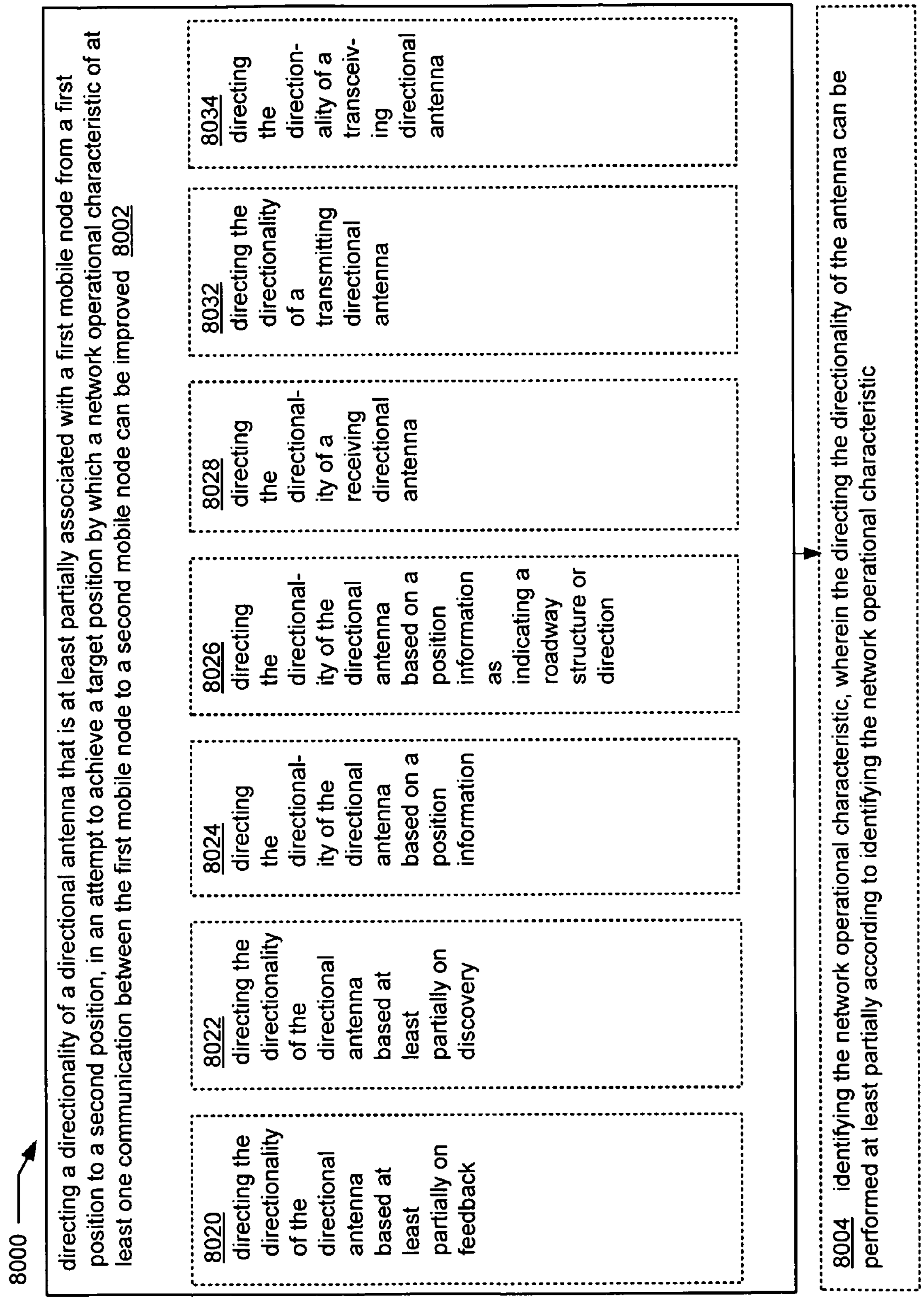

8000
directing a directionality of a directional antenna that is at least partially associated with a first mobile node from a first position to a second position, in an attempt to achieve a target position by which a network operational characteristic of at least one communication between the first mobile node to a second mobile node can be improved 8002
8020 directing the directionality of the directional antenna based at least partially on feedback
8022 directing the directionality of the directional antenna based at least partially on discovery
8024 directing the directionality of the directional antenna based on a position information
8026 directing the directionality of the directional antenna based on a position information as indicating a roadway structure or direction
8028 directing the directionality of a receiving directional antenna
8032 directing the directionality of a transmitting directional antenna
8034 directing the directionality of a transceiving directional antenna
8004 identifying the network operational characteristic, wherein the directing the directionality of the antenna can be performed at least partially according to identifying the network operational characteristic

FIG. 21

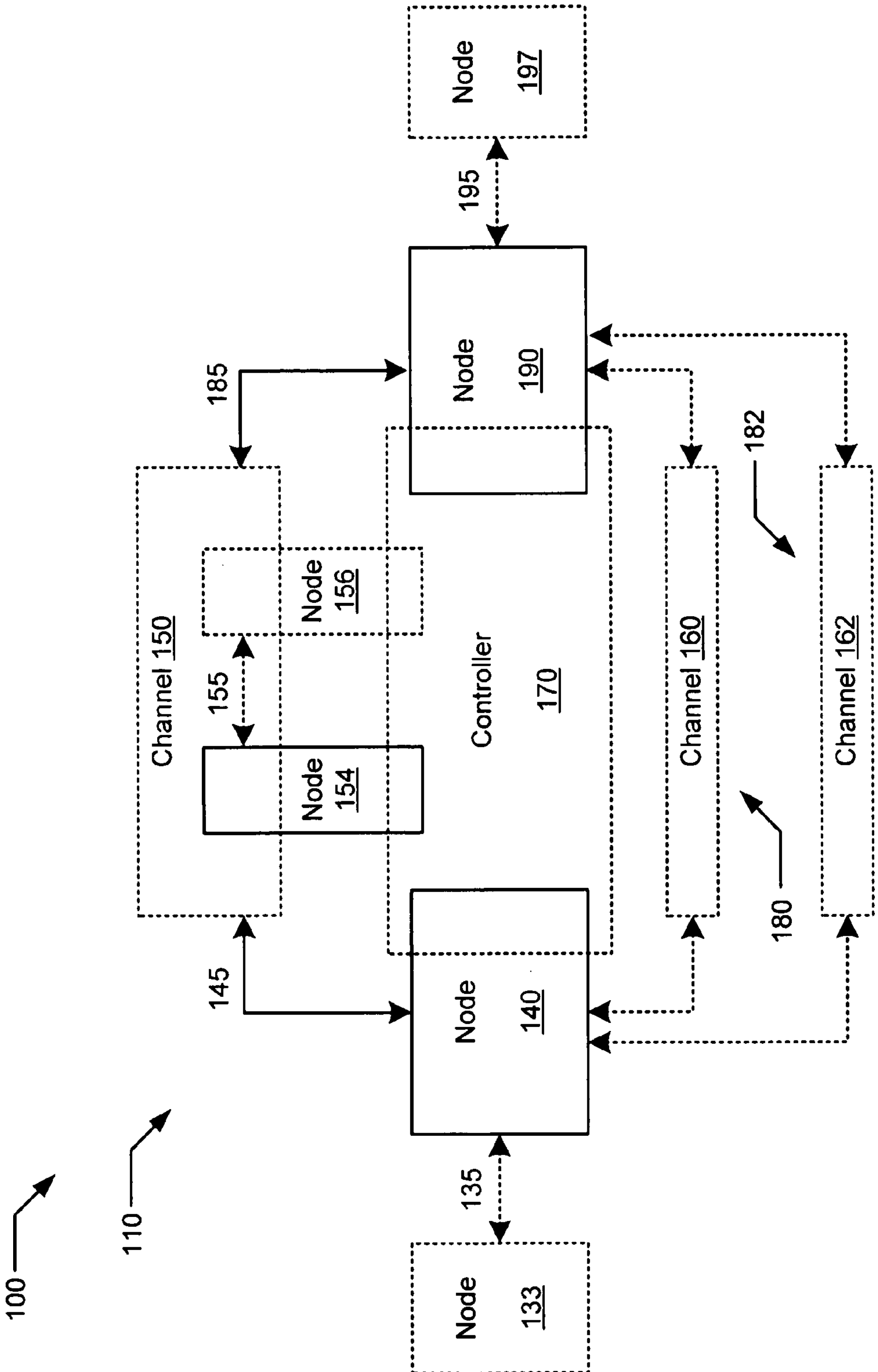

Node 197
195
Node 190
185
Channel 150
Node 156
155
Node 154
Controller 170
Channel 160
Channel 162
182
180
145
Node 140
135
Node 133
100
110

FIG. 22

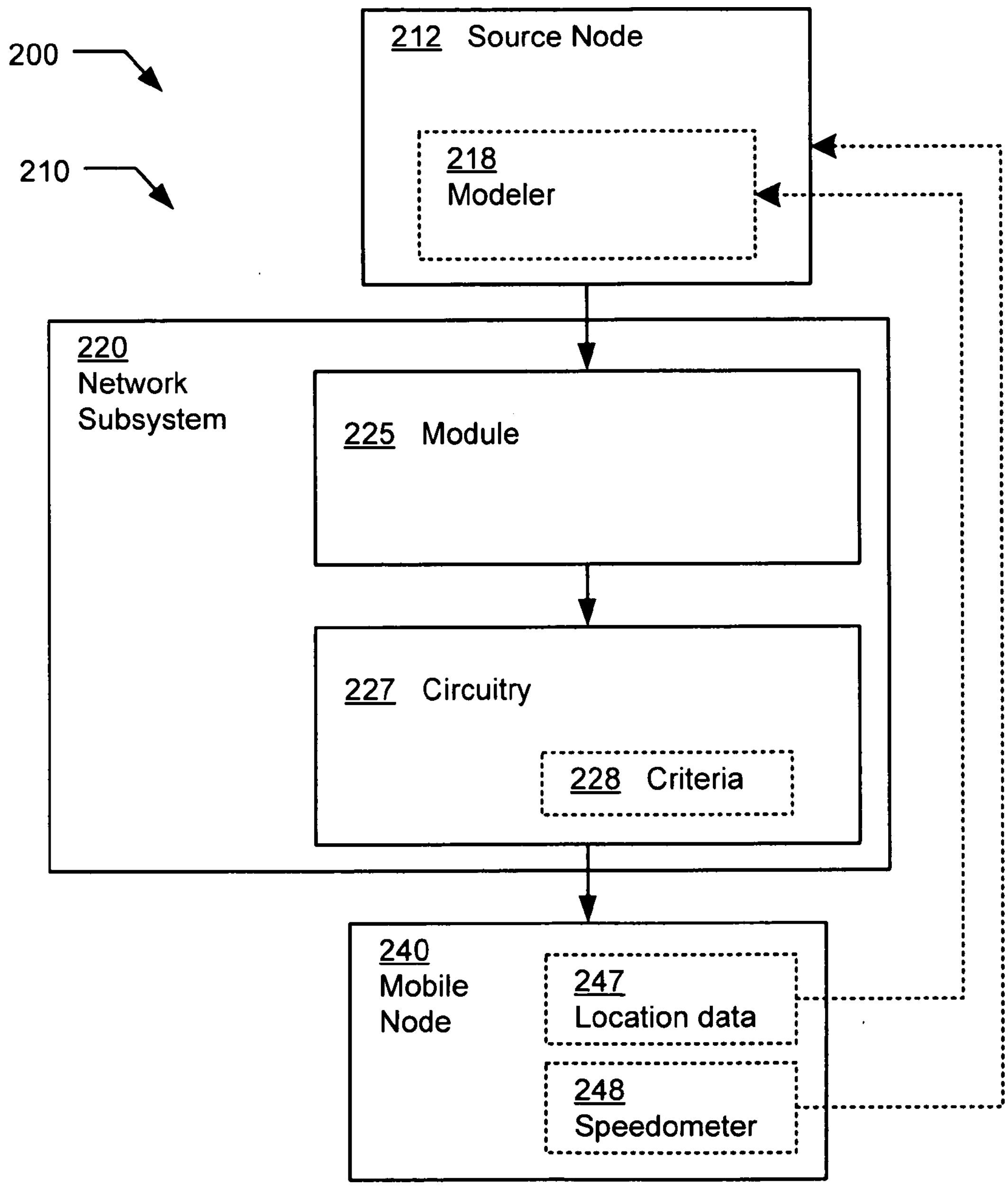

200
210
212 Source Node
218
Modeler
220
Network
Subsystem
225 Module
227 Circuitry
228 Criteria
240
Mobile
Node
247
Location data
248
Speedometer

FIG. 23

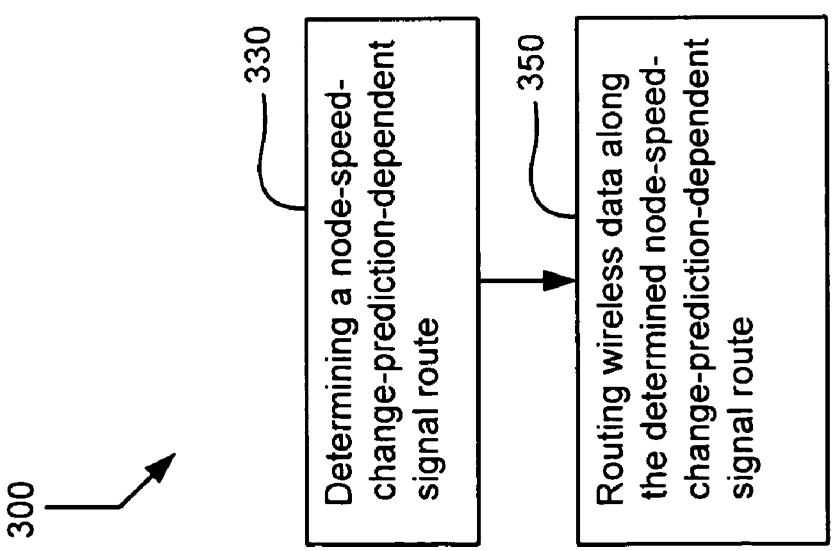

300
330
Determining a node-speed-change-prediction-dependent signal route
350
Routing wireless data along the determined node-speed-change-prediction-dependent signal route

FIG. 24

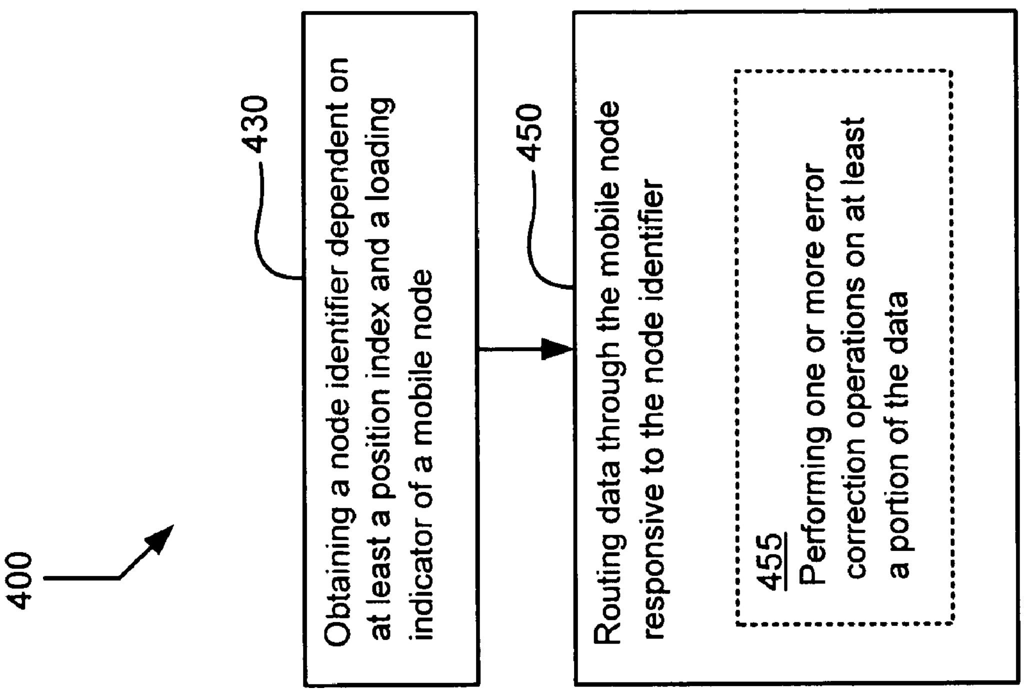

400
430
Obtaining a node identifier dependent on at least a position index and a loading indicator of a mobile node
450
Routing data through the mobile node responsive to the node identifier
455
Performing one or more error correction operations on at least a portion of the data

FIG. 25

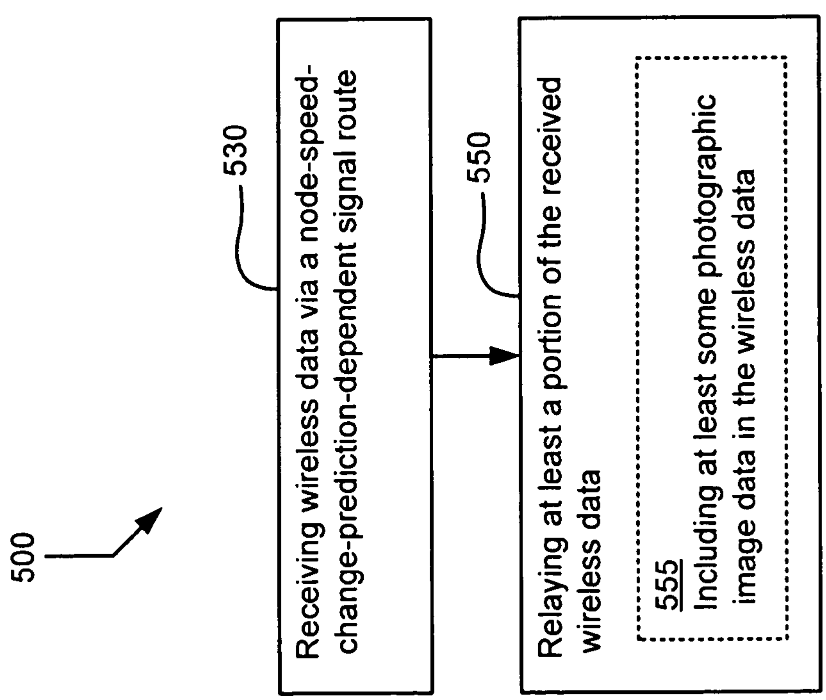

500
530
Receiving wireless data via a node-speed-change-prediction-dependent signal route
550
Relaying at least a portion of the received wireless data
555 Including at least some photographic image data in the wireless data

FIG. 26

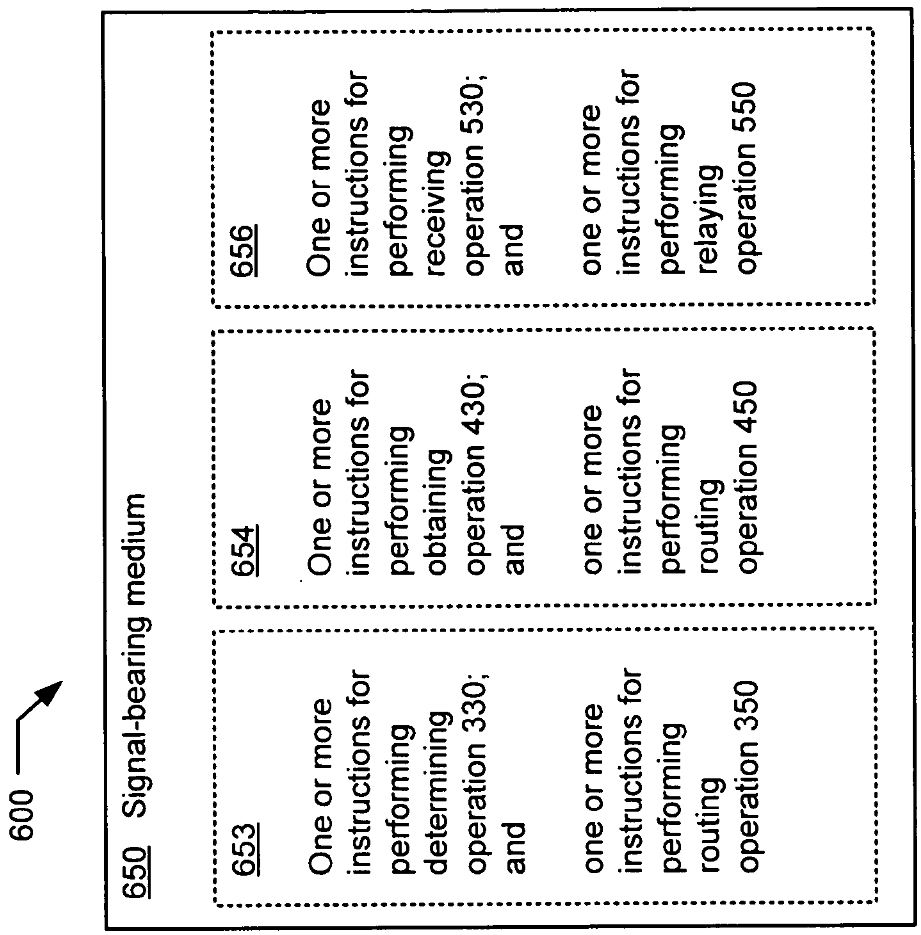

600
650 Signal-bearing medium
653
One or more instructions for performing determining operation 330; and
one or more instructions for performing routing operation 350
654
One or more instructions for performing obtaining operation 430; and
one or more instructions for performing routing operation 450
656
One or more instructions for performing receiving operation 530; and
one or more instructions for performing relaying operation 550

FIG. 27

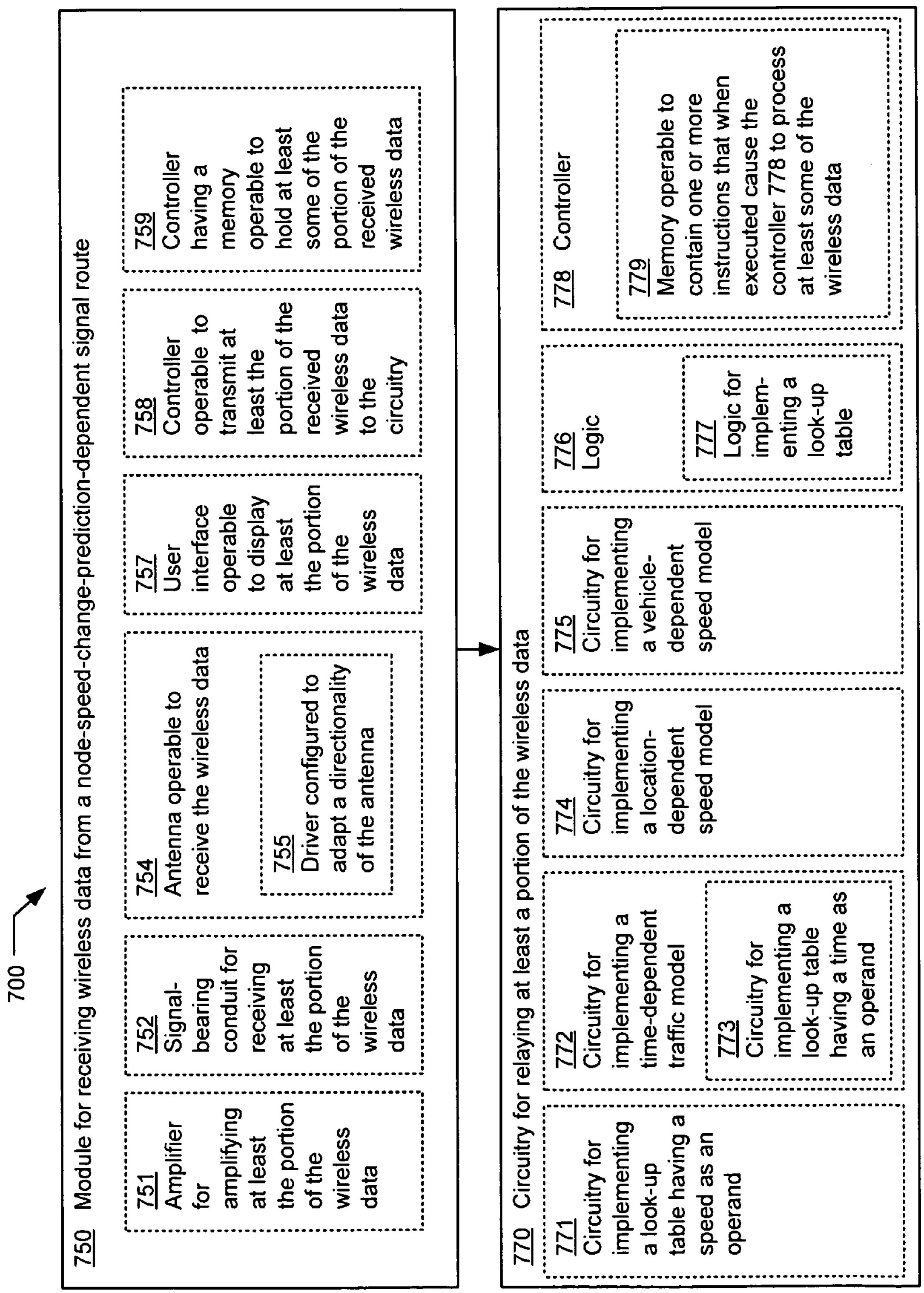

700
750 Module for receiving wireless data from a node-speed-change-prediction-dependent signal route
751 Amplifier for amplifying at least the portion of the wireless data
752 Signal-bearing conduit for receiving at least the portion of the wireless data
754 Antenna operable to receive the wireless data
755 Driver configured to adapt a directionality of the antenna
757 User interface operable to display at least the portion of the wireless data
758 Controller operable to transmit at least the portion of the received wireless data to the circuitry
759 Controller having a memory operable to hold at least some of the portion of the received wireless data
770 Circuitry for relaying at least a portion of the wireless data
771 Circuitry for implementing a look-up table having a speed as an operand
772 Circuitry for implementing a time-dependent traffic model
773 Circuitry for implementing a look-up table having a time as an operand
774 Circuitry for implementing a location-dependent speed model
775 Circuitry for implementing a vehicle-dependent speed model
776 Logic
777 Logic for implementing a look-up table
778 Controller
779 Memory operable to contain one or more instructions that when executed cause the controller 778 to process at least some of the wireless data

FIG. 28

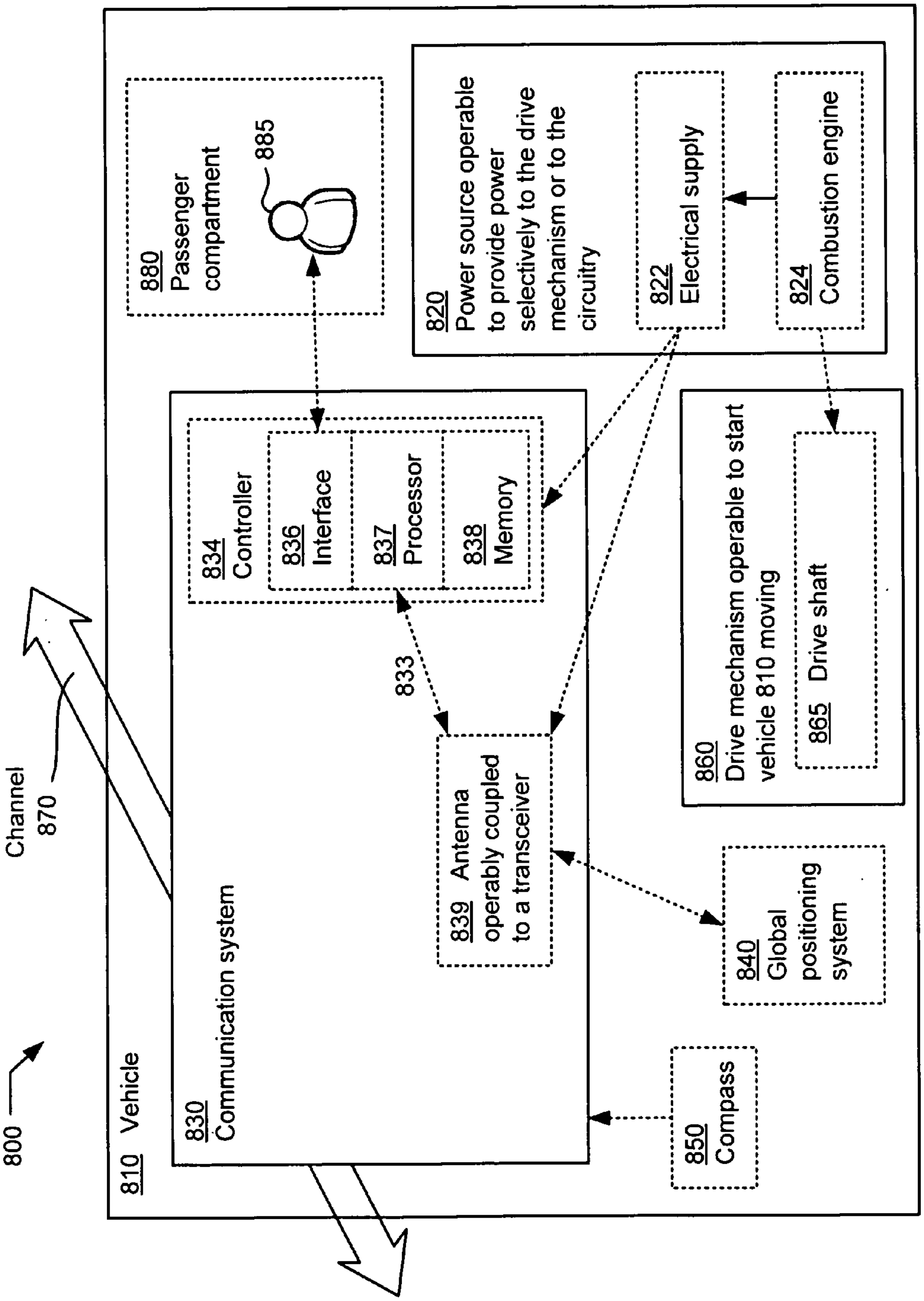

800
Channel 870
810 Vehicle
830 Communication system
834 Controller
836 Interface
837 Processor
838 Memory
833
839 Antenna operably coupled to a transceiver
880 Passenger compartment
885
820 Power source operable to provide power selectively to the drive mechanism or to the circuitry
822 Electrical supply
824 Combustion engine
860 Drive mechanism operable to start vehicle 810 moving
865 Drive shaft
840 Global positioning system
850 Compass

FIG. 29

900

	941 (lat2)	942 (long1)	943 (long2)	944 (alt*)	945 (m/s*)	946 (dir)	947 (class)	948 (load)	949 (fmt)	955 (other)	960 (value)
	...	...	...	...	...	...	...	...	...	...	...
961	00010010000100	001101000	01001001100101	00000	0000	0110	0001	001	0111	...	11001
	...	...	...	...	...	...	...	...	...		...
962	00010010000100	001101000	01001001100101	00000	0000	0110	0001	001	0101	...	11111
	...	...	...	...	...	...	...	...	...		...
963	00100010001000	001101000	01100000101111	00000	0000	1011	0110	010	0001	...	11111
	...	...	...	...	...	...	...	...	...		...
964	00100010001000	001101000	01100000101111	00000	0011	1011	0110	010	0001	...	10100
	...	...	...	...	...	...	...	...	...		...
965	00101011011101	001101000	00110100000000	00000	0001	0100	0011	101	1010	...	01010
	...	...	...	...	...	...	...	...	...		...
966	00101011011101	001101000	01110000000000	00000	0001	0100	0011	010	1010	...	11010
	...	...	...	...	...	...	...	...	...		...
967	00110011000000	001101000	00110110001111	00000	0100	0100	1100	000	0100	...	11111
	...	...	...	...	...	...	...	...	...		...
968	00110011000000	001101000	00110110001111	00000	0100	1100	1100	000	0100	...	10110
	...	...	...	...	...	...	...	...	...		...
969	00110100100001	001101000	00011100011111	00000	0101	0000	1011	010	1001	...	11111
	...	...	...	...	...	...	...	...	...		...
970	00111011000101	001101000	00011100011111	00000	0101	0000	1011	010	1001	...	11010
	...	...	...	...	...	...	...	...	...		...
	00111011011110	001101000	01110110011111	00000	0000	1100	0100	000	1010	...	11110
	...	...	...	...	...	...	...	...	...		...
972	01001110001010	001101000	00101110101111	00000	0101	0110	0110	100	0101	...	00110
	...	...	...	...	...	...	...	...	...		...
973	01001110001010	001101000	00101110101111	00000	0101	0110	0100	100	0101	...	01001
975	...	...	...	...	...	...	...	...	...	...	...

FIG. 30

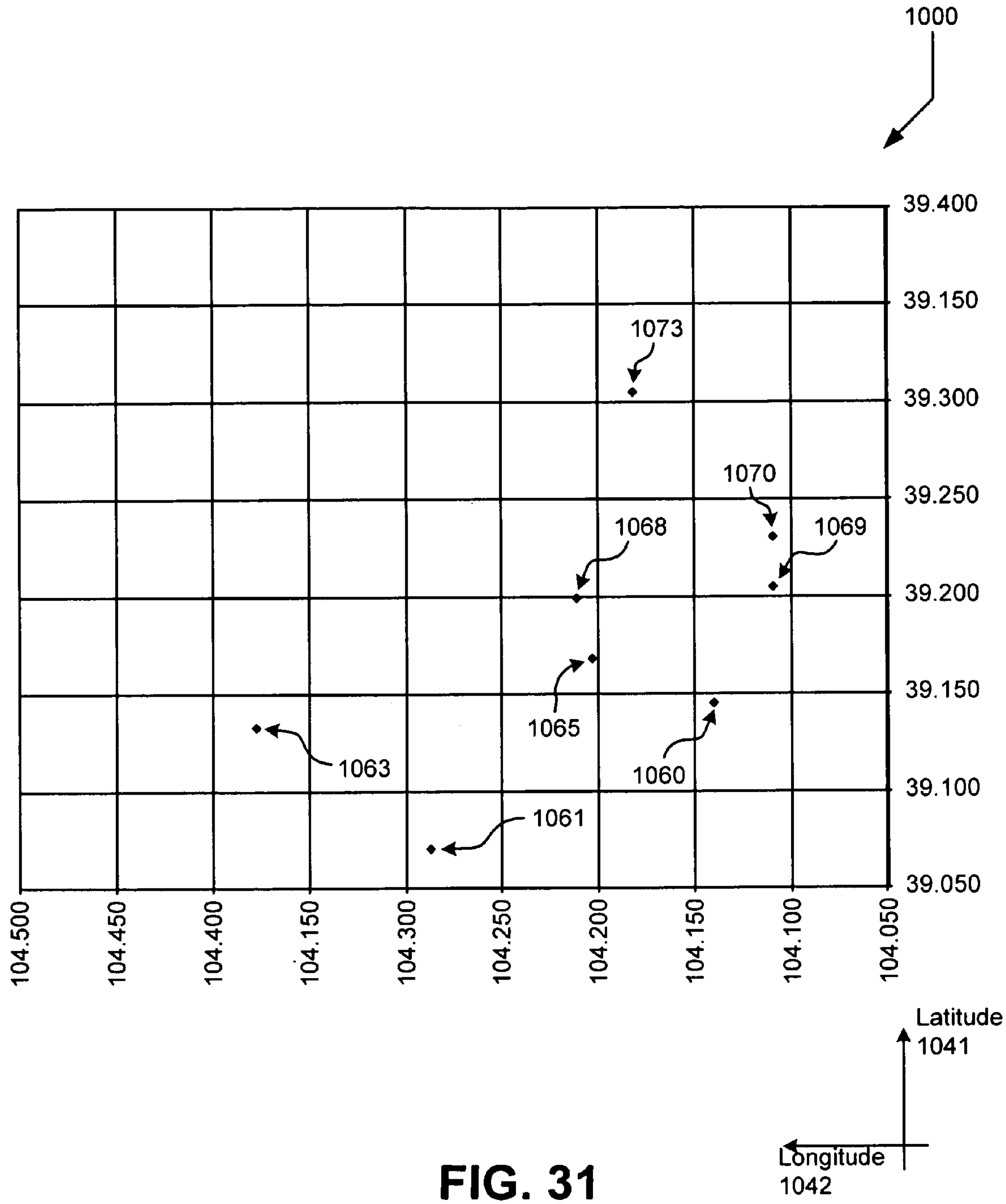

1000
39.400
39.150
39.300
39.250
39.200
39.150
39.100
39.050
1073
1070
1068
1069
1065
1060
1063
1061
104.500
104.450
104.400
104.150
104.300
104.250
104.200
104.150
104.100
104.050
Latitude
1041
Longitude
1042

FIG. 31

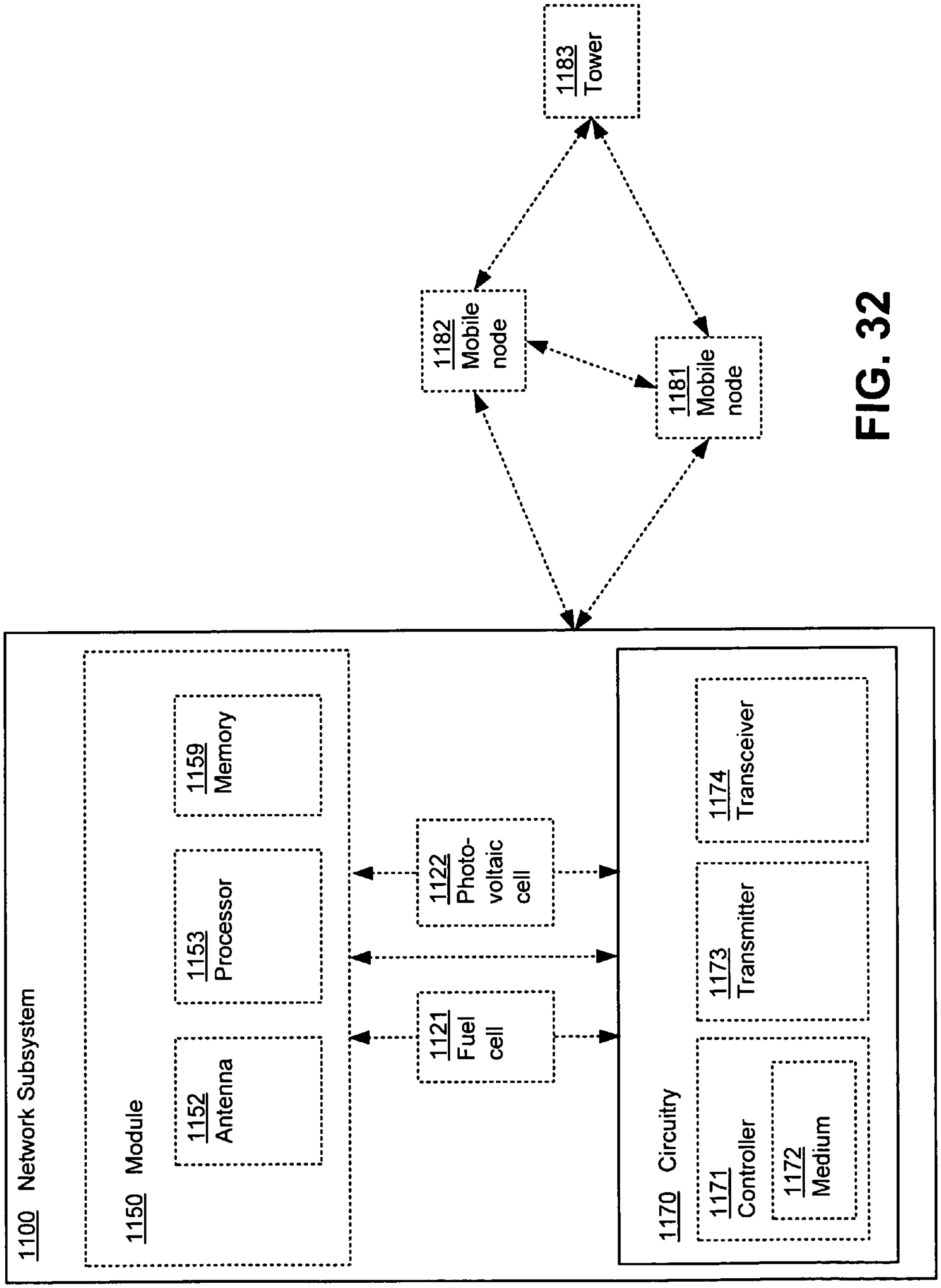

1183 Tower
1182 Mobile node
1181 Mobile node
1100 Network Subsystem
1150 Module
1152 Antenna
1153 Processor
1159 Memory
1121 Fuel cell
1122 Photo-voltaic cell
1170 Circuitry
1171 Controller
1172 Medium
1173 Transmitter
1174 Transceiver

FIG. 32

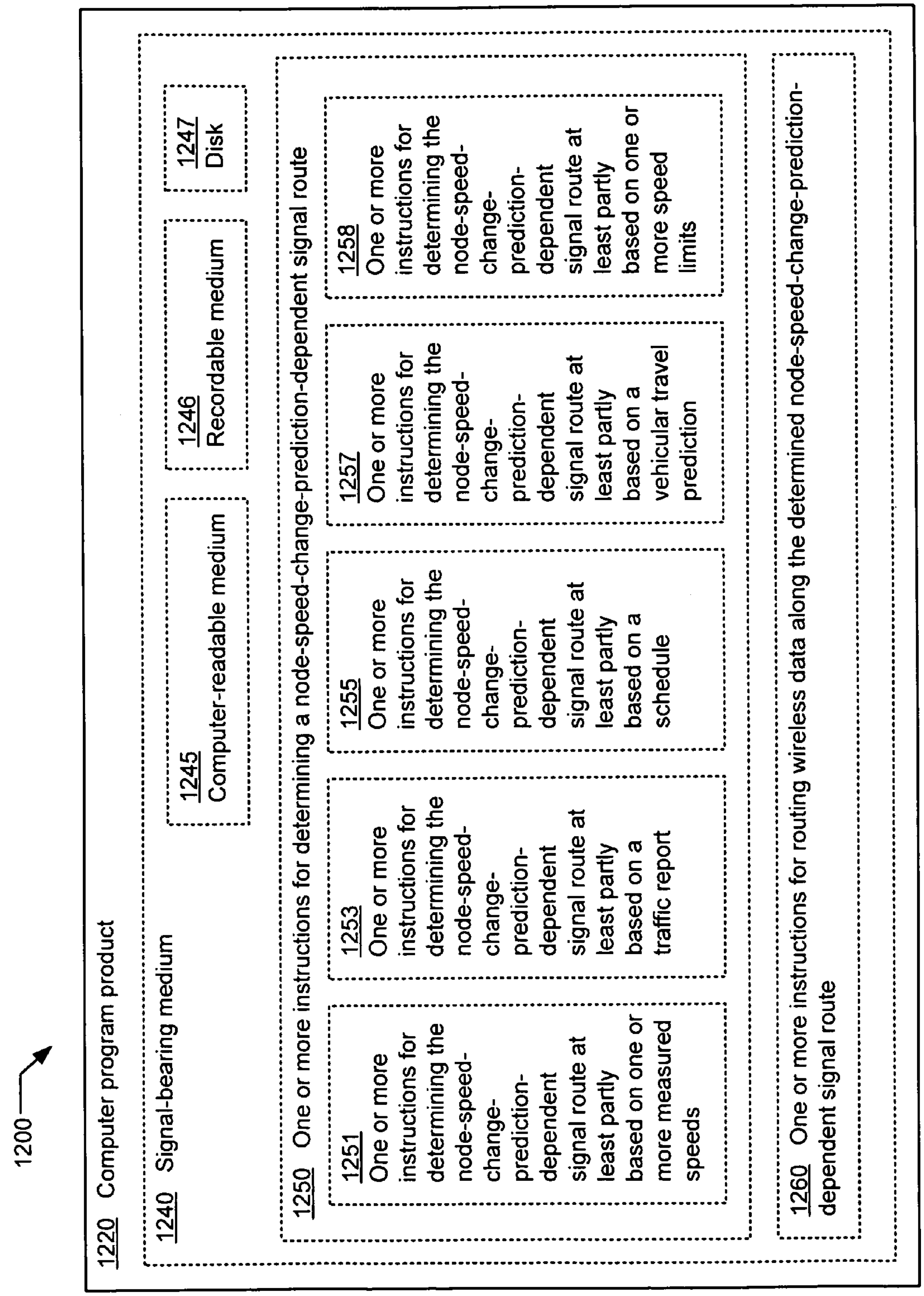

1200
1220 Computer program product
1240 Signal-bearing medium
1245 Computer-readable medium
1246 Recordable medium
1247 Disk
1250 One or more instructions for determining a node-speed-change-prediction-dependent signal route
1251 One or more instructions for determining the node-speed-change-prediction-dependent signal route at least partly based on one or more measured speeds
1253 One or more instructions for determining the node-speed-change-prediction-dependent signal route at least partly based on a traffic report
1255 One or more instructions for determining the node-speed-change-prediction-dependent signal route at least partly based on a schedule
1257 One or more instructions for determining the node-speed-change-prediction-dependent signal route at least partly based on a vehicular travel prediction
1258 One or more instructions for determining the node-speed-change-prediction-dependent signal route at least partly based on one or more speed limits
1260 One or more instructions for routing wireless data along the determined node-speed-change-prediction-dependent signal route

FIG. 33

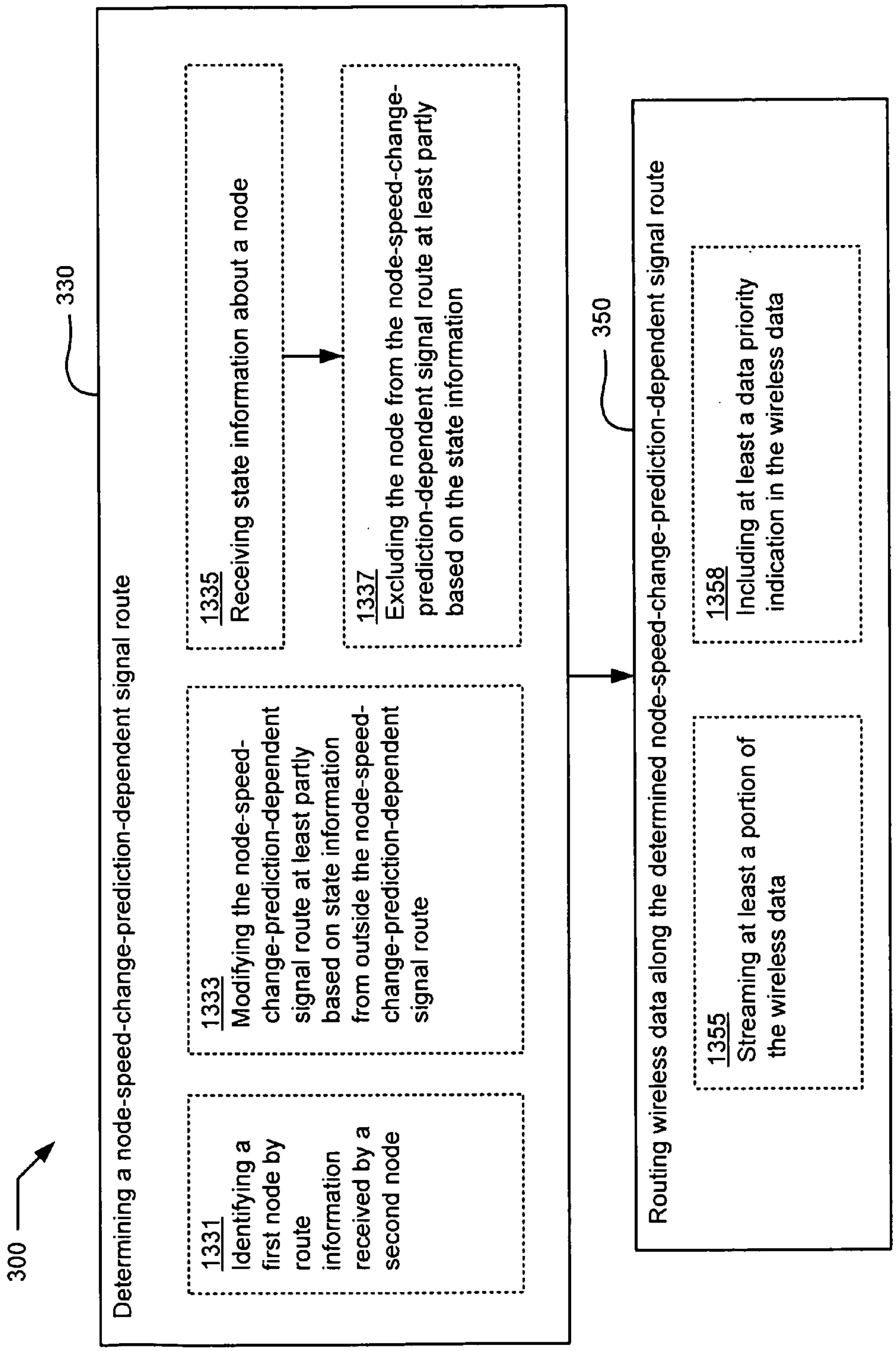

300
330
Determining a node-speed-change-prediction-dependent signal route
1331 Identifying a first node by route information received by a second node
1333 Modifying the node-speed-change-prediction-dependent signal route at least partly based on state information from outside the node-speed-change-prediction-dependent signal route
1335 Receiving state information about a node
1337 Excluding the node from the node-speed-change-prediction-dependent signal route at least partly based on the state information
350
Routing wireless data along the determined node-speed-change-prediction-dependent signal route
1355 Streaming at least a portion of the wireless data
1358 Including at least a data priority indication in the wireless data

FIG. 34

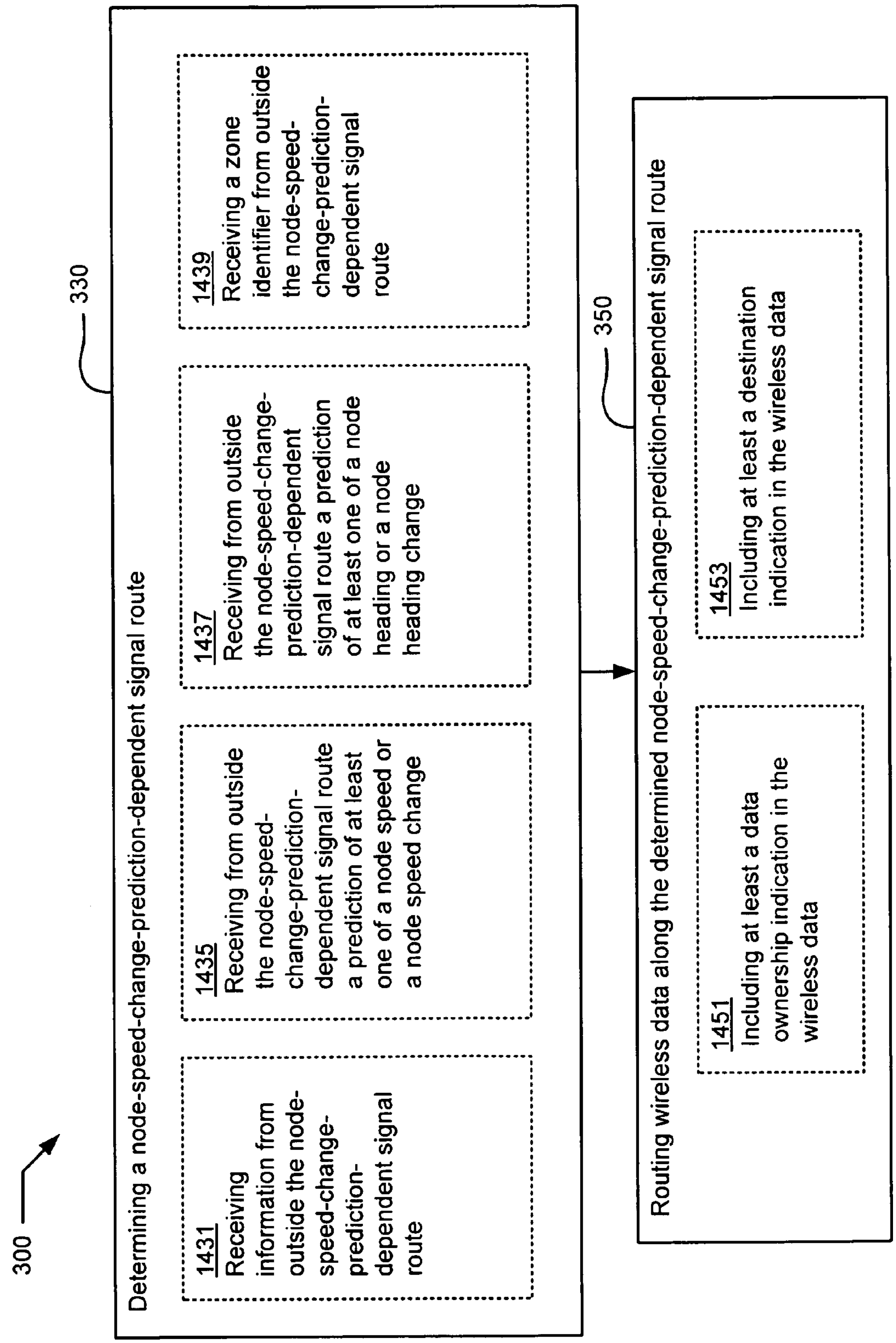

300
330
Determining a node-speed-change-prediction-dependent signal route
1431
Receiving information from outside the node-speed-change-prediction-dependent signal route
1435
Receiving from outside the node-speed-change-prediction-dependent signal route a prediction of at least one of a node speed or a node speed change
1437
Receiving from outside the node-speed-change-prediction-dependent signal route a prediction of at least one of a node heading or a node heading change
1439
Receiving a zone identifier from outside the node-speed-change-prediction-dependent signal route
350
Routing wireless data along the determined node-speed-change-prediction-dependent signal route
1451
Including at least a data ownership indication in the wireless data
1453
Including at least a destination indication in the wireless data

FIG. 35

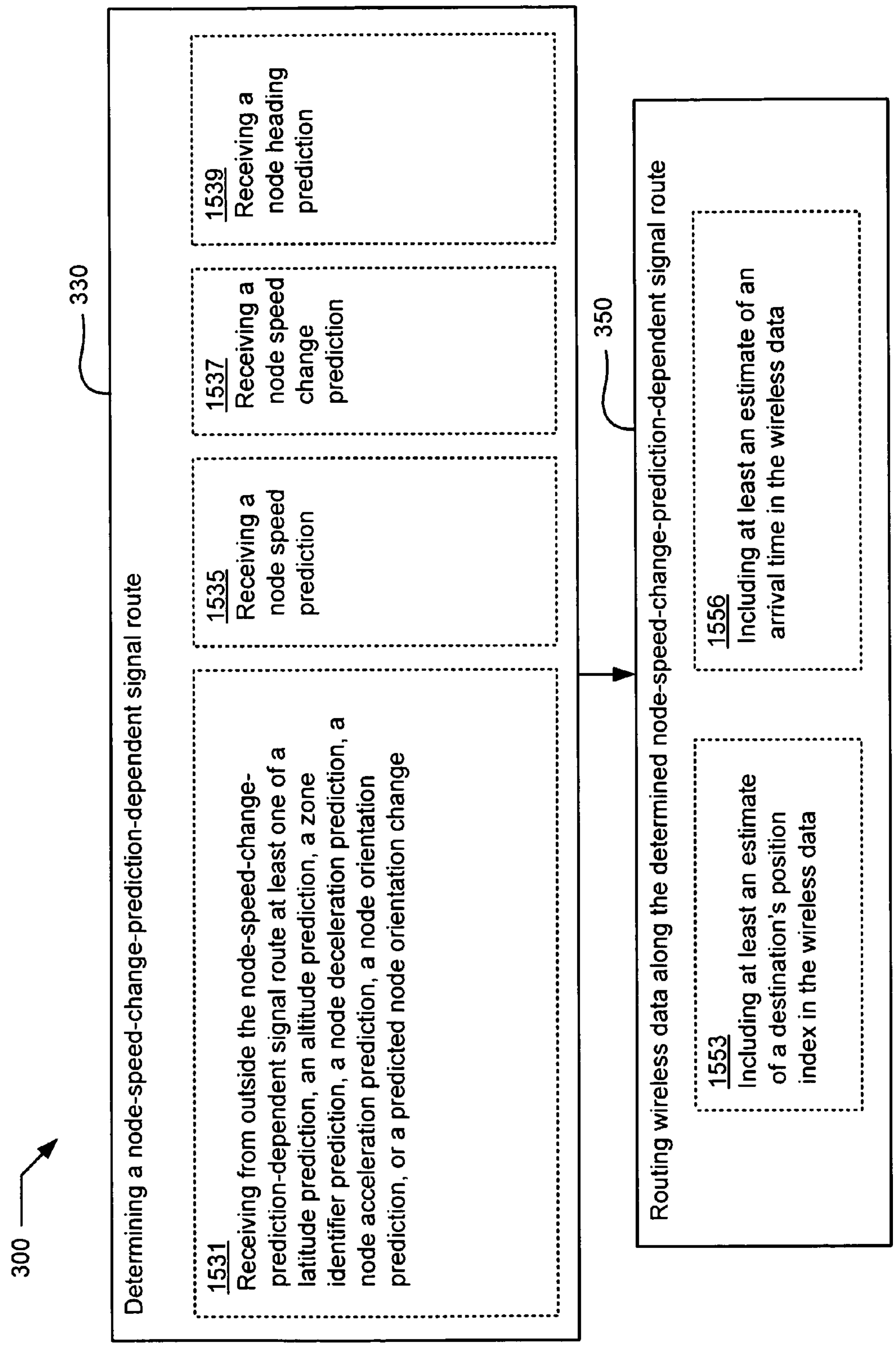

300
330
Determining a node-speed-change-prediction-dependent signal route
1531
Receiving from outside the node-speed-change-prediction-dependent signal route at least one of a latitude prediction, an altitude prediction, a zone identifier prediction, a node deceleration prediction, a node acceleration prediction, a node orientation prediction, or a predicted node orientation change
1535
Receiving a node speed prediction
1537
Receiving a node speed change prediction
1539
Receiving a node heading prediction
350
Routing wireless data along the determined node-speed-change-prediction-dependent signal route
1553
Including at least an estimate of a destination's position index in the wireless data
1556
Including at least an estimate of an arrival time in the wireless data

FIG. 36

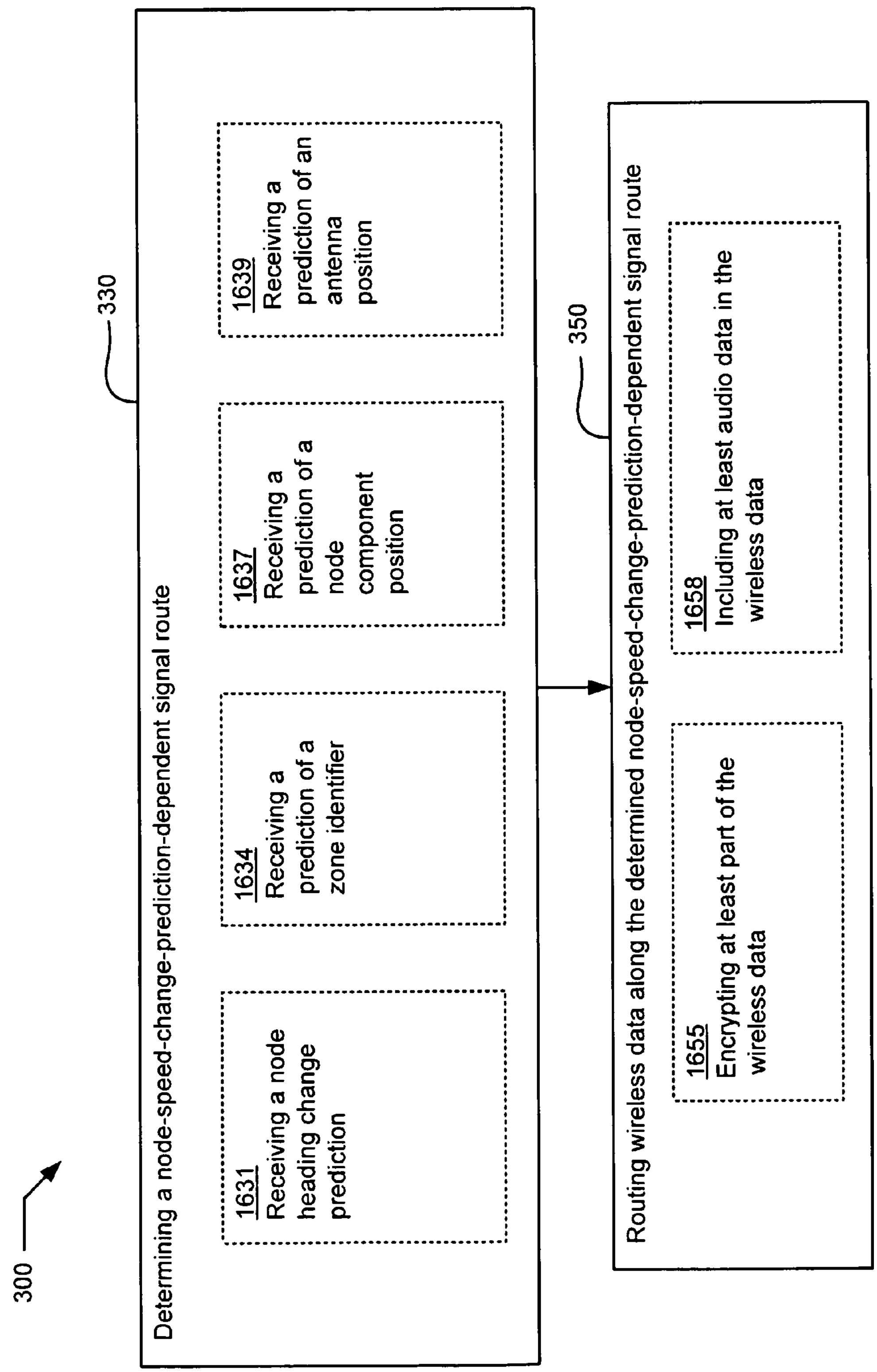

300
330
Determining a node-speed-change-prediction-dependent signal route
1631 Receiving a node heading change prediction
1634 Receiving a prediction of a zone identifier
1637 Receiving a prediction of a node component position
1639 Receiving a prediction of an antenna position
350
Routing wireless data along the determined node-speed-change-prediction-dependent signal route
1655 Encrypting at least part of the wireless data
1658 Including at least audio data in the wireless data

FIG. 37

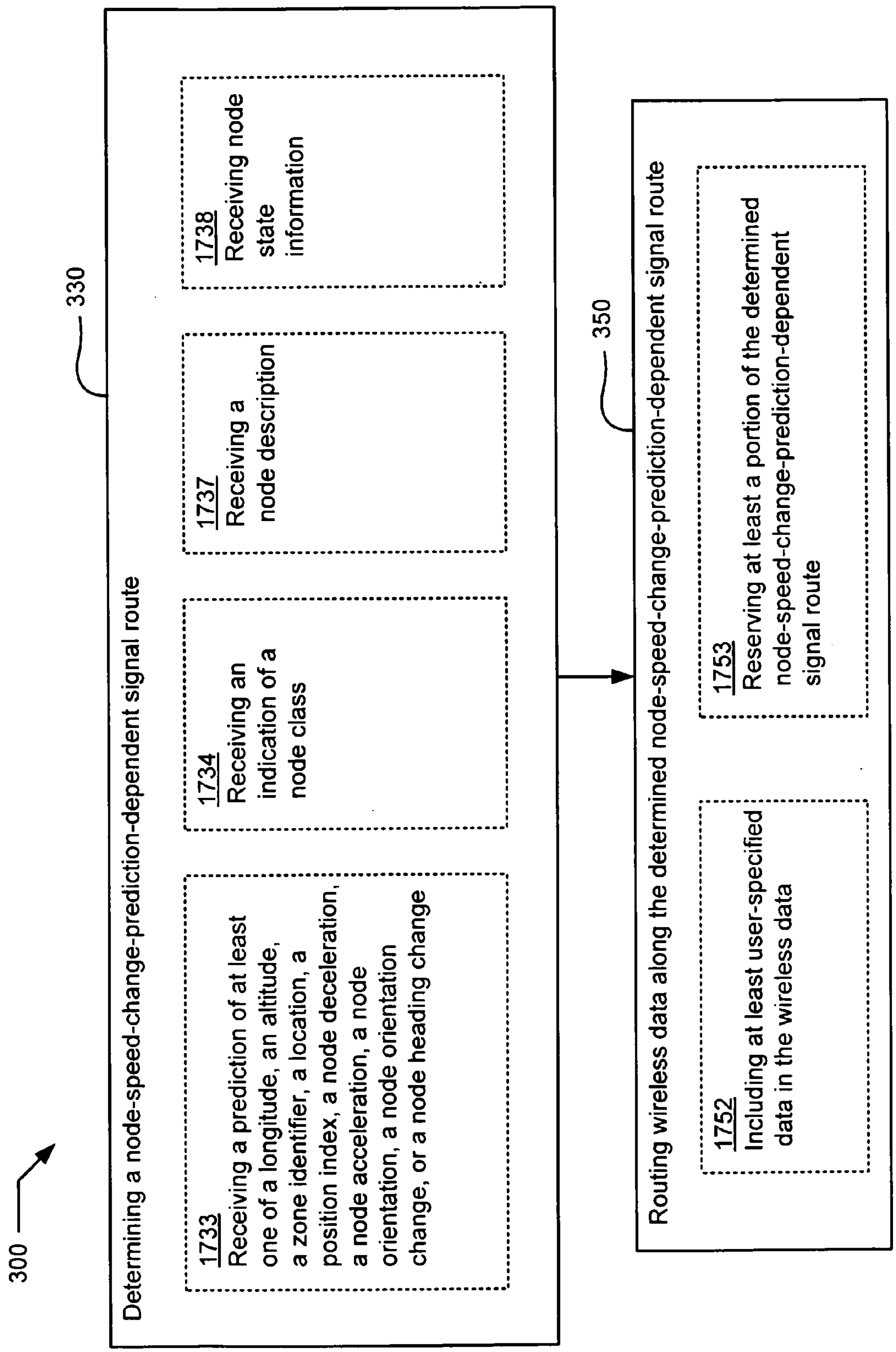

300
330
Determining a node-speed-change-prediction-dependent signal route
1733
Receiving a prediction of at least one of a longitude, an altitude, a zone identifier, a location, a position index, a node deceleration, a node acceleration, a node orientation, a node orientation change, or a node heading change
1734
Receiving an indication of a node class
1737
Receiving a node description
1738
Receiving node state information
350
Routing wireless data along the determined node-speed-change-prediction-dependent signal route
1752
Including at least user-specified data in the wireless data
1753
Reserving at least a portion of the determined node-speed-change-prediction-dependent signal route

FIG. 38

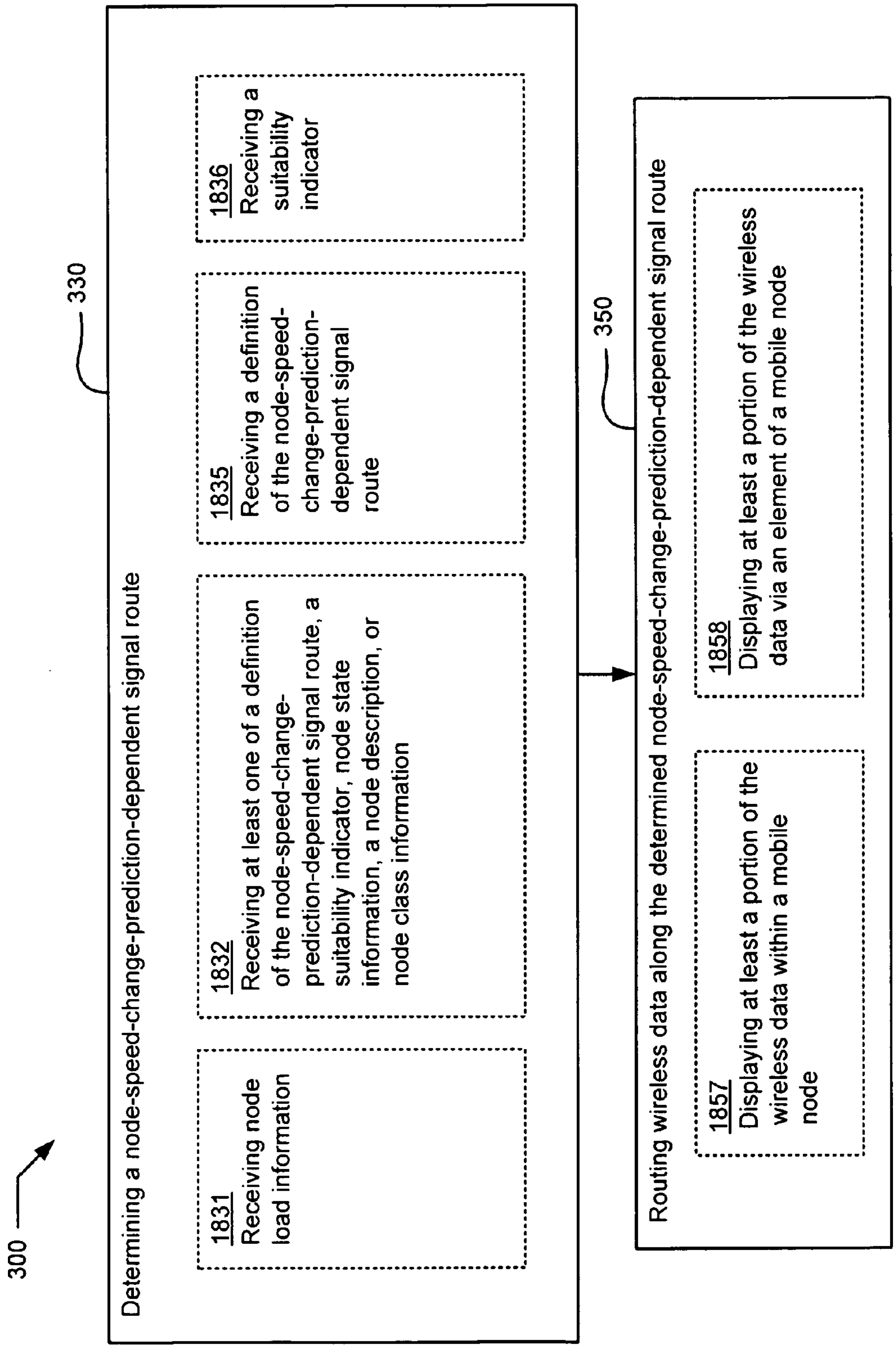

300
330
Determining a node-speed-change-prediction-dependent signal route
1831 Receiving node load information
1832 Receiving at least one of a definition of the node-speed-change-prediction-dependent signal route, a suitability indicator, node state information, a node description, or node class information
1835 Receiving a definition of the node-speed-change-prediction-dependent signal route
1836 Receiving a suitability indicator
350
Routing wireless data along the determined node-speed-change-prediction-dependent signal route
1857 Displaying at least a portion of the wireless data within a mobile node
1858 Displaying at least a portion of the wireless data via an element of a mobile node

FIG. 39

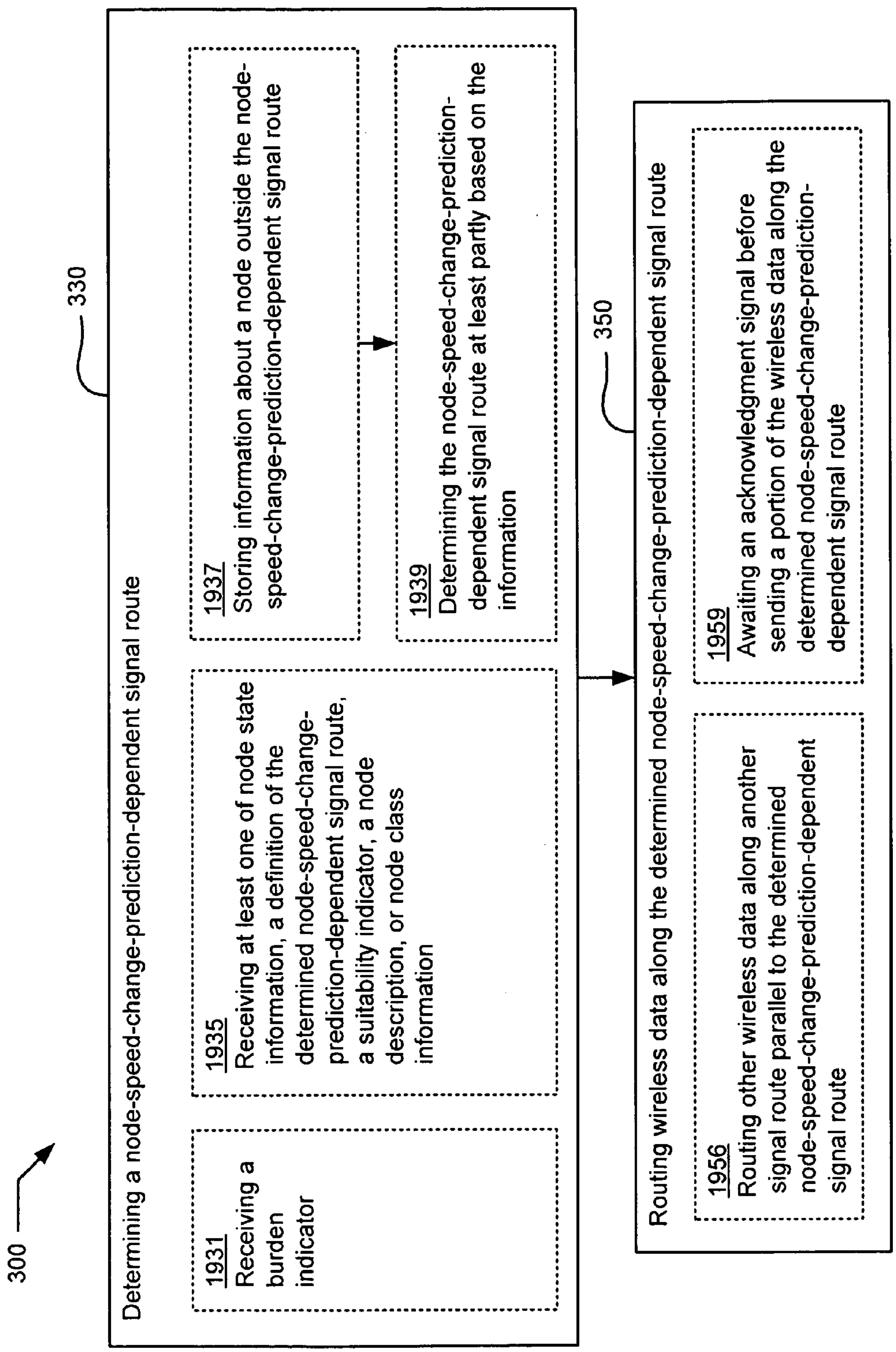

300
330
Determining a node-speed-change-prediction-dependent signal route
1931
Receiving a burden indicator
1935
Receiving at least one of node state information, a definition of the determined node-speed-change-prediction-dependent signal route, a suitability indicator, a node description, or node class information
1937
Storing information about a node outside the node-speed-change-prediction-dependent signal route
1939
Determining the node-speed-change-prediction-dependent signal route at least partly based on the information
350
Routing wireless data along the determined node-speed-change-prediction-dependent signal route
1956
Routing other wireless data along another signal route parallel to the determined node-speed-change-prediction-dependent signal route
1959
Awaiting an acknowledgment signal before sending a portion of the wireless data along the determined node-speed-change-prediction-dependent signal route

FIG. 40

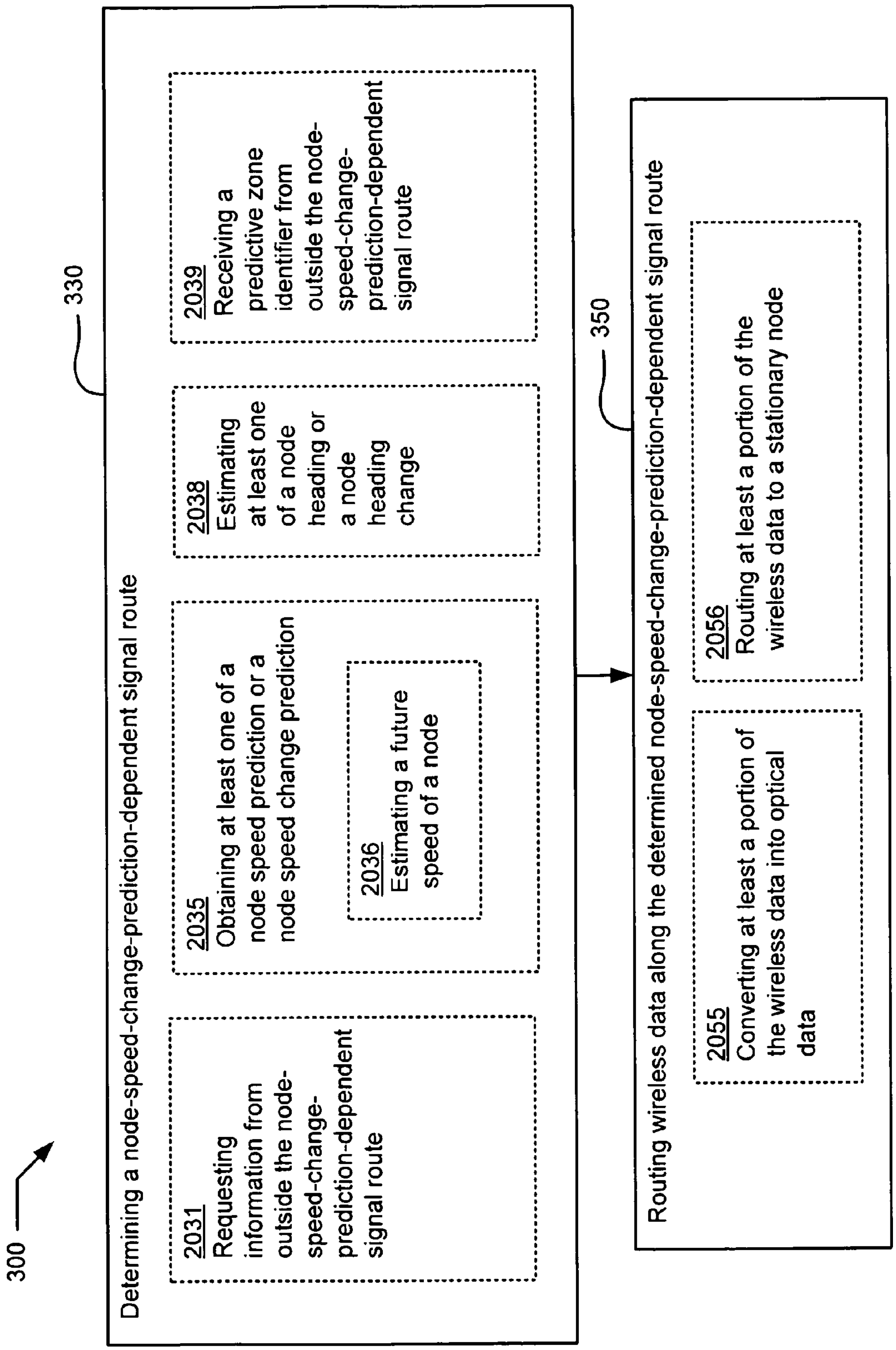

300
330
Determining a node-speed-change-prediction-dependent signal route
2031 Requesting information from outside the node-speed-change-prediction-dependent signal route
2035 Obtaining at least one of a node speed prediction or a node speed change prediction
2036 Estimating a future speed of a node
2038 Estimating at least one of a node heading or a node heading change
2039 Receiving a predictive zone identifier from outside the node-speed-change-prediction-dependent signal route
350
Routing wireless data along the determined node-speed-change-prediction-dependent signal route
2055 Converting at least a portion of the wireless data into optical data
2056 Routing at least a portion of the wireless data to a stationary node

FIG. 41

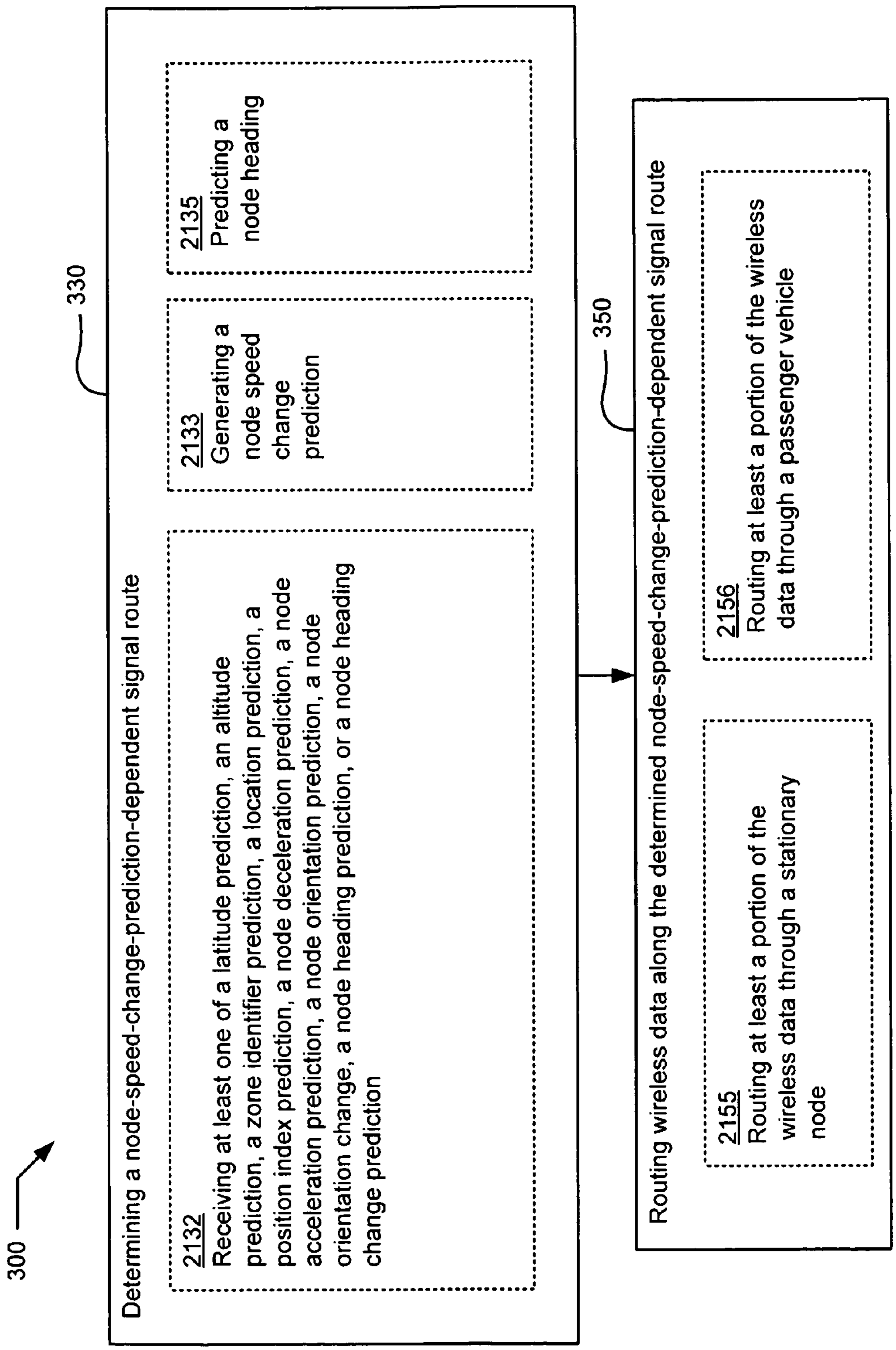

300
330
Determining a node-speed-change-prediction-dependent signal route
2132
Receiving at least one of a latitude prediction, an altitude prediction, a zone identifier prediction, a location prediction, a position index prediction, a node deceleration prediction, a node acceleration prediction, a node orientation prediction, a node orientation change, a node heading prediction, or a node heading change prediction
2133
Generating a node speed change prediction
2135
Predicting a node heading
350
Routing wireless data along the determined node-speed-change-prediction-dependent signal route
2155
Routing at least a portion of the wireless data through a stationary node
2156
Routing at least a portion of the wireless data through a passenger vehicle

FIG. 42

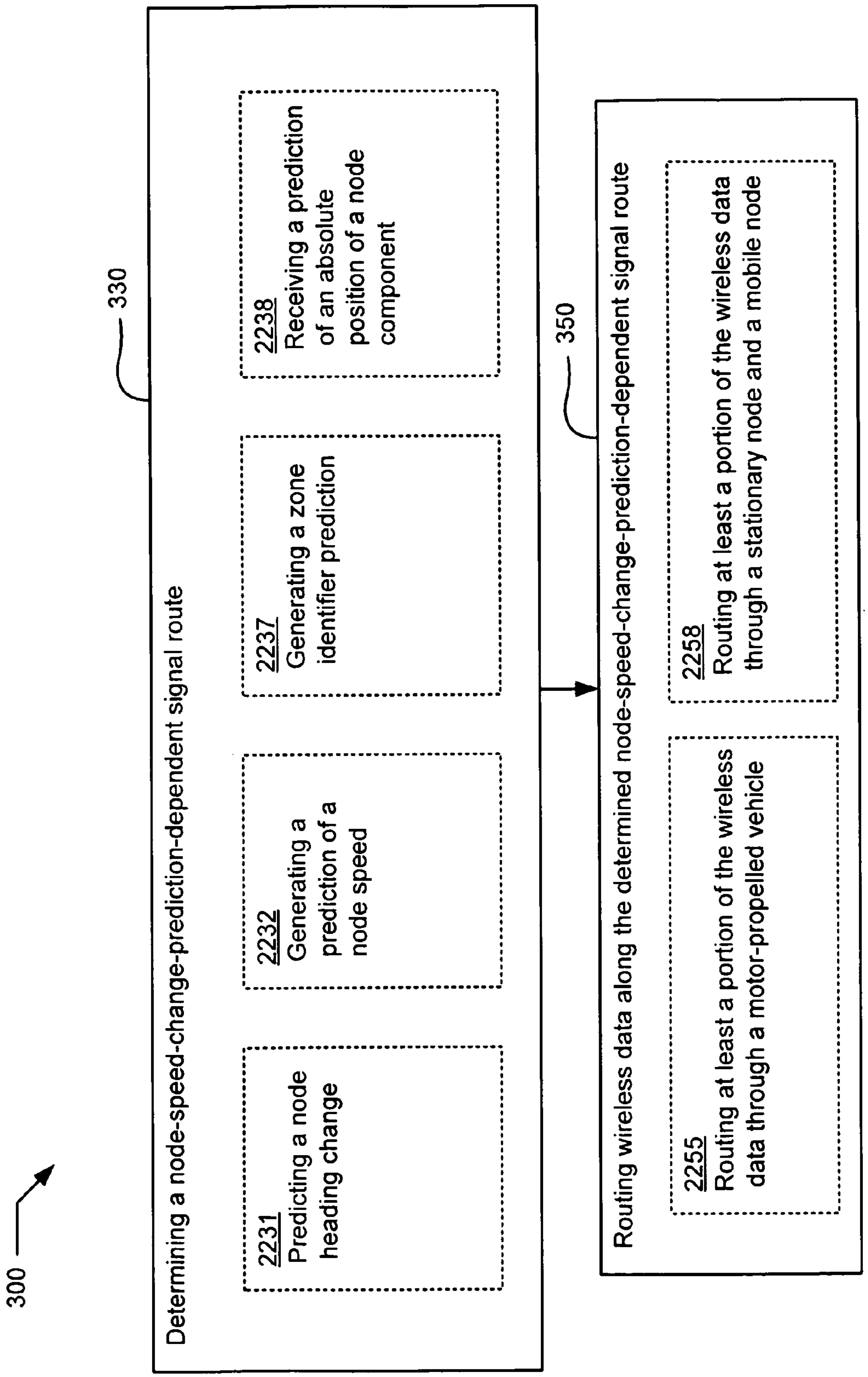

300
330
Determining a node-speed-change-prediction-dependent signal route
2231 Predicting a node heading change
2232 Generating a prediction of a node speed
2237 Generating a zone identifier prediction
2238 Receiving a prediction of an absolute position of a node component
350
Routing wireless data along the determined node-speed-change-prediction-dependent signal route
2255 Routing at least a portion of the wireless data through a motor-propelled vehicle
2258 Routing at least a portion of the wireless data through a stationary node and a mobile node

FIG. 43

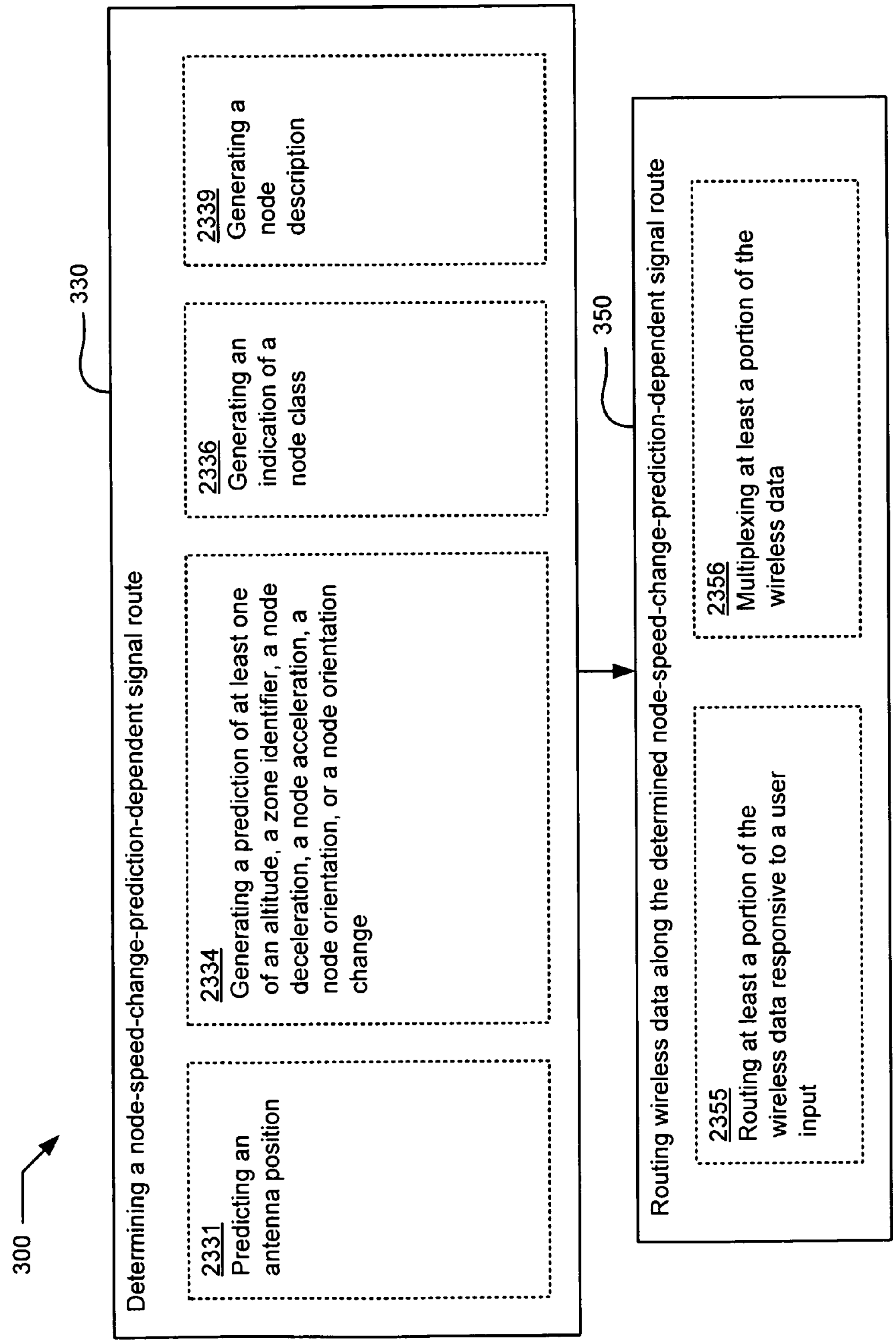

300
330
Determining a node-speed-change-prediction-dependent signal route
2331
Predicting an antenna position
2334
Generating a prediction of at least one of an altitude, a zone identifier, a node deceleration, a node acceleration, a node orientation, or a node orientation change
2336
Generating an indication of a node class
2339
Generating a node description
350
Routing wireless data along the determined node-speed-change-prediction-dependent signal route
2355
Routing at least a portion of the wireless data responsive to a user input
2356
Multiplexing at least a portion of the wireless data

FIG. 44

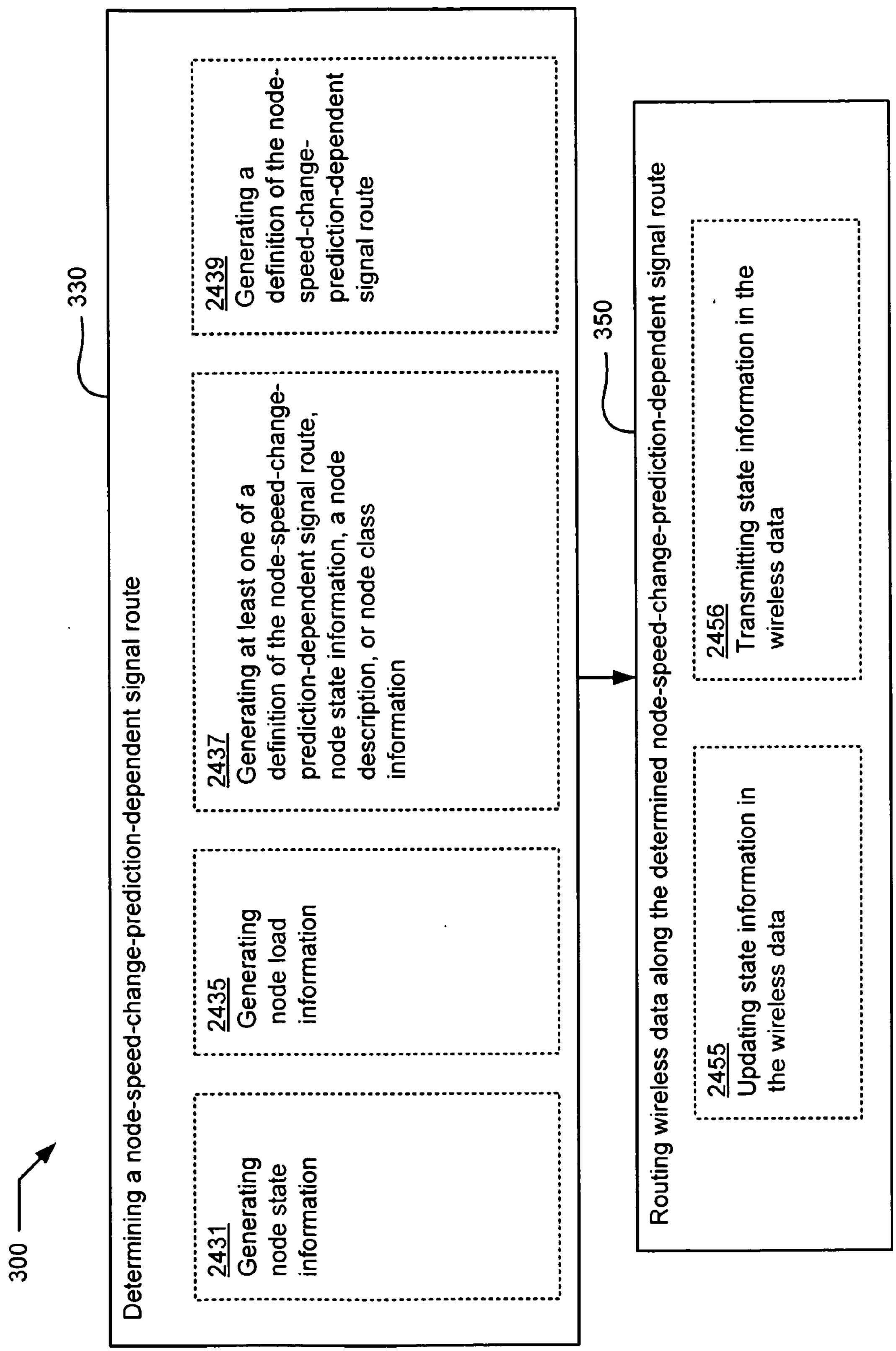

300
330
Determining a node-speed-change-prediction-dependent signal route
2431 Generating node state information
2435 Generating node load information
2437 Generating at least one of a definition of the node-speed-change-prediction-dependent signal route, node state information, a node description, or node class information
2439 Generating a definition of the node-speed-change-prediction-dependent signal route
350
Routing wireless data along the determined node-speed-change-prediction-dependent signal route
2455 Updating state information in the wireless data
2456 Transmitting state information in the wireless data

FIG. 45

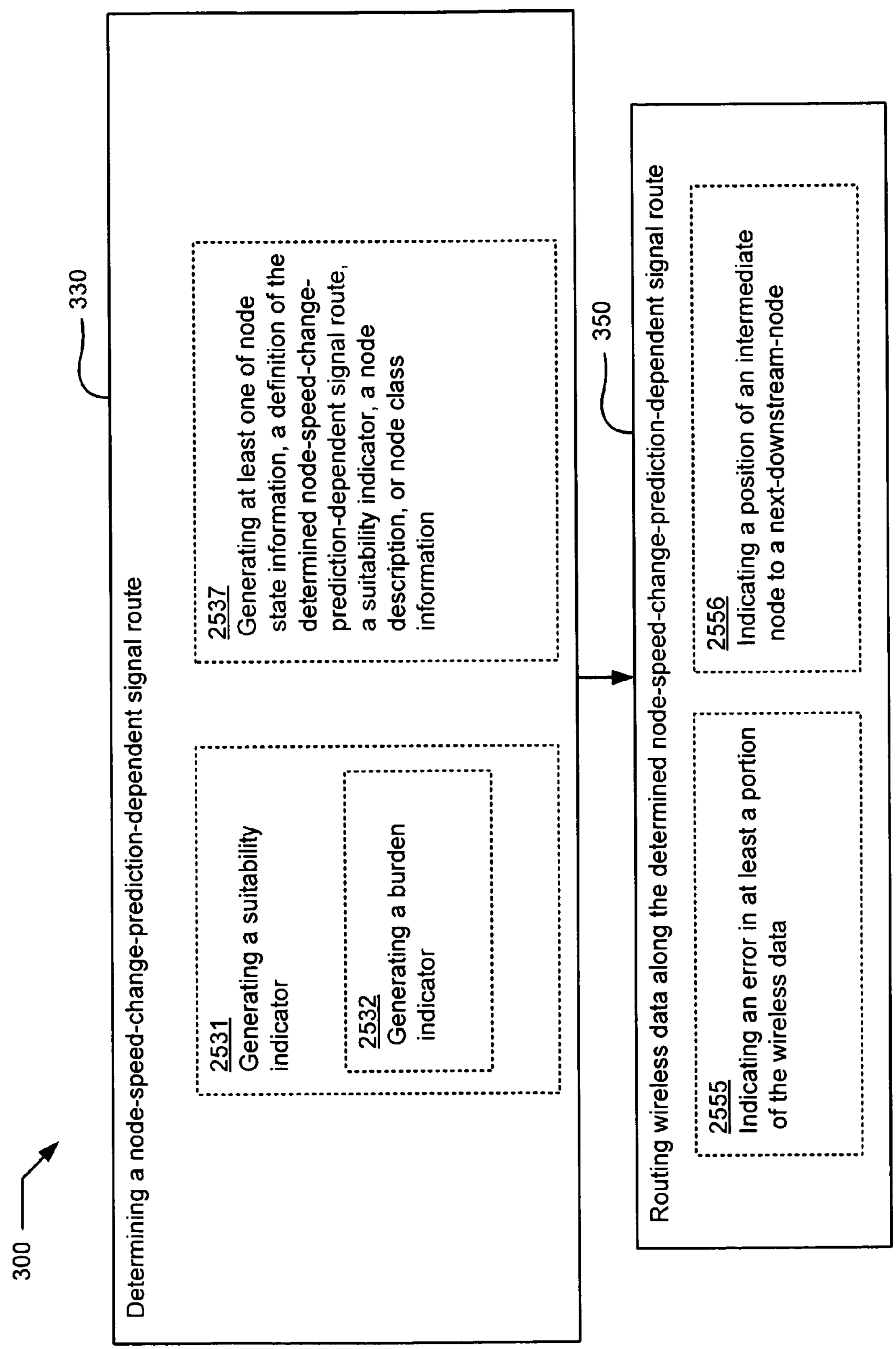

300
330
Determining a node-speed-change-prediction-dependent signal route
2531
Generating a suitability indicator
2532
Generating a burden indicator
2537
Generating at least one of node state information, a definition of the determined node-speed-change-prediction-dependent signal route, a suitability indicator, a node description, or node class information
350
Routing wireless data along the determined node-speed-change-prediction-dependent signal route
2555
Indicating an error in at least a portion of the wireless data
2556
Indicating a position of an intermediate node to a next-downstream-node

FIG. 46

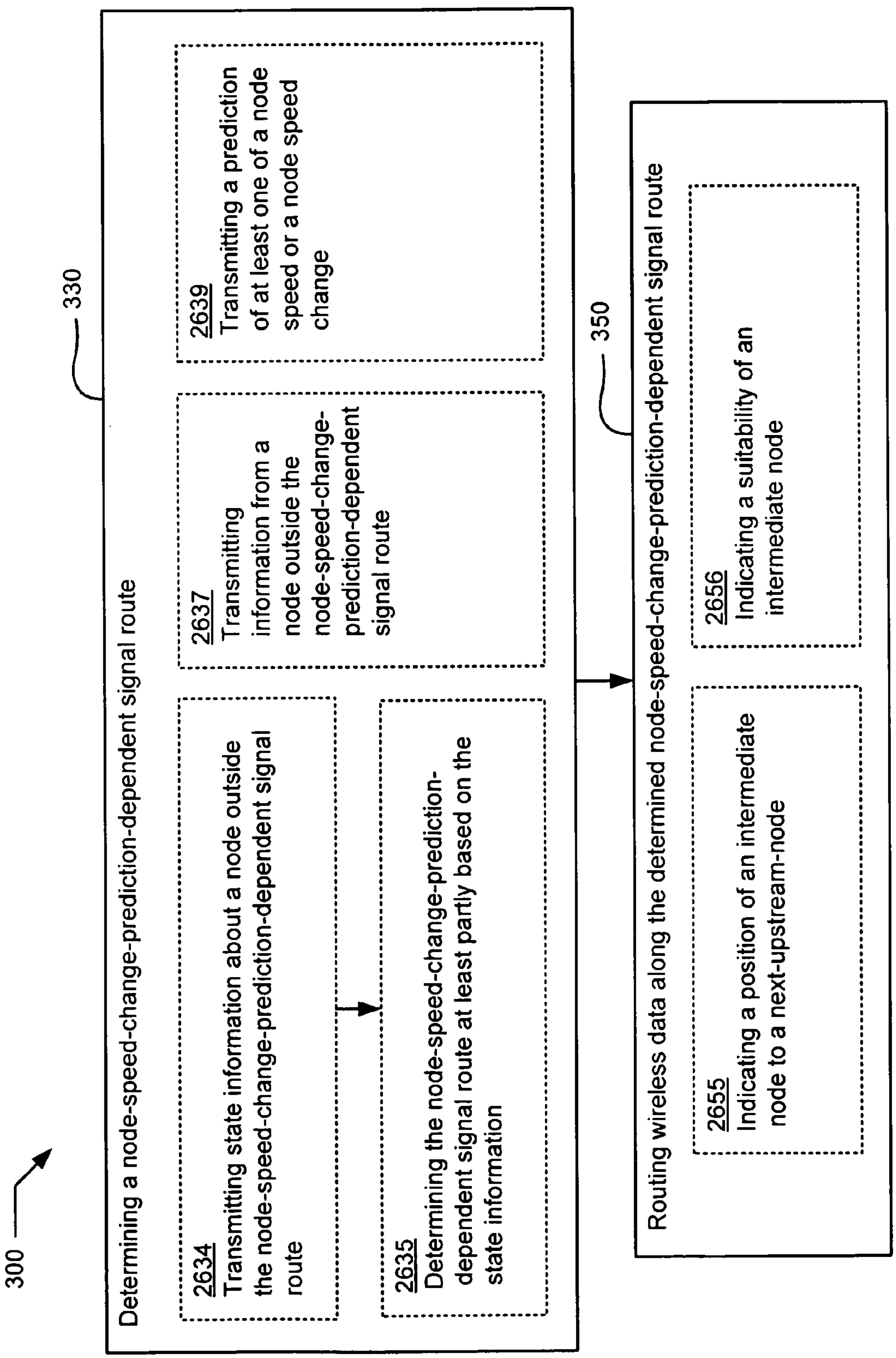

300
330
Determining a node-speed-change-prediction-dependent signal route
2634 Transmitting state information about a node outside the node-speed-change-prediction-dependent signal route
2635 Determining the node-speed-change-prediction-dependent signal route at least partly based on the state information
2637 Transmitting information from a node outside the node-speed-change-prediction-dependent signal route
2639 Transmitting a prediction of at least one of a node speed or a node speed change
350
Routing wireless data along the determined node-speed-change-prediction-dependent signal route
2655 Indicating a position of an intermediate node to a next-upstream-node
2656 Indicating a suitability of an intermediate node

FIG. 47

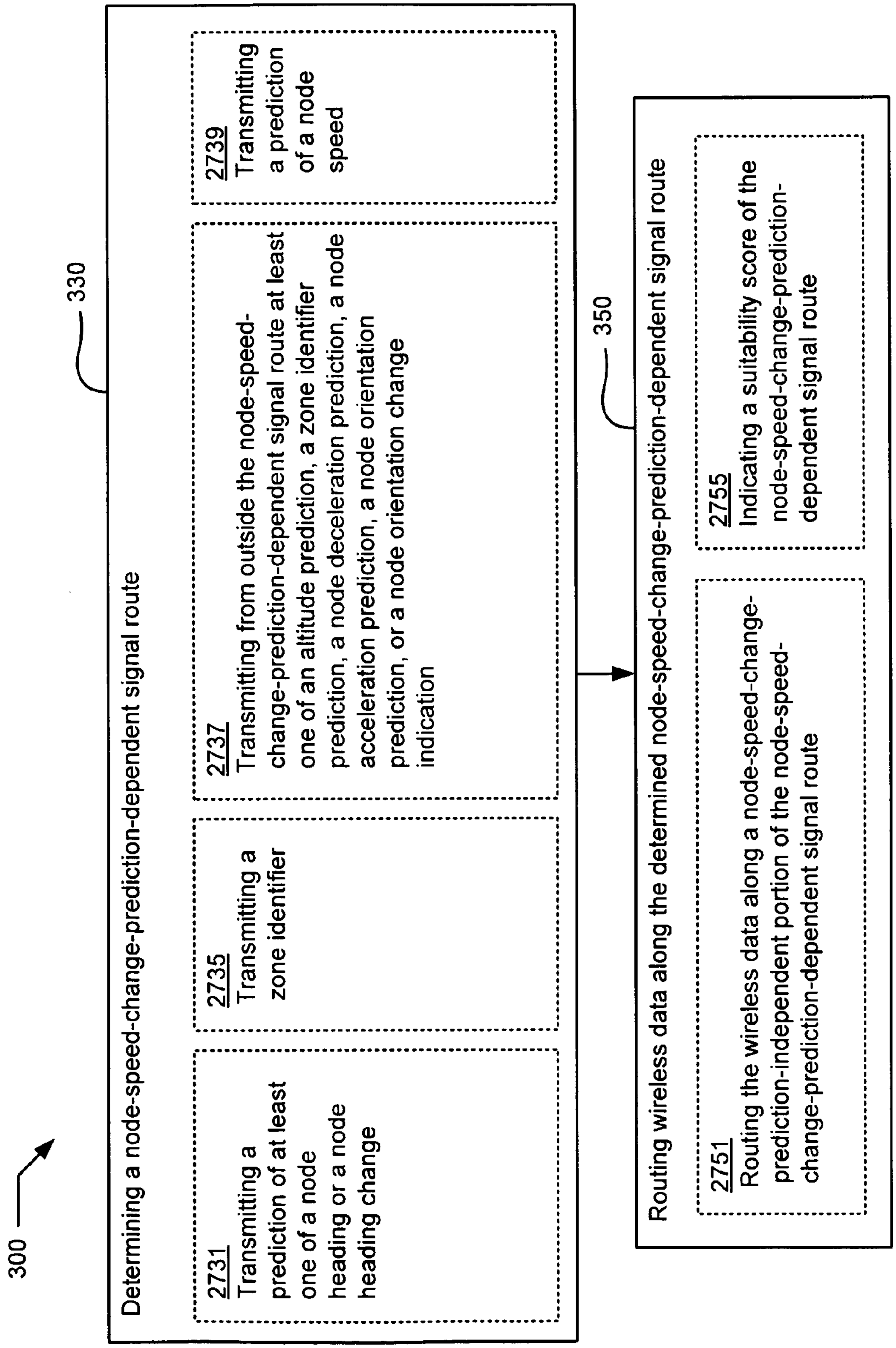

300
330
Determining a node-speed-change-prediction-dependent signal route
2731
Transmitting a prediction of at least one of a node heading or a node heading change
2735
Transmitting a zone identifier
2737
Transmitting from outside the node-speed-change-prediction-dependent signal route at least one of an altitude prediction, a zone identifier prediction, a node deceleration prediction, a node acceleration prediction, a node orientation prediction, or a node orientation change indication
2739
Transmitting a prediction of a node speed
350
Routing wireless data along the determined node-speed-change-prediction-dependent signal route
2751
Routing the wireless data along a node-speed-change-prediction-independent portion of the node-speed-change-prediction-dependent signal route
2755
Indicating a suitability score of the node-speed-change-prediction-dependent signal route

FIG. 48

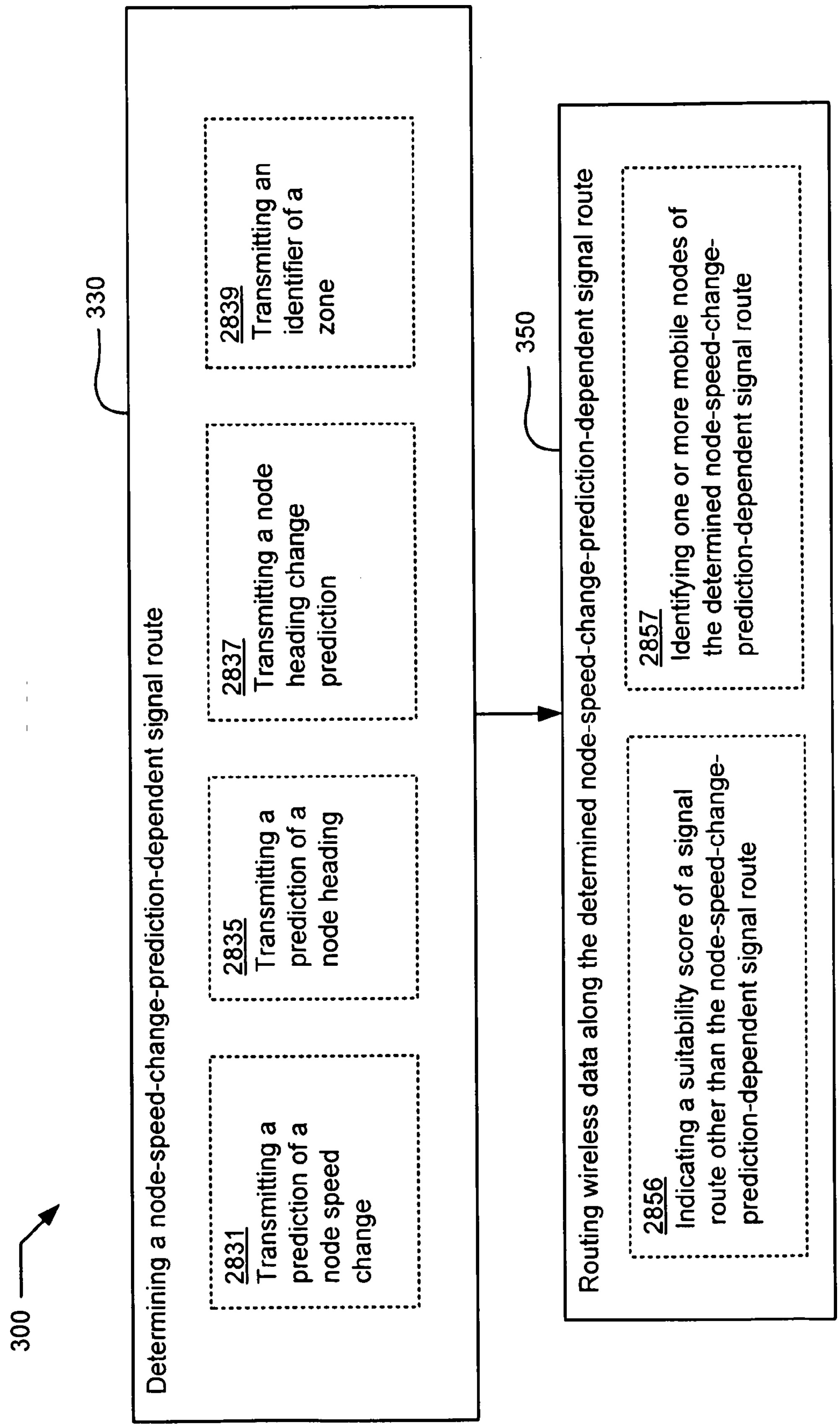

300
330
Determining a node-speed-change-prediction-dependent signal route
2831 Transmitting a prediction of a node speed change
2835 Transmitting a prediction of a node heading
2837 Transmitting a node heading change prediction
2839 Transmitting an identifier of a zone
350
Routing wireless data along the determined node-speed-change-prediction-dependent signal route
2856 Indicating a suitability score of a signal route other than the node-speed-change-prediction-dependent signal route
2857 Identifying one or more mobile nodes of the determined node-speed-change-prediction-dependent signal route

FIG. 49

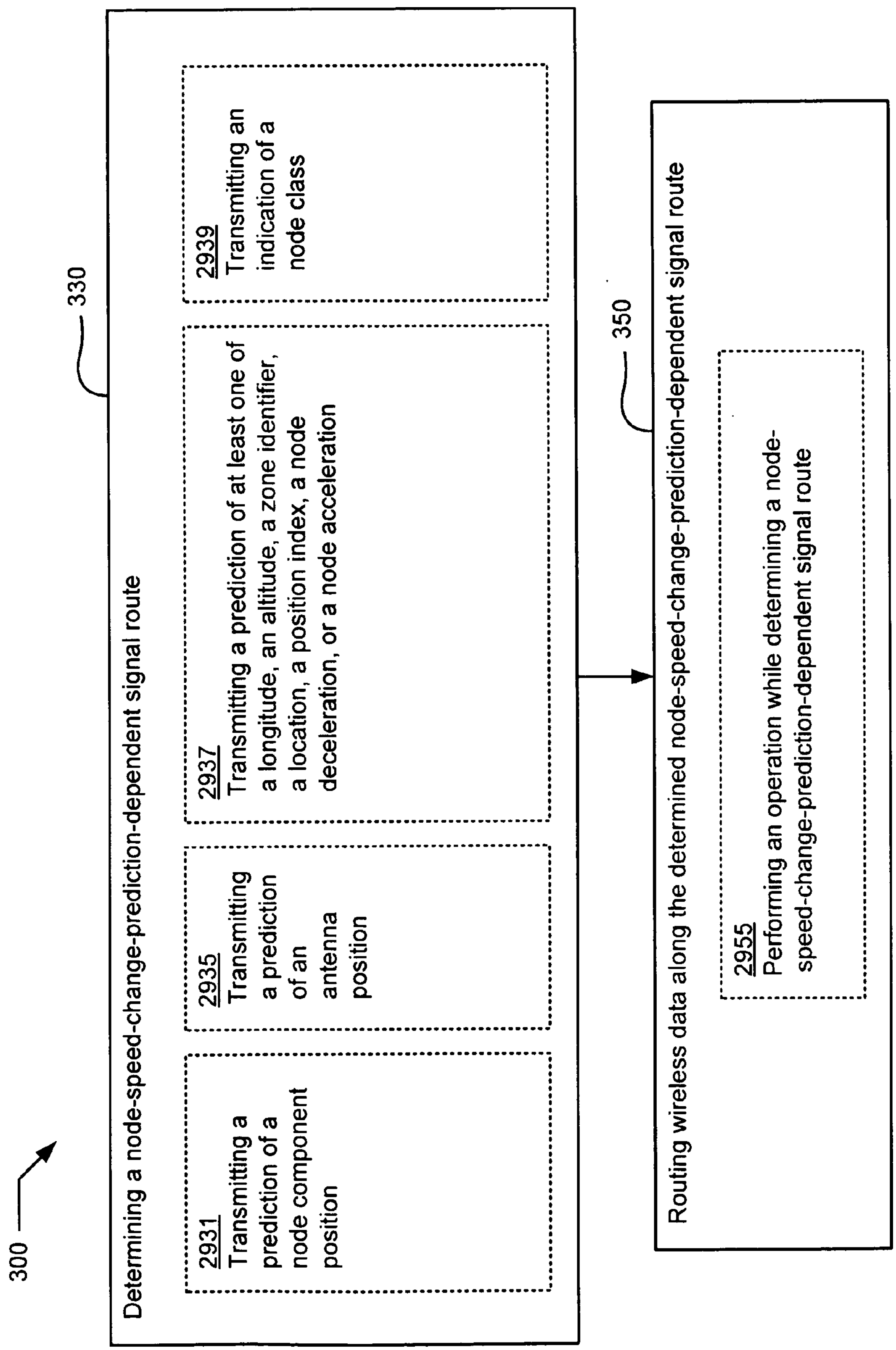

300
330
Determining a node-speed-change-prediction-dependent signal route
2931 Transmitting a prediction of a node component position
2935 Transmitting a prediction of an antenna position
2937 Transmitting a prediction of at least one of a longitude, an altitude, a zone identifier, a location, a position index, a node deceleration, or a node acceleration
2939 Transmitting an indication of a node class
350
Routing wireless data along the determined node-speed-change-prediction-dependent signal route
2955 Performing an operation while determining a node-speed-change-prediction-dependent signal route

FIG. 50

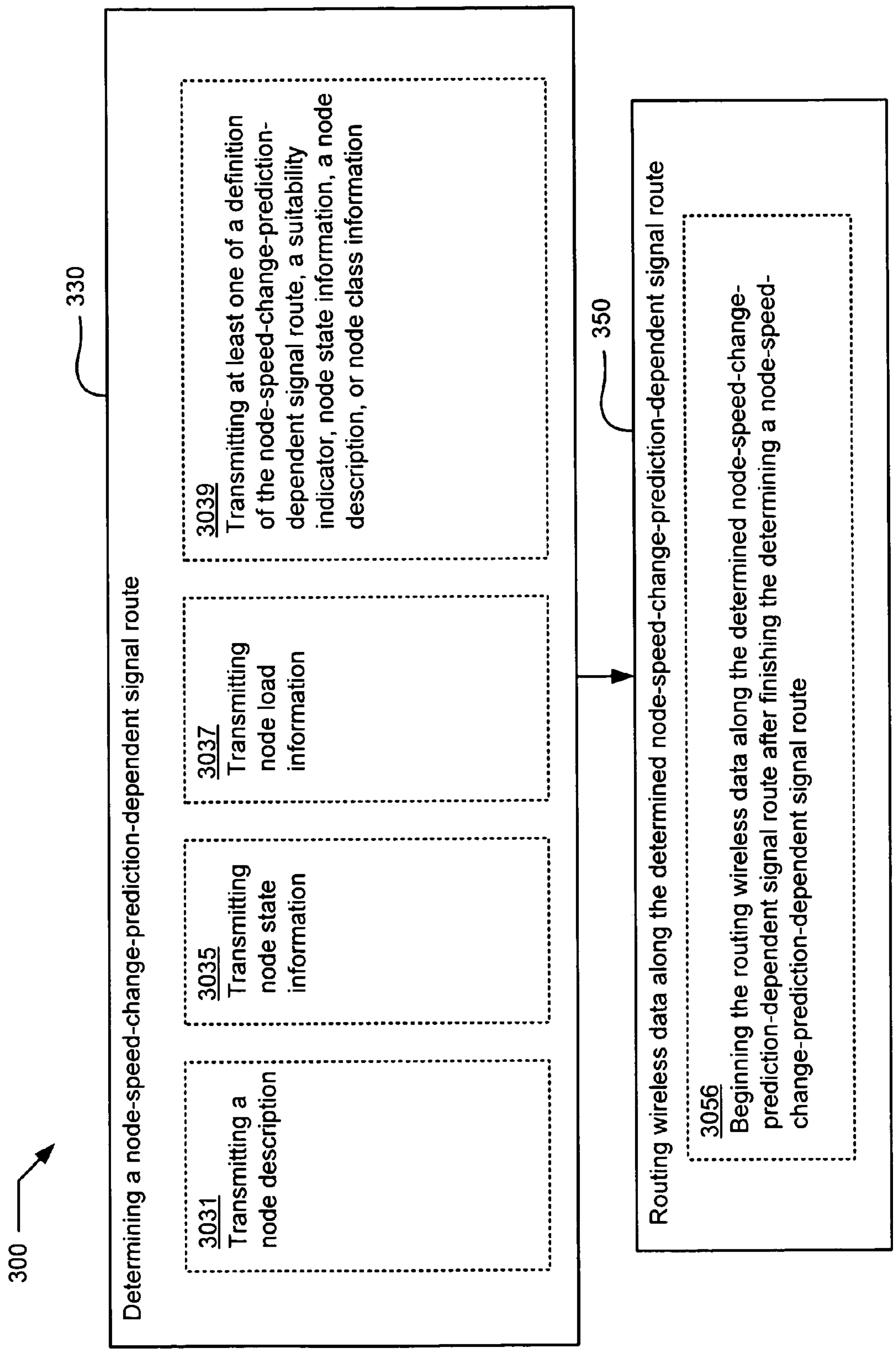

300
330
Determining a node-speed-change-prediction-dependent signal route
3031 Transmitting a node description
3035 Transmitting node state information
3037 Transmitting node load information
3039 Transmitting at least one of a definition of the node-speed-change-prediction-dependent signal route, a suitability indicator, node state information, a node description, or node class information
350
Routing wireless data along the determined node-speed-change-prediction-dependent signal route
3056 Beginning the routing wireless data along the determined node-speed-change-prediction-dependent signal route after finishing the determining a node-speed-change-prediction-dependent signal route

FIG. 51

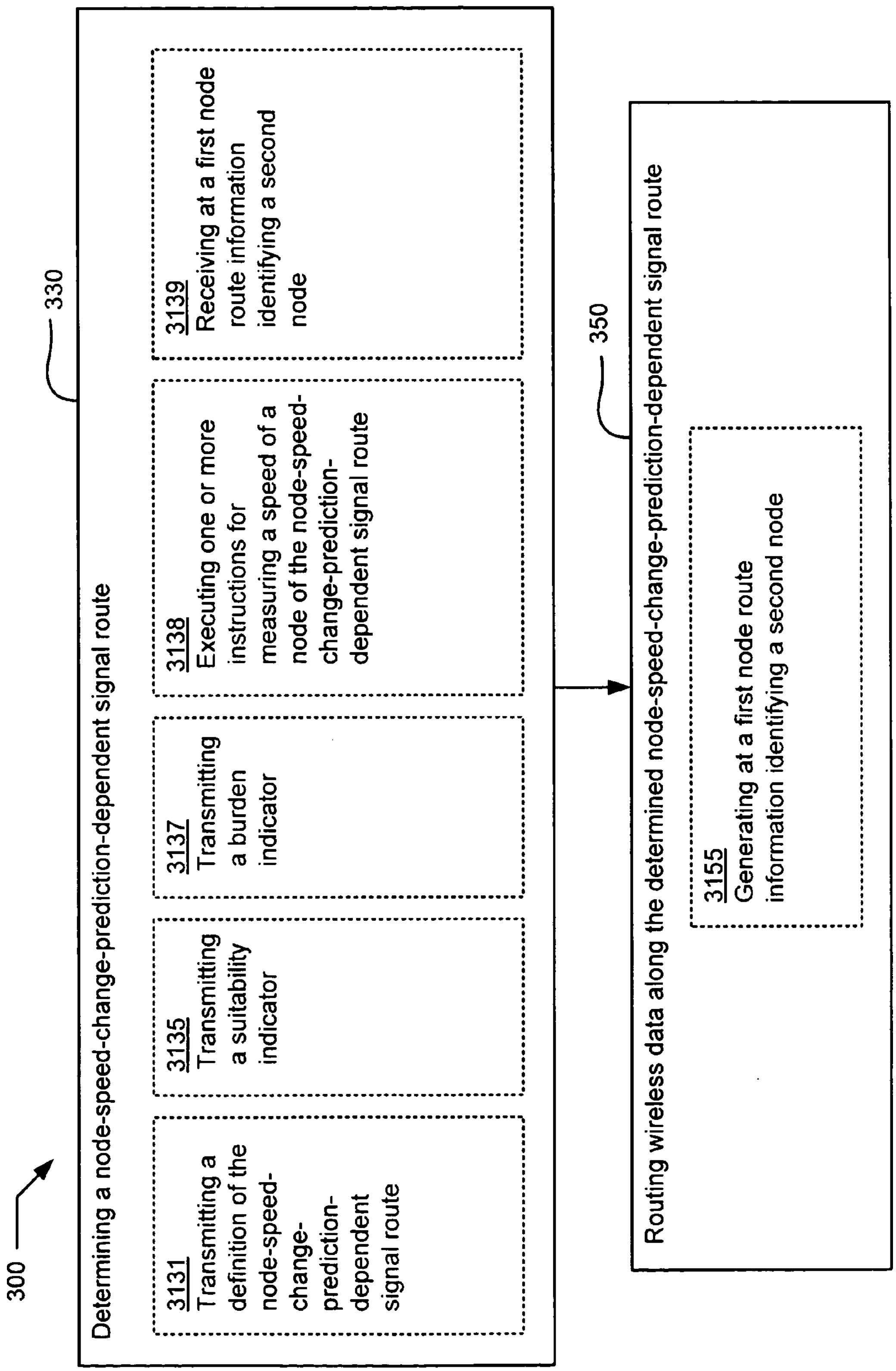

300
330
Determining a node-speed-change-prediction-dependent signal route
3131 Transmitting a definition of the node-speed-change-prediction-dependent signal route
3135 Transmitting a suitability indicator
3137 Transmitting a burden indicator
3138 Executing one or more instructions for measuring a speed of a node of the node-speed-change-prediction-dependent signal route
3139 Receiving at a first node route information identifying a second node
350
Routing wireless data along the determined node-speed-change-prediction-dependent signal route
3155 Generating at a first node route information identifying a second node

FIG. 52

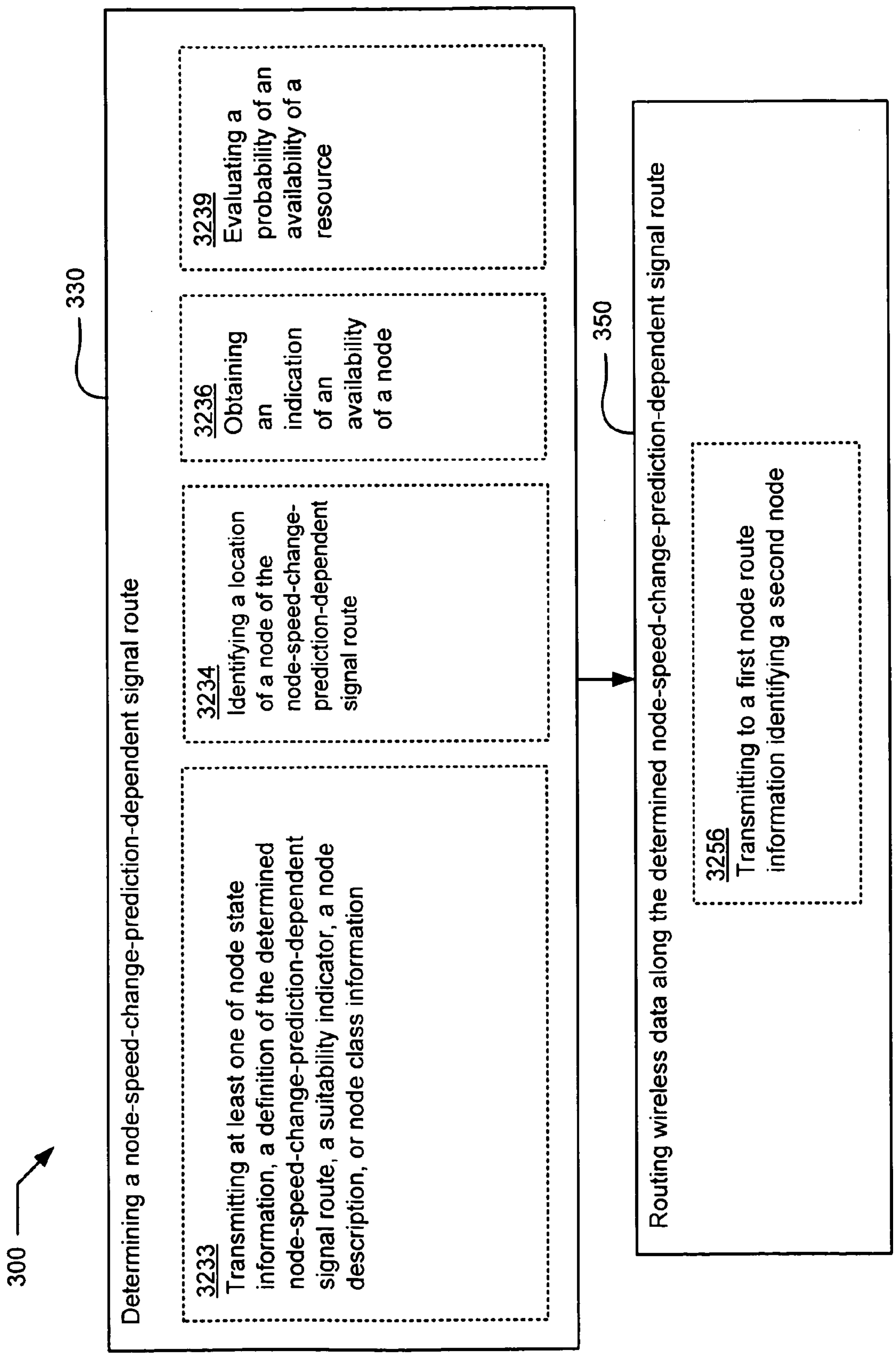

300
330
Determining a node-speed-change-prediction-dependent signal route
3233
Transmitting at least one of node state information, a definition of the determined node-speed-change-prediction-dependent signal route, a suitability indicator, a node description, or node class information
3234
Identifying a location of a node of the node-speed-change-prediction-dependent signal route
3236
Obtaining an indication of an availability of a node
3239
Evaluating a probability of an availability of a resource
350
Routing wireless data along the determined node-speed-change-prediction-dependent signal route
3256
Transmitting to a first node route information identifying a second node

FIG. 53

MOBILE DIRECTIONAL ANTENNA

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present application is related to, claims the earliest available effective filing date(s) from (e.g., claims earliest available priority dates for other than provisional patent applications; claims benefits under 35 USC § 119(e) for provisional patent applications), and incorporates by reference in its entirety all subject matter of the following listed application(s) (the "Related Applications") to the extent such subject matter is not inconsistent herewith; the present application also claims the earliest available effective filing date(s) from, and also incorporates by reference in its entirety all subject matter of any and all parent, grandparent, great-grandparent, etc. applications of the Related Application(s) to the extent such subject matter is not inconsistent herewith. The United States Patent Office (USPTO) has published a notice to the effect that the USPTO's computer programs require that patent applicants reference both a serial number and indicate whether an application is a continuation or continuation in part. Stephen G. Kunin, Benefit of Prior-Filed Application, USPTO Electronic Official Gazette, Mar. 18, 2003 at http://www.uspto.gov/web/offices/com/sol/og/2003/week11/patbene.htm. The present applicant entity has provided below a specific reference to the application(s)from which priority is being claimed as recited by statute. Applicant entity understands that the statute is unambiguous in its specific reference language and does not require either a serial number or any characterization such as "continuation" or "continuation-in-part." Notwithstanding the foregoing, applicant entity understands that the USPTO's computer programs have certain data entry requirements, and hence applicant entity is designating the present application as a continuation in part of its parent applications, but expressly points out that such designations are not to be construed in any way as any type of commentary and/or admission as to whether or not the present application contains any new matter in addition to the matter of its parent application(s).

RELATED APPLICATIONS

[0002] A. For purposes of the USPTO extra-statutory requirements, the present application constitutes a continuation-in-part of United States patent application entitled SIGNAL ROUTING DEPENDENT ON A NODE SPEED CHANGE PREDICTION, naming Alexander J. Cohen; Edward K. Y. Jung; Robert W. Lord; John D. Rinaldo, Jr.; and Clarence T. Tegreene as inventors, U.S. application Ser. No. 11/252,258, filed Oct. 17, 2005 (Attorney Docket No. 0405-003-001A-000000).

[0003] B. For purposes of the USPTO extra-statutory requirements, the present application constitutes a continuation-in-part of United States patent application entitled SIGNAL ROUTING DEPENDENT ON A LOADING INDICATOR OF A MOBILE NODE, naming Alexander J. Cohen; Edward K. Y. Jung; Robert W. Lord; John D. Rinaldo, Jr.; and Clarence T. Tegreene as inventors, U.S. application Ser. No. 11/252,206, filed Oct. 17, 2005 (Attorney Docket No. 0405-003-001B-000000).

[0004] C. For purposes of the USPTO extra-statutory requirements, the present application constitutes a continuation-in-part of United States patent application entitled USING A SIGNAL ROUTE DEPENDENT ON A NODE SPEED CHANGE PREDICTION, naming Alexander J. Cohen; Edward K. Y. Jung; Robert W. Lord; John D. Rinaldo, Jr.; and Clarence T. Tegreene as inventors, U.S. application Ser. No. 11/252,205, filed Oct. 17, 2005 (Attorney Docket No. 0405-003-001C-000000).

[0005] This disclosure describes certain embodiments of a mobile directional antenna. In one implementation, the mobile directional antenna can be optimized and/or provide improved performance as a result of a change in the position or operational configuration of the mobile directional antenna (i.e., a directionality of the directional antenna). In addition to the foregoing, other communication aspects are described in the claims, drawings, and text forming a part of the present disclosure.

[0006] In addition to the foregoing, various other embodiments are set forth and described in the text (e.g., claims and/or detailed description) and/or drawings of the present description.

[0007] The foregoing contains, by necessity, simplifications, generalizations and omissions of detail; consequently, those skilled in the art will appreciate that the foregoing may be illustrative only depending on context, and is not intended to be in any way limiting. Other aspects, features, and advantages of the devices and/or processes described herein, as defined by the claims, will become apparent in the detailed description set forth herein.

BRIEF DESCRIPTION OF THE FIGURES

[0008] FIG. **1** shows a generalized diagram of one embodiment of the communication network including at least one mobile node having a mobile directional antenna;

[0009] FIG. **2** shows a diagram of one embodiment of the mobile node including a mobile directional antenna;

[0010] FIG. **3** shows another diagram of one embodiment of the mobile node including a mobile directional antenna;

[0011] FIG. **4** shows yet another diagram of one embodiment of the mobile node including a mobile directional antenna;

[0012] FIG. **5** shows a diagram of one embodiment of the mobile node having a mobile directional antenna;

[0013] FIG. **6** shows a diagram of another embodiment of multiple mobile nodes that can provide a communication that be improved as described in this disclosure;

[0014] FIG. **7** shows a diagram of one embodiment of the communication network including a passive embodiment of the mobile directional antenna;

[0015] FIG. **8** shows a diagram of one embodiment of the communication network including an active embodiment of the mobile directional antenna;

[0016] FIG. **9** shows a diagram of one embodiment of a directional embodiment of the mobile directional antenna;

[0017] FIG. **10** shows a diagram of one embodiment of another directional embodiment of the mobile directional antenna;

[0018] FIG. **11** shows a diagram of one embodiment of yet another directional embodiment of the mobile directional antenna;

[0019] FIG. **12** shows a diagram of one embodiment of a scanning technique for the mobile directional antenna;

[0020] FIG. **13** shows a diagram of one embodiment of a discovery technique for the mobile directional antenna;

[0021] FIG. **14** shows one embodiment of a diagram of the directional antenna that can be adjusted;

[0022] FIG. **15** shows one embodiment of a flow chart of adjusting the directional antenna;

[0023] FIG. **16** shows one embodiment of a diagram of the directional antenna;

[0024] FIG. **17**, that includes **17***a* and **17***b*, shows one embodiment of a flow chart of configuring the directional antenna according to a network operational characteristic;

[0025] FIG. **18** shows another embodiment of a diagram of the directional antenna;

[0026] FIG. **19** shows another embodiment of a flow chart of configuring the directional antenna according to a network operational characteristic;

[0027] FIG. **20** shows yet another embodiment of a diagram of the directional antenna;

[0028] FIG. **21** shows yet another embodiment of a flow chart of configuring the directional antenna according to a network operational characteristic;

[0029] FIG. **22** shows a schematic diagram of another embodiment of the communication network in which a subsystem is an embodiment;

[0030] FIG. **23** shows a schematic diagram of at least a portion of yet another embodiment of the communication network including a network subsystem;

[0031] FIG. **24** shows a flow chart having operations that facilitate a desirable form of data transfer;

[0032] FIG. **25** shows other flow chart embodiments that have operations that facilitate another desirable form of data transfer;

[0033] FIG. **26** shows other flow chart embodiments that have operations that facilitate another desirable form of data transfer;

[0034] FIG. **27** shows a device such as a computer program product including a signal bearing medium such as a conduit, a memory element, or a display medium;

[0035] FIG. **28** shows a relaying embodiment in schematic form;

[0036] FIG. **29** shows another embodiment of the communication network that includes a vehicle;

[0037] FIG. **30** shows a look-up table that can be used for determining a suitability value at least partly based on each of several operands;

[0038] FIG. **31** shows an embodiment of a map plotting each of several nodes based at least in part on the look-up table;

[0039] FIG. **32** shows another embodiment of the network subsystem in schematic form;

[0040] FIG. **33** shows another embodiment of a system embodiment;

[0041] FIG. **34** shows one embodiment of the flow chart of FIG. **24**;

[0042] FIG. **35** shows one embodiment of the flow chart of FIG. **24** or of its variants shown in FIG. **13**;

[0043] FIG. **36** shows one embodiment of the flow chart of FIG. **24** or its variants;

[0044] FIG. **37** shows one embodiment of the flow chart of FIG.**24** or its variants;

[0045] FIG. **38** shows one embodiment of the flow chart of FIG. **24** or its variants;

[0046] FIG. **39** shows one embodiment of the flow chart of FIG. **24** or its variants;

[0047] FIG. **40** shows one embodiment of the flow chart of FIG. **24** or its variants;

[0048] FIG. **41** shows one embodiment of the flow chart of FIG. **24** or its variants;

[0049] FIG. **42** shows one embodiment of the flow chart of FIG. **24** or its variants;

[0050] FIG. **43** shows one embodiment of the flow chart of FIG. **24** or its variants;

[0051] FIG. **44** shows one embodiment of the flow chart of FIG. **24** or its variants;

[0052] FIG. **45** shows one embodiment of the flow chart of FIG. **24** or its variants;

[0053] FIG. **46** shows one embodiment of the flow chart of FIG. **24** or its variants;

[0054] FIG. **47** shows one embodiment of the flow chart of FIG. **24** or its variants;

[0055] FIG. **48** shows one embodiment of the flow chart of FIG. **24** or its variants;

[0056] FIG. **49** shows one embodiment of the flow chart of FIG. **24** or its variants;

[0057] FIG. **50** shows one embodiment of the flow chart of FIG. **24** or its variants;

[0058] FIG. **51** shows one embodiment of the flow chart of FIG. **24** or its variants;

[0059] FIG. **52** shows one embodiment of the flow chart of FIG. **24** or its variants; and

[0060] FIG. **53** shows one embodiment of the flow chart of FIG. **24** or its variants.

[0061] The use of the same symbols in different drawings typically indicates similar or identical items.

DETAILED DESCRIPTION

I. Certain Embodiments of Mobile Directional Antennas

[0062] One aspect of this disclosure, depending on context, can relate to operation of at least one mobile directional antenna **10** that can be used within a communication network **100** as described in general with respect to FIG. **1**. Certain embodiments of the mobile directional antenna can be integrated relative to virtually any type of mobile node **12**. Certain embodiments of the mobile node(s) can include, but is not limited to, a vehicle **11** such as can include, but is not limited to: automobiles, trucks, trains, buses, aircraft, ships, satellites, robotic land vehicle devices, robotic sea vehicle devices, robotic air vehicle devices, etc. Within this disclosure, depending on context, the mobile directional antenna can transmit and/or receive radio signals, optical signals, wireless or cellular telephone signals, and/or any other type of electromagnetic radiation signal, information, and/or data that can be transmitted.

[0063] In certain embodiments, the directionality of the at least one mobile directional antenna **10** can at least compensate for motion of the vehicle or mobile node including or associated with the at least one mobile directional antenna **10**. In certain embodiments, the directionality of the at least one mobile directional antenna **10** can at least compensate for motion of the vehicle or mobile node with which the at least one mobile directional antenna **10** is being used to communicate. By providing a variety of embodiments of the at least one mobile directional antenna **10** relative to the vehicle or mobile node, communication therebetween can be improved considerably. Additionally, certain embodiments of the vehicle or mobile node or vehicle including the mobile directional antenna **10** can interface to provide a network-type operation.

[0064] Certain embodiments of the operation of the mobile directional antenna **10** can vary, and may at least partially include an optimization that can be based on such illustrative factors as: number of nodes transmitted through, power output for at least one node, time for transmission, certainty of transmission, quality of transmission, etc. Certain embodiments of the mobile directional antenna **10** can be configured, depending on context, to either transmit and/or receive communication information. Certain embodiments of the mobile directional antennas can utilize position information. In certain embodiments, the communication information can include, but may not include, depending on such illustrative factors that are not limited to, information, signals, data, etc. that can extend between at least one mobile node **12** and another node **16**. In certain embodiments, the other node **16** can include and/or act as a mobile node such as the vehicle **11**. In other embodiments, the other node **16** can include and/or act as a fixed node such as a radio tower, a cellular tower, etc.

[0065] Within this disclosure, the term "optimization" can mean, depending on context, configuring, operating, transitioning, directing, turning, or positioning the mobile directional antenna **10** between a first state and a second state. In certain embodiments, the optimization can be towards a target state as to improve transmission and/or reception paramaters of the mobile directional antenna. A variety of configurations of the mobile directional antenna can be optimized, which can include but is not limited to active mobile directional antennas, passive mobile directional antennas, mobile directional antennas in a variety of configurations, single directional antennas, directional antenna arrays, etc. Certain embodiments of the mobile directional antenna can have its directionality, or other such operation, modified or improved at least partially with the use of a controller or computer. A variety of technologies at least partially including hardware, firmware, and/or software can be utilized for altering operations or positioning of the mobile directional antenna. The various parameters or functions of the mobile directional antenna that can be optimized are described in this disclosure, as well as obvious modifications thereof. Within this disclosure, certain directional embodiments of directional antennas (which may be associated with both mobile nodes or fixed nodes) can communicate with one or more directional as well as one or more non-directional (e.g. broadcast-based) antenna.

[0066] Certain embodiments of the directional antenna **10** or **14** can be included in, attached to, or integrated as a portion of the nodes **16** or **12**. Certain embodiments of the node can be fixed, while certain embodiments of the node can be mobile. Certain embodiments of the mobile nodes can be included in, attached to, or secured to the vehicle **11** (e.g., robotic devices, automated devices, etc.). Within this disclosure, the term "robotic device" can, depending on context, indicte an embodiment of the vehicle **11** that may be guided at least partially automatically. The use of robotic vehicles is generally known, one illustrative example of such robotic vehicles as applied to vehicles includes remotely-operated aircraft drones. In other embodiments (such as large aircraft, ships, and land-moving vehicles), the vehicle **11** can be at least partially controlled using one or more actuating mechanism that can be actuated utilizing hydraulic, pneumatic, electronic control, and/or other such power assisted systems such as are known (with aircraft) as fly by wire systems. It is anticipated that as further complex or sophisticated computer, control, and power assist systems are applied to vehicle(s) **11**, the acceptance and usage of the robotic vehicles will likely become even more common and accepted. As such, it is likely that many of the functions of operators or drivers of the vehicle(s) **11** might become more automated. For example, certain train, monorail, or shuttle systems can be completely controlled automatically, and could thereby be considered as one embodiment of a robotic vehicle. Certain automobile, bus, or truck navigation or streerage systems could likely become more automated and thereby reduce the effort and/or fatigue on certain drivers, operators, etc.

[0067] In certain instances, at least one directional antenna **10** or **14** can be associated with the mobile node **12** and/or the other node **16** (and can provide for the transmitting and/or receiving the communication information therebetween). In certain embodiments, the position information can be at least partially utilized by the at least one mobile directional antenna **10** or **14** that is associated with the first mobile node **12** to provide, or enhance, communications with at least one other mobile directional antenna **10** or **14** that can be associated with a different node **16**.

[0068] Certain embodiments of the mobile node **12** and/or the associated mobile directional antenna **10** or **14** can be integrated in a variety of the at least one one vehicle **11**, as described with respect to FIGS. **1**, **2**, **3**, **4**, **5**, **6**, and other locations throughout the disclosure. In certain embodiments, the mobile directional antenna **10** or **14** can also be situated at certain other locations within this disclosure such in the node(s) **16**. In certain embodiments, the at least one vehicle **11** can include, but may not be depending on context limited to: a car, a bus, a truck, a train, an airplane, a ship, a robot, an automated mobile device, etc. Certain embodiments of the mobile directional antenna are configured to be directional such as to improve transmission and/or reception of the communication information with other directional antennas, which may also be associated with the vehicle **11** or not.

[**0069**] In certain embodiments, the mobile directional antenna can be configured to use a variety of technologies and/or mechanisms that can transmit and/or receive information can be situated with respect to relative to a second directional antenna such as to improve, enhance, ensure, and/or otherwise allow communications therebetween. Such position information may be derived using a variety of positions and/or systems techniques including, but not limited to, global positioning systems (hereinafter referred to as "GPS"), LORAN, RADAR, very high frequency omnidirectional range (VOR), optical positioning systems, electromagnetic positioning systems, etc. Certain embodiments of the positioning systems can utilize ranging technologies, such as are generally understood by those skilled in the art. Certain embodiments of the communication network **100** can include, depending on context, radio transmission and/or reception, signal transmission and/or reception, data transmission and/or reception, information transmission and/or reception, cellular phone signal transmission and/or reception, etc.

[**0070**] Another aspect of this disclosure, depending on the context, can relate to different embodiments of a mobile directional antenna design that could be utilized or be operated within the vehicle(s) **11**, or portions thereof. Certain embodiments of the vehicle(s) **11** such as automobiles, trucks, robots, ships, aircraft, roadworking equipment, etc. can operate with associated, included, or attached mobile directional antennas. Certain embodiments of the mobile directional antenna can be configured to act as active and/or passive repeaters, such that received input signal, information, data, etc. can be amplified (and in some embodiments modified and/or modulated as appropriate) to produce a corresponding output signal, information, data, etc. Certain embodiments of the mobile directional antennas (and/or the associated node) can modify the signal, information, data, etc. either substantially such as considerable content-wise, or in some minor way such as providing different header information. Certain versions of the signal, information, data, etc. can be transmitted either sequentially and/or in parallel across multiple mobile directional antennas and/or their associated node. Certain embodiments of the optimization of the signal transmissions can be established between certain embodiments of the mobile directional antennas.

[**0071**] In certain embodiments, the vehicle(s) **11** that include or utilize the mobile directional antennas can be maintained in a stationary position (parked or stopped), turned on or turned off, and/or can be traveling along a roadway, track, airway, waterway, or other suitable path while allowing the operation. As such, the mobile directional antenna can provide operation to the vehicle **11** depending, upon a variety of factors, such as the type of the vehicle **11**, the different embodiments of operation of the vehicle, the selection of the operator or owner of the vehicle, etc. Certain embodiments of the mobile directional antenna(s) can be active, passive, or some combination thereof.

[**0072**] With certain embodiments of the mobile directional antennas as described in this disclosure, the reception and/or transmission by certain embodiments of the vehicle(s) **11** can be improved. Such reception and/or transmission can be improved in the vehicles whether or not the vehicle(s) **11** can re-transmit received signals or not. As such, certain vehicles can include certain embodiments of the mobile directional antenna that can together act as a node, which can thereupon improve signal transmission and/or reception in a manner that could be understood by those skilled in radio transmission/reception, data transmission/reception, and/or networked device transmission/reception.

[**0073**] Certain embodiments of the mobile directional antenna **10** as described with respect to FIG. **1**, that can be associated with a variety of the vehicle **11** as described with respect to FIGS. **2**, **3**, **4**, **5**, and at other locations in this disclosure, can be directable to provide, enhance, or otherwise improve communications with the at least one other directional antenna **14**. Certain embodiments of the mobile directional antenna **10** or **14** can thereby utilize position information to improve or optimize communications across the communications network **100** utilizing a variety of the nodes **16** and/or the mobile nodes **12**. In different embodiments, the position information can either describe the position of the associated mobile directional antenna or describe the position of at least one other mobile directional antenna wich is being communicated with. In different embodiments, one or more of the at least one other directional antenna **14** can be configured as a mobile directional antenna, a fixed directional antenna, a base station directional antenna, a repeater directional antenna, etc.

[**0074**] Certain embodiments of the mobile directional antenna **10** or **14** may be configured to communicate with the at least one other directional antenna, in those instances where the at least one other directional antenna **14** may be stationary (such as being integrated in a fixed base station, stationary repeater, etc.). In certain embodiments, the mobile directional antenna **10** or **14** can be correctable to compensate for its own motion relative to the fixed location of the at least one other directional antenna **14**. As such, in certain embodimnents where the at least one other directional antenna **14** may be stationary, the position information derived for the mobile directional antenna **10** or **14** could be configured to compensate for the motion of the mobile directional antenna with respect to the at least one other directional antenna **14** but not necessarily any motion of the at least one other directional antenna **14**.

[**0075**] Certain embodiments of the mobile directional antenna **10** or **14** may be configured to communicate with the at least one other directional antenna where the at least one other directional antenna **14** may be mobile (such as being configured as another mobile directional antenna in another vehicle **11**, robot, displacement mechanism, actuation mechanism, etc.). In certain embodiments, the mobile directional antenna **10** or **14** should be configured to compensate for its own motion as well as the motion of the motion of the other directional antenna **14**. As such, in certain embodimnents where the at least one other directional antenna **14** may be mobile, the position information derived for the mobile directional antenna **10** or **14** could be configured to compensate for the motion of the mobile directional antenna **10** or **14** with respect to the at least one other directional antenna **14** and also compensate for any motion of the at least one other directional antenna **14**.

[0076] In certain embodiments of the communication network **100**, communications can be established between the mobile directional antenna **10** or **14** and one or more of the other directional antennas **14**. Effectiveness and/or quality of certain embodiments of the communications can be affected by how closely the respective transmitting/receiving mobile directional antenna may be aligned with another respective receiving/transmitting mobile directional antenna. Such alignment can be a result of the directionality of the mobile directional antennas. A number of optimization mechanisms and/or schemes can be utilized to select which one or more of the other directional antennas **14** the mobile directional antenna **10** or **14** will communicate with, to establish its communication. A number of factors can be included to operate the mobile directional antenna **10** or **14**.

[0077] In certain embodiments, the operation of the mobile directional antenna **10** or **14** can be at least partially controlled by the hardware, software, and/or firmware that can be integrated within or associated with the mobile node **12**, as described in this disclosure. For instance, position information can be derived within the mobile node **12** and/or the mobile directional antenna **10** or **14** that can provide, for example: the relative, actual, geographic, or other positions of the mobile directional antenna **10** or **14** and/or the at least one other directional antenna **14**. As such, the derived position information can be utilized by the mobile node **12** and/or the mobile directional antenna **10** or **14** to enhance, provide, improve, and/or otherwise allow communications between the mobile directional antenna **10** or **14** and the at least one other directional antenna **14**. In certain embodiments, the position information can also be derived by the at least one other directional antenna **14** and/or the at least one other node **16**. In certain embodiments, at least one of the mobile directional antenna **10** or **14** and a mobile node **12**, as well as at least one of the at least one other directional antenna **14** and a least one other node **16**, can each generate, utilize, transmit, and/or receive position information.

[0078] This disclosure can provide a number of techniques providing for the optimization or the improvement of the transmission and/or reception of signals, information, and/or data across at least one other node **16** as described with respect to FIG. **1**; in which each of the at least one node **16** can be associated with and/or include the at least one mobile directional antenna. Certain embodiments of the optimization of the transmission and/or reception of signals, information, and/or data can at least partially be based upon power utilized by the at least one mobile directional antenna **10** or **14** in transmitting or receiving the signals, information, and/or data. Certain embodiments of the optimization of the transmission and/or reception of signals, information, and/or data can at least partially be based upon reducing the number of nodes **16** that are being used to transmit signals between end points, and thereby perhaps reduce the signal latency in the combined sum of the nodes. Yet other embodiments of the optimization of the transmission and/or reception of signals, information, and/or data can at least partially be based upon reliability and/or accuracy of signal transmission and/or reception by the at least one mobile directional antenna(s) **10** or **14**. As such, there are a number of embodiments of optimization of communications between a number of nodes **12** and/or **16** that are intended to be within the scope of the present disclosure, depending upon context.

[0079] In certain embodiments, the optimization or directionality of the mobile directional antenna can be at least partially based on the mobile directional antenna **10** or **14** and/or the other directional antenna **14** utilizing the position information to determine energy efficient transmission paths between certain mobile directional antennas. The optimization or signal transmission/reception efficiency might thereby, e.g., control a direction of transmission and/or reception of the one or more signals, information, data, etc. Such limiting the consumption of power can be particularly useful in certain embodiments of energy-restricted or battery-operated communication devices. The energy or power contained in one or more vehicle(s) **11**, or batteries could provide power or control the operation of one or more vehicles, and the power could be controlled and/or monitored. More specifically, the operation of the at least one other directional antenna **14** can be at least partially controlled by the hardware, software, and/or firmware that can be integrated within or associated with each respective node associated with the other directional antenna.

[0080] In certain embodiments, the monitored power or energy that may be available to a particular mobile directional antenna can be at least partially used to determine the operational directionality of the mobile directional antenna. For example, a mobile directional antenna (e.g., that could utilize a considerable amount of power, and thereby generate and/or receive powerful signals) could be operated or directed to communicate with another node(s) (fixed or mobile). The other node(s) being selected to communicate with may be, depending on context, spaced by a relatively small distance in an attempt to reduce the number of signal hops or repeats, and thereby reduce total signal latency as compared to communicating via multiple nodes (which may be included in the vehicle(s) **11** or fixed) separated by a relatively greater distance, when the total signal travels over the same distance. By comparison, certain embodiments of the other node(s) with a mobile directional antenna could be configured or positioned closer to each other to utilize lesser transmission or reception power to transmit and/or receive its signal, data, and/or information traversing multiple nodes. Certain embodiments of the nodes may even be viewed as a repeater, which can increase or amplify the power of certain received signals into their output signal, or more precisely control the directing of its output signal, information, and/or data to be received by another node. As such, certain embodiments of the optimization of the mobile directional antenna can relate to or include reducing the energy or power utilized in transmitting or receiving signals, information, data, etc.

[0081] There can be variations in the type of communications for each of the different types of vehicle(s) **11**, depending upon such illustrative but not-limiting factors as the type of vehicle(s) **11**, the types of mobile node(s), the types of base node(s), the transfer rate and volume of data, information, etc. However, certain embodiments of the techniques, mechanisms, systems, etc. can be applied to the different embodiments of mobile nodes. As such, in this disclosure, any type of the vehicle **11** that is described is intended to be illustrative in nature and not-limiting in scope, unless specifically indicated.

[0082] FIG. **2** illustrates one embodiment of the mobile node **12** that could be configured as at least one land vehicle(s) such as an automobile, truck, bus, train, wheeled vehicle, tracked vehicle, military vehicle, earth-working vehicle, robot, automated vehicle, etc. Certain embodiments of the communication network **100** can include a variety of the land vehicle being configured to act as the mobile node **12** being configured as a land vehicle can thereby communicate either directly, or via other mobile node(s) or static node(s) to an existent or developed communication infrastructure. Certain embodiments of the mobile node(s) can utilize position information to determine their position relative to other node(s), and thereby a position that the mobile directional antenna should be positioned or configured to improve or optimize the transmission and/or reception of signals, information, and/or data.

[**0083**] Certain embodiments of the mobile node **12** that are configured as land vehicles, can utilize information, data, etc. relating to roadways, tracks, paths of travel, etc. For example, if a particular mobile node **12** can be communicating via its mobile directional antenna **10** or **14** to another mobile node **12**; and it can be determined that the other mobile node **12** can be following a road or highway; (e.g., due to position of the node relative to the road or highway, or express information indicating the other node is on the road or highway) then it might depend on context that it is likely that the other mobile node **12** will continue to follow the road. In certain instances, the other node could be expected to exit the road such as onto an intersecting road, exit, street, house or services on the road, etc. By the vehicle **11** following the road, the vehicle should therefore travel in a somewhat continuous, regular, and/or predictable manner as dictated by the path of the road. As such, certain embodiments of the position information can be used to predict likely motion, direction, velocities, etc. of another mobile directional antenna that can be attached to, or integrated in the vehicle **11**.

[**0084**] Additional illustrative information about the vehicle **11** can be considered, such as: roads or vehicle paths that the vehicle **11** can be currently or could be expected to follow, layouts of roads, typical speeds the vehicle could operate at, services on the different roads, etc. As such, in certain embodiments, the vehicle **11** would be unlikely to operate outside of certain such parameters such as by a land-constrained vehicle indicating that it is gaining significant distance above the ground, or a road-constrained vehicle indicating that it is operating off roads in environments that the vehicle **11** could not follow, etc. Therefore, with some basic knowledge and/or understanding of the vehicle **11**, and how the vehicle can travel, as well as the recent operation and/or location of the vehicle, it could be relatively easy to determine a region where the vehicle and/or the mobile directional antenna will be in a relatively short time. Such basic knowledge and/or understanding could be stored in a database system or other memory, and be processed using logic, similar to as provided in a variety of GPS or other position-based navigation systems, or alternatively could be stored as data or other information in a variety of memory devices.

[**0085**] In certain embodiments, certain transmitting embodiments of the node and/or mobile node (either associated with the mobile directional antenna) should be able to utilize relatively simple position information such as could be modified within the database. Consider that certain embodiments of the data can, depending on context, be configured to search for those vehicle(s) **11** or fixed locations that are configured either as mobile node(s), or node(s), which can be used to receive signals, information, and/or data. Certain embodiments of the illustrative logic (including hardware, software, and/or firmware) that could be used to allow a communicating node to communicate with distant nodes can thereby include, but is not limited to, certain position information that can: a) determine the position of one or more distant node(s) and/or node(s); and/or b) determine the position and/or angle of the mobile node that may be attempting to communicate.

[**0086**] In certain embodiments, the mobile node **12** can utilize scan techniques to optimize the signals, or to search for improved signals. For instance, as described with respect to FIG. **12**, the mobile node can perform one embodiment of a scan by, for example, initially scanning along one or more axis on a regular, sensible, or other technique. It may not, in certain instances, be sensible to scan along initial scan lines **1256** at certain directions that other antennas or nodes are likely to be, such as in a direction underneath the ground, since vehicle(s) **11** and base stations are unlikely to be situated there. Such common sense principles can be applied as position information to the nodes in the communication network **100**. In other embodiments, it may make sense to attempt to scan certain other mobile directional antennas by scanning every certain fractions of a kilometer (or some fraction thereof) along a roadway or other structure, and thereupon monitor signals, information, and/or data having improved characteristics, optimal characteristics, high signal to noise characteristics, or other parameter characteristics. As soon as some antenna or node is located, the communications with the antenna or node can be monitered and/or maintained, such as to compensate for motion.

[**0087**] Certain embodiments of the scanning, as described with respect to FIG. **12**, can be performed in one, two, or more stages, steps, or scans with each subsequent stage, step, or scan being more precise than the previous. For instance, a first scan can be performed along the initial scan lines **1256** for the entire area to be scanned at x increments (where x is some angular or distance measure). After those areas of the strongest scan characteristics are determined from along the initial scan lines **1256**, then those areas can be scanned along lesser increments such as illustrated by the secondary scan lines **1258** (consider that the upper-left initial scan lines **1258** as illustrated in FIG. **12** returned the highest value returns). The distance of the secondary scan **1258** can thereupon be performed at each x/2, x/3, x/4, etc. increments. The process can thereupon be repeated at continually smaller increments. In certain embodiments, discovery techniques can be utilized in certain instances when the location of other mobile directional antennas can be uncertain such as during the start of operation or when signal strength may be, depending on context, reduced, or alternatively scan techniques can be utilized in an attempt to improve or optimize reception. The discover techniques as described in this disclosure are intended to be illustrative in nature, and not limiting in scope. Other types of scanning can be performed to, hopefully, return incrementally improved operation.

[**0088**] In certain embodiments, the mobile node **12** can utilize discovery as described with respect to FIG. **13** to determine a desirable position or configuration of operation for certain embodiments of the mobile directional antenna. For example, by discovery, the mobile directional antenna can search from a given point in each direction (e.g., at each one, two, five, or other degree increments). The discovery can be particularly focused at particular regions, such as along roadways, waterways, or airways **1302** that the vehicles **11** are likely to be situated. Following the preliminary discovery, the mobile directional antenna can continue discovery at lesser increments for those areas that have signals, information, and/or data having improved characteristics, optimal characteristics, high signal to noise characteristics, or other parameter characteristics, etc. In certain embodiments, a secondary discovery can be performed at lesser increments than the primary scan for those areas that provide strong results. Certain embodiments of the discovery can be performed along one, two, or three degrees. In certain embodiments after the mobile directional antenna can be adjusted from a first position to a second direction in an attempt to improve network operational characteristics using the discovery process, after which a subsequent discovery process can be performed.

[**0089**] A variety of searching, scanning, and/or discovery techniques as described in this disclosure, and modifications thereof, can be used to improve network operational characteristics.

[**0090**] Attempting to improve reception can be performed utilizing one or more technologies. For instance, a mobile directional antenna can be associated with a mounting that can physically displace the mobile directional antenna, such that the direction that they directional antenna may be corrected can be changed. In other embodiments, the directional antenna can be configured as, for example, uncontrollable directional antenna such that electronic, computer, hardware, software, firmware, and/or other techniques can be utilized to operate the mobile directional antenna such that can be actuated toward another direction. In another embodiment, sector directional antennas can be utilized that can be adjusted to be directed (e.g., along one, two, or three axes).

[**0091**] FIG. **3** shows another embodiment of the communication network **100** that utilizes a least one mobile node **12** that can be integrated or attached to a commercial vehicle such as, for example, a truck, a bus, a train, or another commercial vehicle. One aspect about providing mobile directional antennas on such commercial vehicles as trucks, buses, trains, etc. is that such commercial vehicles run on a regular schedule, and may thereby be regularly spaced along a roadway, highway, track, etc. In addition, such commercial vehicles have sufficient power such that the power utilized by the vehicle **11** would likely not represent a considerable drain on the vehicle's battery. In many instances, a considerable number of such commercial vehicles travel over relatively remote roads on a regular basis. In addition, in certain regions, countries, etc., there are a relatively small amount of traditional communication system infrastructure systems. As such, the mobile nodes in certain embodiments of vehicle(s) **11** could improve the communications. By providing the mobile directional antennas **10** or **14** on such commercial vehicles, it would likely increase the number of mobile directional antennas that could be accessed in many of these remote locations. As such, many embodiments of the communication network **100** can be configured to be more reliable as a result of the large number of mobile nodes **12** that are traversing such regions on a regular basis.

[**0092**] Many users of trucks, buses, trains, or other such vehicle(s) **11** understand the importance of communications, particularly for those that are traversing remote locations, especially for those vehicles carrying passengers. The possibility of a breakdown in a remote location can be dangerous, time consuming, and threatening. Certain users would gladly utilize the improved communication infrastructure allowed by certain embodiments of mobile nodes. It might be easier for commercial vehicles to justify the expense, energy use, and/or complexity of certain embodiments of mobile nodes **12** and/or mobile directional antennas. Such commercial vehicles also tend to be operated for a greater number of hours per day then most personal or family vehicles. It is also a common practice for certain truckers, bus drivers, etc. to keep their vehicle engines or motors running in certain periods (e.g., at night, or during rest stops) alongside the road, such as those instances that may be difficult or time-consuming to start the vehicle engine or motor if shut down. During such periods that the engine is idling, for example, a sufficient electric power can continue to be supplied from certain embodiments of the vehicle **11** to actuate certain active embodiments of the mobile directional antenna **10** or **14**.

[**0093**] Position information (such as GPS-derived information, etc.) can be used at least partially by the mobile directional antenna **10** or **14** to search for additional nodes **16** including mobile nodes **12**. As such, the duration or longevity that active embodiments of the mobile directional antenna can be active may in many instances be increased, and the direction and/or effectiveness of certain embodiments of the communication network **100** including the mobile directional antenna **10** or **14** can thereby be increased. For example, position information can be utilized to monitor a roadway that the first vehicle **11** is traversing for other vehicles which may be configured as, or operate as, mobile nodes **12** that may be able to act as or include the at least one mobile directional antenna(s). As such, certain embodiments of the vehicle **11** traversing a road or highway may utilize the directionality aspects of the mobile directional antenna to track other vehicles (or be tracked by other vehicles) along that road or highway. A variety of computer or controller communication techniques may be utilized to control the directionality of certain embodiments of the mobile directional antenna **10** or **14**. In certain embodiments, a communication-service requested signal can be transmitted as a directional signal from the mobile directional antenna, and when received by another mobile directional antenna that one can respond with its position and/or velocity information. Based at least partially upon the position and/or velocity information, the vehicle **11** that transmitted the communication service requested signal can adjust its mobile directional antenna to receive, transmit, and/or otherwise track the other mobile directional antenna.

[**0094**] As described with respect to FIG. **4**, certain embodiments of aircraft can include, and/or act as, certain embodiments of the mobile node **12**. Certain conventional aircraft may utilize position information (such as GPS) for navigational purposes. More particularly, certain aircraft can be configured to navigate from point to point, make approaches to runways at airports, navigate within clouds are obscured conditions, etc. utilizing the position information. Certain embodiments of conventional aircraft, particularly smaller aircraft, have a modest energy supply and communications capability. Allowing the mobile directional antenna **10** or **14** aboard aircraft to act as repeaters for other aircraft could, in a number of instances, improve the signal transmission quality to certain aircraft, especially those that are remotely situated. Certain embodiments of conventional aircraft communication can rely on omni-directional broadcast techniques. Such directionality of directional antennas could improve the signal transmission and/or reception (e.g., improve signal to noise ratio, signal strength, signal consistency, etc.) with communications with the ground station.

[**0095**] FIG. **4** thereby illustrates one embodiment of the communication network **100** that utilizes at least one mobile node **12** which can be configured as an aircraft. In certain embodiments, certain aircraft can utilize mobile directional antennas in other aircraft, as well as other land from air vehicles and/or water vehicles as illustrated in FIG. **5**. Certain water-based vehicles can also utilize the position information. As such, it may not be necessary that each type of the vehicle **11** communicate only with other vehicles of its own type; and it may be desirable for vehicles of one type (such as that aircraft) to be able to communicate with vehicles of other types, such as land vehicles (at least in emergency situations). As such, it may be possible, in certain aspects and/or situations, anyway, for certain embodiments of the vehicles **11** to communicate with other types of vehicles, and thereby possibly utilize at least certain portions of certain communication network **100** that might have been established for other types of communication networks, but were thereupon expanded or enhanced using mobile nodes. Other embodiments of communication networks can be established primarily using mobile nodes.

II. Certain Embodiments of Directional Antenna Directionality

[**0096**] Certain embodiments of the mobile directional antenna **10** or **14** (certain embodiments being described with respect to FIGS. **1** to **6**) can be configured to interface with one or more of the mobile node **12** and/or one or more of the node **16**. Certain embodiments of the mobile directional antenna, as described with respect to FIG. **7**, can be configured to be passive. With passive embodiments of the mobile directional antenna **10** or **14**, the energy utilized to transmit or receive signals, information, and/or data that may be transmitted or received by the mobile directional antenna **10** or **14** can be applied directly to the mobile directional antenna. Such passive mobile directional antenna configurations can be applied to transmitting mobile directional antennas and/or receiving mobile directional antennas. Certain embodiments of the passive embodiments of the directional antenna and/or the node **12** can be utilized to redirect the signal between a number of nodes **16**, as described with respect to FIG. **7**. Passive nodes **12**, in general, cannot amplify a signal since there is no power source to provide the amplification. Certain embodiments of the passive mobile directional antennas can include a steering mechanism, whereby certain passive embodiments of the mobile directional antenna can be steered in a desired direction as to transmit signals, information, and/or data to (and/or receive signals, information, and/or data from) a desired direction.

[**0097**] FIG. **8** shows one embodiment of the mobile directional antenna **10** or **14** that can be configured to be active. In the active embodiment of the mobile directional antenna **10** or **14**, at least a portion of the energy that may be used to generate and/or transmit the signal, information, and/or data (as either generated and/or received by the mobile directional antenna) may be provided as a result of energy as applied by an energy source **820** at least partially to the mobile directional antenna. As such, the output signal for certain embodiments of an active version of the mobile directional antenna **10** or **14** (and/or the associated node) can be greater than the input signal, thereby providing an amplifier and/or repeater function. Certain embodiments of the active embodiments of the directional antenna and/or the node **12** can thereby be utilized to redirect the signal between a number of nodes **16**, as described with respect to FIG. **8**. Active nodes **12**, in general, can amplify a signal since there is a power source to provide the amplification for the directional antenna, and therefore active nodes can act as repeaters.

[**0098**] In certain embodiments, both the passive embodiments of the mobile directional antenna **10** or **14**, and/or the active embodiments of the mobile directional antenna **10** or **14** can be applied as dispersed over a relatively large area, or as a more directed beam that can be directed to a relatively small area. FIG. **9** shows an embodiment of multiple segments of the mobile directional antenna that can be combined into the unitary mobile directional antenna **10** or **14**, and can be utilized to provide beamforming aspects. Certain embodiments of the antenna segments may be configured in a regular pattern, such as an antenna array. Such concepts as phased array can be utilized to "steer" output signals. Those regions relative to the directional antenna array at which the signals constructively interface may exhibit an increased signal strength. Those regions relative to the directional antenna array at which signals destructively interface will likely exhibit a decreased signal strength. Such positioning of the increased and decreased signal strength regions may be controllably displaced by controlling the relative phases of the segments of the mobile directional antenna. Such phased array or beamsteering directional antennas could be provided in a transmitting and/or receiving configuration.

[**0099**] Different embodiments of directional antenna types, many of which are generally known and/or commercially available, could be used and/or modified to act as the mobile directional antenna **10** or **14**. Certain embodiments of directional antennas (such as patch directional antennas) might rely on integrated circuit technology, and may provide some precision as to directionality.

[**0100**] Certain embodiments of the mobile directional antenna can utilize a variety of directionality aspects. For example, the mobile directional antenna that may be associated with a mobile directional antenna can direct their mobile directional antenna along a length of a roadway to see if there are any other vehicles with their mobile directional antenna. Certain other mobile directional antennas (that are attached to or integrated with vehicles), and/or static directional antennas positioned along the roadway could respond with a response signal. With the response signal, certain embodiments of the mobile directional antenna **10** or **14** can indicate that the responding directional antenna could be available to be included as a portion of the communication network **100**. A variety of techniques could thereupon be utilized to establish the communications utilizing the responding directional antenna. Certain embodiments of mobile directional antennas, can be positioned or configured to transmit and receive signals, information, and/or data from different directions. For example, certain mobile directional antennas can include at least one directional transmitting directional antenna, and at least one directional receiving directional antenna that can act independently.

[0101] The use of certain embodiments of the mobile directional antennas by certain embodiments of the mobile nodes (e.g., cars, trucks, buses, ships, boats, aircraft, etc.) could utilize some power to provide amplifying or repeating energy, such power could allow the mobile nodes to act somewhat as a repeater. However, certain users might desire such aspects of certain embodiments of mobile directional antennas as increased signal coverage (in cities, remote areas, etc.); increased signal strength in a variety of areas, increased uniformity of signals, increased probability of the communication system, etc.

[0102] Within cities with tall buildings, for example, communication signals such as are used for radio and/or cellular phones can bounce off or be deflected by the buildings, etc. Such signal deflection, bouncing, aberration, etc. can result in inconsistent signal reception. As such, allowing at least certain vehicle(s) **11** in the cities to act as a mobile directional antenna could provide such increased service to other vehicles, pedestrians, etc. In certain embodiments, one or more (e.g., a considerable number) of the vehicle(s) **11** could utilize their directional antennas to create a more uniform distribution of signals, information, or data throughout the area. In certain large cities, certain tall buildings can include a radio transmitter to transmit a radio signal. Certain vehicle(s) **11** such as aircraft, blimps, satellites, etc. could be provided with the mobile directional antenna to provide similar service, which may actually be improved as a result of the elevation of the directional antenna.

III. Certain Embodiments of Directional Antenna Motion Prediction

[0103] One aspect of the communication network **100** could utilize a variety of mobile nodes **12**, such as could include at least one mobile directional antenna **10** or **14**. It may be desired to have the at least one mobile directional antenna **10** or **14** configured to be able to operate as to monitor for optimized or improved signals, utilizing directionality of the mobile directional antenna **10** or **14**. Certain embodiments of the directionality should thereby be able to have some predictability as to either the position, direction, or velocity (along 1, 2, or 3 axes) the mobile node **12** associated with the mobile directional antenna **10** or **14**, or alternatively the directional antenna **10** or **14** associated with another node **12** or **16**. Therefore, in certain embodiments, it is important to understand not only where the present node is situated and/or moving, but it is also important to be able to determine where at least one other node(s) **12** or **16** are situated and/or moving which the present node is communicating with, and/or is attempting to communicate with. Such position information on the present node and communicating nodes can be derived utilizing position-based technology, such as GPS.

[0104] Certain embodiments of mobile nodes that are associated with the vehicle(s) **11** can consider how such vehicles would normally move. As such, automobiles, trucks, buses, etc. can be considered as often following roads, highways, etc. As such, it may be desired to direct communicating signal(s), information, and/or data with such vehicle(s) **11** along a road or highway along which the automobiles, trucks, buses, etc. are following. If, for example, such automobiles, trucks, buses, etc. have diverted from the road or highway to follow a road, service, home, etc., then the new road, service, home, etc. might be considered, if it is desired to maintain communications. For instance, if another vehicle **11** is providing position information indicating that it is stopping at a home or service, then certain embodiments of the vehicle **11** might be ceasing transmissions from their mobile directional antenna. Other embodiments of the vehicle(s) **11**, by comparison, might be continuing to transmit, such as trucks or buses that may continue to operate their engines when the vehicle **11** is stopped. As such, a continuing-to-transmit signal or a ceasing-transmissions suitable may be provided by certain embodiments of the mobile directional antenna **10** or **14**, as desired or as conventional for the particular communication network **100**.

[0105] Certain embodiments of motion prediction can also be utilized to indicate motion of the mobile directional antenna **10** or **14** that is associated with the monitoring mobile node **12**. For instance, such information as one mobile node velocity, position, acceleration, etc. can be utilized as position information to indicate likely motion along the highway, roadway, etc. In certain embodiments, the vehicle operator, driver, passenger, etc. also provide input to indicate that the vehicle **11** is stopped. Alternatively, the engine condition of the vehicle **11** could be monitored to consider further vehicle operation, motion, acceleration, etc. Each of these could be considered as certain embodiments of position information that can be utilized to predict further position or velocity of the vehicle **11** or mobile node **12**. Such position information can also be transmitted to other vehicle(s) **11** or nodes **10** or **14** as signals, data, or information, which can be utilized to predict motion of the vehicle remotely.

[0106] As such, certain embodiments of the communication network **100** can thereby be configured to be highly modifiable, based on such factors as motion and position of certain mobile nodes **12** and/or nodes **16**, as well as their respective directional antennas **10** and **14**. Certain embodiments of the communication network **100** can provide an improved quality, signal strength, signal to noise ratio, and other aspects of signals transmitted by and/or received by the directional antennas **10** and/or **14**.

[0107] For certain types of communications, it may be desired to provide some security to communications. Certain users of certain embodiments of the communication network **100** might be less likely to use communication networks if they believed that the communications among the nodes **12**, **16** are less than secure and/or private. Consider that certain communication networks **100** can utilize a particular first mobile directional antenna to act as, for example, a repeater. In certain embodiments, the repeater may act such that the signal, information, and/or data may be received by the first mobile directional antenna (if not desired to be received thereby), but may instead be received by an intended recipient second mobile directional antenna via the first mobile directional antenna. In certain embodiments, coded techniques such as code division multiple access (CDMA) can be utilized with some degree of certainty to assure that only desired recipients are capable receiving transmitted information, signals, and/or data. In certain embodiments, users in vehicles **11** that are associated with mobile directional antennas can receive and/or utilize signals, information, and/or data intended for them, and not signals, information, and/or data intended to be transmitted to another node.

IV. Certain Embodiments of Optimization or Improving Signal Transmission and/or Reception

[0108] FIG. **6** illustrates one embodiment of the communication network **100** utilizing a number of mobile nodes **12** as well as a number of nodes **16** (which may be fixed or mobile). Within this disclosure, certain embodiments of the improved or optimization can rely on which ones of the nodes **16** and/or mobile nodes **12** to utilize in establishing communications across the communication network **100**. For example, consider a communication between the nodes **16** in the left and the right of FIG. **6**, a number of signal pathways can be utilized as illustrated by a first signal path including signal **72***a*; second signal path including signals **72***b* and **72***c*; or a third signal path including signals **72***d*, **72***e*, **72***f*, and **72***c*. Within this disclosure, the improvement or optimization can relate to selecting which of these signal path provides an improved or optimized signal transmission or reception.

[0109] There can be a variety of measures used to determine improved or optimization. For example, if transmission speed is the selected measure, then perhaps the first signal path including signal **72***a* would be the improved or optimal signal path since this signal path does not traverse any directional antennas and/or nodes.

[0110] By comparison, if necessary signal transmission power, or reduced power usage, is the selected measure, then perhaps the third signal path including signals **72***d*, **72***e*, **72***f*, and **72***c* provide the improved or optimal signal transmission or reception. Consider that the third signal path travels between relatively closely positioned mobile nodes. Yet still, if transmission utilizing a mobile node positioned closer to a remote node is the selected measure, then perhaps the second signal path including signals **72***b* and **72***c* could provide the improved or optimal signal transmission or reception.

[0111] In certain embodiments of the communication network **100**, perhaps more than one signal path can be utilized, and signals, data, or information relating to duplicate signal path can be ignored. Since many embodiments of the communication network **100** utilize variable mobile node positions, velocities, etc.; it may be desired to configure the communication network to be adaptable. By utilizing a variety of embodiments of the directional antennas in combination with the mobile nodes **12** and/or the nodes **16**, in many embodiments a variety of improved and/or optimized communications may be established between the at least one mobile nodes **12** and/or the at least one nodes **16**.

[0112] Within this disclosure, depending upon context, the term "directionality" as applied to mobile directional antennas **10** and/or directional antennas **14** can mean, but is not limited to, adjusting a direction of controlled signal transmission (which may be considered along one, two, or three axes). Several embodiments of mechanisms, techniques, devices, etc. that can provide directional antenna directionality are now described that can utilize or be designed or operated utilizing hardware, software, and/or firmware.

[0113] One embodiment of the directional antenna **10** or **14** is described with respect to FIG. **9**. In the directional antenna **10** or **14**, a number of directional antenna segments **84** are provided that can utilize phased array technology and/or beamforming technology. The use of phased arrays and/or beamformers are generally understood in the directional antenna technology, and are in common usage. Depending upon the actuation of the directional antenna segments (e.g. by which the phases of the directional antenna segments **84** are relatively controlled), the directions of the resultant signals can be adjusted. For example, the angle and position of the adjustable directional signals **72** can be displaced to correspond to those locations where the phases as produced by the directional antenna segments constructively interfere. By comparison, those regions where the signals from the directional antenna segments **84** constructively interfere to correspond to regions outside of the adjustable directional signal **72**.

[0114] Another embodiment of the directional antenna **10** or **14** is described with respect to FIG. **10**. For example, an adjustment mechanism **86** can be provided to physically adjust an angle of the directional antenna **10** or **14**. By adjusting the physical angle of the directional antenna **10** or **14**, a direction of the adjustable directional signals **72** can be altered.

[0115] Another embodiment of the directional antenna **10** or **14** may be described with respect to FIG. **11**, in which a configuration of the directional antenna **10** or **14** can be adjusted using a variety of techniques that cam include, but are not limited to: electromagnetic, electromechanical, piezo-electrical, and/or micro-electromechanical (MEMS). In certain embodiments, directional antenna **10** or **14** can utilize solid-state configuration, such as with patch directional antennas which are commercially available and generally understood in the directional antenna art. In certain embodiments, the physical configuration of the creditable directional antenna **10** or **14** it self could be modified, such as to be capable of producing an altered adjustable directional signal **72**. In other embodiments, a field (e.g., electromagnetic, acoustic, optical, or other) can be applied across the directional antenna **10** or **14**, to thereby alter the direction of propagation of the adjustable directional signals **72**.

[0116] Certain embodiments of the directional antenna **10** or **14**, as described with respect to FIGS. **9**, **10**, and/or **11**, are intended to be illustrative in nature and not limiting in scope. Different mechanisms or devices, as are known in the art, which can be utilized to provide adjustable directional signals **72** are within the intended scope of the present disclosure.

V. Certain Embodiments of the Flow Charts or Diagrams

[0117] Within the disclosure, flow charts of the type described in this disclosure apply to method steps as performed by a computer or controller. The flow charts can also apply to apparatus devices, such as an antenna or a node associated therewith that can include, e.g., a general-purpose computer or specialized-purpose computer whose structure along with the software, firmware, electromechanical devices, and/or hardware, can perform the process or technique described in the flow chart.

[0118] FIG. **14** shows one embodiment of the directional antenna **10** or **14** whose direction(s) of improved network operation **1402** that can be adjusted as indicated by **1404**

(e.g., from a first state to a second state, or by repositioning the directional antenna, etc.) to improve a network operation of the directional antenna. In certain embodiments, the directional antenna can be associated with, attached to, or integrated in the mobile node **12** as described in this disclosure. Certain embodiments of the adjustment of the directional antenna **10** or **14** can be performed at least partially within the directional antenna and/or at least partially within a mobile node (not illustrated in FIG. **14**). Certain embodiments of the adjustment of the directional antenna can include, but is not limited to, adjusting the position, power, signal quality, signal to noise ratio, etc. of the directional antenna. Certain embodiments of the directional antenna can be configured to be transmitting and/or receiving directional antennas.

[**0119**] One embodiment of a high-level flow chart of the resolution conversion technique **7700** that is described with respect to FIG. **15** and which includes operations **7702**, **7740**, **7742**, and **7744**; in addition to optional operations **7720**, **7722**, **7724**, **7726**, **7728**, **7730**, and **7732**. The high-level flow chart of FIG. **15** should be considered in combination with the mobile directional antenna, as described with respect to FIG. **14**. One embodiment of operation **7702** can include, but is not limited to, adjusting a directional antenna from a first state to a second state to improve a network operation of the directional antenna relative to a mobile node to at least partially compensate for motion of the mobile node. For example, a directional antenna **10** or **14** as described in this disclosure can be positionably or configurably adjusted, and thereby produce adjustable directional signals. One embodiment of the adjusting a directional antenna from a first state to a second state to improve a network operation of the directional antenna relative to a mobile node to at least partially compensate for motion of the mobile node of operation **7702** can include operation **7720**, which can include but is not limited to, adjusting a direction of the directional antenna from the first state to the second state in an attempt to improve the network operation of the directional antenna relative to the mobile node. For example, the directional antenna **10** or **14** can be adjusted to improve a network operation, such as to increase throughput, reduce signal to noise ratio, improve signal quality and/or consistency, etc. One embodiment of the adjusting a directional antenna from a first state to a second state to improve a network operation of the directional antenna relative to a mobile node to at least partially compensate for motion of the mobile node of operation **7702** can include operation **7722**, which can include but is not limited to, adjusting a power of the directional antenna from the first state to the second state to improve the network operation of the directional antenna relative to the mobile node. For example, a power of the directional antenna can be adjusted such as within a solid-state directional antenna **10** or **14**, and/or the associated node, which may include but is not limited to a patch directional antenna. One embodiment of the adjusting a directional antenna from a first state to a second state to improve a network operation of the directional antenna relative to a mobile node to at least partially compensate for motion of the mobile node of operation **7702** can include operation **7724**, which can include but is not limited to, adjusting the directional antenna from the first state to the second state to improve a communication ability of the directional antenna relative to the mobile node. For example, the directional antenna **14** or **10**, and/or the associated node, can be adjusted, repositioned, or configured to improve the communication ability, such as by altering the direction of the adjustable directional signals **72** of FIGS. **9** to **11**. One embodiment of the adjusting a directional antenna from a first state to a second state to improve a network operation of the directional antenna relative to a mobile node to at least partially compensate for motion of the mobile node of operation **7702** can include operation **7726**, which can include but is not limited to, adjusting the directional antenna from the first state to the second state to improve a S/N Ratio of the directional antenna relative to the mobile node. For example, One embodiment of the adjusting a directional antenna from a first state to a second state to improve a network operation of the directional antenna relative to a mobile node to at least partially compensate for motion of the mobile node of operation **7702** can include operation **7728**, which can include but is not limited to, adjusting the directional antenna from the first state to the second state to improve the network operation of the directional antenna relative to the mobile node at least partially considering a position of the mobile node. For example, a position of the mobile node (e.g., as at least partially set forth by position information) can be utilized to adjust the position or configuration of the directional antenna to improve the network operation of the directional antenna. One embodiment of the adjusting a directional antenna from a first state to a second state to improve a network operation of the directional antenna relative to a mobile node to at least partially compensate for motion of the mobile node of operation **7702** can include operation **7730**, which can include but is not limited to, adjusting the directional antenna from the first state to the second state to improve the network operation of the directional antenna relative to the mobile node at least partially considering a movement of the mobile node. For example, a movement of the mobile node (e.g., as at least partially set forth by position information) can be utilized to adjust the position or configuration of the directional antenna to improve the network operation of the directional antenna. One embodiment of the adjusting a directional antenna from a first state to a second state to improve a network operation of the directional antenna relative to a mobile node to at least partially compensate for motion of the mobile node of operation **7702** can include operation **7732**, which can include but is not limited to, adjusting the directional antenna from the first state to the second state towards a target state of the directional antenna. For example, a target state of the mobile node (e.g., as at least partially set forth by position information) can be utilized to adjust the position or configuration of the directional antenna to improve the network operation of the directional antenna. One embodiment of operation **7740** can include, but is not limited to, wherein the directional antenna is secured relative to an at least one other mobile node. For example, the directional antenna is secured to, or integrated in, the least one other mobile node. One embodiment of operation **7742** can include, but is not limited to, wherein the directional antenna is secured relative to an at least one other mobile node, and a vehicle at least partially includes the at least one other mobile node. For example, the directional antenna can be secured relative to at least one other mobile node is communicating with the mobile node. One embodiment of operation **7744** can include, but is not limited to, wherein a vehicle at least partially includes the mobile node. For example, the mobile node is included in, integrated in, secured to, or forms a portion of, the vehicle **11**. The order and/or arrangement of the operations within FIG. **15** are intended to be nonlimiting in scope.

[0120] FIG. **16** shows one embodiment of a directional antenna that can have a network operational characteristic identified at least partially by **1654**. In certain embodiments, a desired directional antenna configuration can be determined according to the network operational characteristic (e.g., to improve a network operation of the directional antenna) at least partially by **1656**. In certain embodiments, a directional antenna directionality can be established at least partially according to a desired directional antenna direction. In certain embodiments, the directional antenna can be associated with, attached to, or integrated in the mobile node as described in this disclosure. Certain embodiments of the adjustment of the directional antenna can be performed at least partially within the directional antenna and/or at least partially within a mobile node (similar to as described with respect to FIG. **14**). Certain embodiments of the adjustment of the directional antenna can include, but is not limited to, adjusting the position, power, signal quality, signal to noise ratio, etc. of the directional antenna. Certain embodiments of the directional antenna can be configured to be transmitting and/or receiving directional antennas.

[0121] One embodiment of a high-level flow chart of the resolution conversion technique **7800** that is described with respect to FIGS. **17***a* and **17***b* and which includes operations **7802**, **7804**, and **7806**; in addition to optional operations **7820**, **7822**, **7826**, **7728**, **7832**, **7834**, **7836**, **7846**, **7850**, **7852**, **7854**, **7856**, **7858**, **7860**, and **7862**. The high-level flow chart of FIGS. **17***a* and **17***b* should be considered in combination with the mobile directional antenna, as described with respect to FIG. **16**. One embodiment of operation **7802** can include, but is not limited to, identifying a network operational characteristic. For example, at least one network operational characteristic is identified. One embodiment of operation **7804** can include, but is not limited to, determining a desired directional antenna configuration to direct a directional antenna at least partially with respect to a first mobile node at least partially according to the network operational characteristic. For example, determining the desired directional antenna configuration. One embodiment of operation **7806** can include, but is not limited to, establishing a directional antenna directionality at least partially according to a desired directional antenna direction. For example, the directional antenna directionality is adjusted using the mechanisms or techniques as described with respect to FIGS. **9**, **10**, and/or **11**. Certain embodiments of the identifying a network operational characteristic of operation **7802** can include operation **7820**, which can include but is not limited to, identifying a network transmission parameter. For example, the network operational characteristic can include the network transmission parameter. Certain embodiments of the identifying a network operational characteristic of operation **7802** can include operation **7822**, which can include but is not limited to, determining a signal strength. For example, the network operational characteristic can include a signal strength. Certain embodiments of the identifying a network operational characteristic of operation **7802** can include operation **7826**, which can include but is not limited to, determining a signal to noise ratio. For example, the network operational characteristic can include the signal to noise ratio. Certain embodiments of the identifying a network operational characteristic of operation **7802** can include operations **7828** and **7832**. Certain embodiments of the operation **7828** can include but is not limited to, determining the network operational characteristic. For example, the network operational characteristic can be identified by being determined. Certain embodiments of the operation **7832** can include, but is not limited to, predicting a maximum value of the network operational characteristic. For example, the network operational characteristic can be identified by being predicted. Certain embodiments of the identifying a network operational characteristic of operation **7802** can include operation **7834**, which can include but is not limited to, determining an orientation or position of the first mobile node relative to a fixed node. For example, the network operational characteristics can be identified by determining the orientation or position of the first mobile node relative to the fixed node. Certain embodiments of the identifying a network operational characteristic of operation **7802** can include operation **7836**, which can include but is not limited to, determining an orientation or position of the first mobile node relative to a second mobile node. For example, the network operational characteristic can be identified by determining the orientation or position of the first mobile node relative to the second mobile node. Certain embodiments of the determining a desired directional antenna configuration to direct a directional antenna at least partially with respect to a first mobile node at least partially according to the network operational characteristic of operation **7804** can include operation **7846** that can include, but is not limited to determining the desired directional antenna direction of the directional antenna at least partially corresponding to a predicted maximum of a transmission parameter. For example, the determining the desired directional antenna configuration can include determining the desired directional antenna direction. Certain embodiments of the establishing a directional antenna directionality at least partially according to a desired directional antenna direction of operation **7806** can include operation **7850** that can include, but is not limited to, physically repositioning or reorienting the directional antenna at least partially according to the desired directional antenna direction. For example, the establishing the directional antenna directionality can include physically repositioning or reorienting the directional antenna. Certain embodiments of the establishing a directional antenna directionality at least partially according to a desired directional antenna direction of operation **7806** can include operation **7852** that can include, but is not limited to, activating a micro electomechanical system (MEMS) device. For example, the establishing the directional antenna directionality can include activating the MEMS devices. Certain embodiments of the establishing a directional antenna directionality at least partially according to a desired directional antenna direction of operation **7806** can include operation **7854** that can include, but is not limited to, altering relative phases or amplitudes of signals at selected components of the directional antenna. For example, the establishing the directional antenna directionality can include altering the relative phases or amplitudes of signals of selected components of the directional antenna, such as by using beamforming or phased-array techniques, as described with respect to FIG. **9**. Certain embodiments of the establishing a directional antenna directionality at least partially according to a desired directional antenna direction of operation **7806** can include operation **7856** that can include, but is not limited to, optimizing the directional antenna directionality. For example, the optimizing the directional antenna's directionality is described with respect to FIGS. **9**, **10**, and **11**. Certain embodiments of the operation **7858** can include, but is not limited to, wherein the desired directional antenna configuration is at least partially provided for an active directional antenna. For example, the directional antenna includes the active directional antenna. Certain embodiments of the operation **7860** can include, but is not limited to, wherein the desired directional antenna configuration is at least partially provided for a passive directional antenna. For example, the directional antenna includes the passive directional antenna. Certain embodiments of the operation **7862** can include, but is not limited to, wherein the desired directional antenna configuration is at least partially provided for a patch directional antenna. For example, the directional antenna includes the patch directional antenna. The order and/or arrangement of the operations within FIGS. **17***a* and **17***b* are intended to be nonlimiting in scope.

[0122] FIG. **18** shows one embodiment of a directional antenna that is at least partially associated with a mobile node, the directional antenna can have it's directionality directed from a first position **2082** to a second position **2084**, in an attempt to achieve a target position **2086** by which a network operational characteristic of a communication between the mobile node to at least a node can be improved. Adjustment techniques can be similar to as described in this disclosure. In certain embodiments, a desired directional antenna configuration can be determined according to the network operational characteristic (e.g., to improve a network operation of the directional antenna). In certain embodiments, a directional antenna directionality can be established at least partially according to a desired directional antenna direction. In certain embodiments, the directional antenna can be associated with, attached to, or integrated in the mobile node as described in this disclosure. Certain embodiments of the adjustment of the directional antenna can be performed at least partially within the directional antenna and/or at least partially within a mobile node (not illustrated in FIG. **18**). Certain embodiments of the adjustment of the directional antenna can include, but is not limited to, adjusting the position, power, signal quality, signal to noise ratio, etc. of the directional antenna. Certain embodiments of the directional antenna can be configured to be transmitting and/or receiving directional antennas.

[0123] One embodiment of a high-level flow chart of the resolution conversion technique **7900** that is described with respect to FIG. **19** and which includes operation **7902** and optional operation **7904**. One embodiment of the operation **7902** should include optional operations **7922**, **7923**, **7924**, **7926**, **7928**, **7930**, **7932**, and/or **7934**. One embodiment of operation **7904** could include optional operation **7920**. The high-level flow chart of FIG. **19** should be considered in combination with the mobile directional antenna, as described with respect to FIG. **18**. One embodiment of the operation **7902** can include, but is not limited to, directing a directionality of a directional antenna that is at least partially associated with a mobile node from a first position to a second position, in an attempt to achieve a target position by which a network operational characteristic of a communication between the mobile node to at least a node can be improved. For example, the directionality of the directional antenna is directed from the first position to the second position at least partially in the attempt to achieve the target position, at which the network operational characteristic is improved. One embodiment of the operation **7904** can include, but is not limited to, identifying the network operational characteristic, wherein the directing the directionality of the directional antenna can be performed at least partially according to identifying the network operational characteristic. For example, identifying the network operating characteristics. One embodiment of the identifying the network operational characteristic, wherein the directing the directionality of the directional antenna can be performed at least partially according to identifying the network operational characteristic of operation **7904** can include operation **7920**, that can include but is not limited to identifying a network transmission parameter. For example, identifying the network transmission parameter, such as signal strength, signal power, signal-to-noise ratio, etc. One embodiment of the directing a directionality of a directional antenna of operation **7902** can include operation **7922**, that can include but is not limited to directing a network transmission parameter. For example, directing the transmission parameter for a transmitting directional antenna. One embodiment of the directing a directionality of a directional antenna of operation **7902** can include operation **7923**, that can include but is not limited to directing the directionality of the directional antenna based at least partially on feedback. For example, directing the directionality of the directional antenna based at least partially on feedback, similar to as described with respect to FIG. **12**. One embodiment of the directing a directionality of a directional antenna of operation **7902** can include operation **7924**, that can include but is not limited to directing the directionality of the directional antenna based at least partially on discovery. For example, directing the directionality of the directional antenna based at least partially on discovery, similar to as described with respect to FIG. **12**. One embodiment of the directing a directionality of a directional antenna of operation **7902** can include operation **7926**, that can include but is not limited to directing the directionality of the directional antenna based on a position information. For example, directing the directionality of the directional antenna based at least in part on the position information. One embodiment of the directing a directionality of a directional antenna of operation **7902** can include operation **7928**, that can include but is not limited to directing the directionality of the directional antenna based on a position information as indicating a roadway structure or direction. For example, utilizing the position information such as direction of a roadway or highway to at least partially direct the directionality of the directional antenna. One embodiment of the directing a directionality of a directional antenna of operation **7902** can include operation **7930**, that can include but is not limited to directing the directionality of a receiving directional antenna. For example, directing the directionality of the receiving directional antenna. One embodiment of the directing a directionality of a directional antenna of operation **7902** can include operation **7932**, that can include but is not limited to directing the directionality of a transmitting directional antenna. For example, directing the directionality of the transmitting directional antenna. One embodiment of the directing a directionality of a directional antenna of operation **7902** can include operation **7934**, that can include but is not limited to directing the directionality of a transceiving directional antenna. For example, directing the directionality of the transceiving directional antenna, that can both receive and transmit signals. A variety of flow charts are now described that describe various operations that can be performed using certain embodiments of the mobile directional antenna **10** or **14**. The order and/or arrangement of the operations within FIG. **19** are intended to be nonlimiting in scope.

[0124] FIG. **20** shows one embodiment of a directional antenna **11** that is at least partially associated with a mobile node **12**, the directing a directionality of a directional antenna from a first position **2082** to a second position **2084** can be in an attempt to achieve a target position **2086** by which a network operational characteristic of at least one communication between the first mobile node (which may or may not be the mobile node) to a second mobile node (which may or may not be the mobile node) can be improved. In certain embodiments, a desired directional antenna configuration can be determined according to the network operational characteristic (e.g., to improve a network operation of the directional antenna). In certain embodiments, a directional antenna directionality can be established at least partially according to a desired directional antenna direction. In certain embodiments, the directional antenna can be associated with, attached to, or integrated in the mobile node as described in this disclosure. Certain embodiments of the adjustment of the directional antenna can be performed at least partially within the directional antenna and/or at least partially within a mobile node (not illustrated in FIG. **20**). Certain embodiments of the adjustment of the directional antenna can include, but is not limited to, adjusting the position, power, signal quality, signal to noise ratio, etc. of the directional antenna. Certain embodiments of the directional antenna **11** can be configured to be transmitting and/or receiving directional antennas.

[0125] One embodiment of a high-level flow chart of the resolution conversion technique **8000** that is described with respect to FIG. **21** and which includes operations **8002** and **8004**; in addition to optional operations **8020**, **8022**, **8024**, **8026**, **8028**, **8032**, and **8034**. The high-level flow chart of FIG. **21** should be considered in combination with the mobile directional directional antenna, as described with respect to FIG. **20**. One embodiment of operation **8002** can include, and is not limited to, directing a directionality of a directional antenna that is at least partially associated with a first mobile node from a first position to a second position, in an attempt to achieve a target position by which a network operational characteristic of at least one communication between the first mobile node to a second mobile node can be improved. For example, improving the network operational characteristic by directing the directionality of the directional antenna, as described with respect to FIGS. **9** to **I1**. One embodiment of operation **8004** can include, but is not limited to, identifying the network operational characteristic, wherein the directing the directionality of the directional antenna can be performed at least partially according to identifying the network operational characteristic. For example, identifying the network operational characteristic such as quality of signal, signal-to-noise ratio, transmit data, information, and/or a signal, etc. One embodiment of the directing a directionality of a directional antenna of operation **8002** can include operation **8020**, that can include but is not limited to, directing the directionality of the directional antenna based at least partially on feedback. For example, directing the directionality of the directional antenna based at least partially on the feedback. One embodiment of the directing a directionality of a directional antenna of operation **8002** can include operation **8022**, that can include but is not limited to, directing the directionality of the directional antenna based at least partially on discovery. For example, directing the directionality of the directional antenna based at least partially on the discovery. One embodiment of the directing a directionality of a directional antenna of operation **8002** can include operation **8024**, that can include but is not limited to, directing the directionality of the directional antenna based on a position information. For example, at least partially utilizing the position information to direct the directionality of the directional antenna. One embodiment of the directing a directionality of a directional antenna of operation **8002** can include operation **8026**, that can include but is not limited to, directing the directionality of the directional antenna based on a position information as indicating a roadway structure or direction. For example, considering the direction of the road or highway as the position information. One embodiment of the directing a directionality of a directional antenna of operation **8002** can include operation **8028**, that can include but is not limited to, directing the directionality of a receiving directional antenna. For example, the directional antenna includes the receiving directional antenna. One embodiment of the directing a directionality of a directional antenna of operation **8002** can include operation **8032**, that can include but is not limited to, directing the directionality of a transmitting directional antenna. For example, the directional antenna includes the transmitting directional antenna. One embodiment of the directing a directionality of a directional antenna of operation **8002** can include operation **8034**, that can include but is not limited to, directing the directionality of a transceiving directional antenna. For example, the directional antenna includes the transceiving directional antenna, that can both receive and/or transmit. A variety of flow charts are now described that describe various operations that can be performed using certain embodiments of the mobile directional antenna **10** or **14**.

[0126] A number of embodiments of flow charts are now described which describes a variety of the operations of the mobile directional antenna. These operations are intended to be illustrative in nature, but not limiting in scope. Certain ones of the flow charts and general vehicle or mobile directional antenna configurations, as now described, relate to a variety of the illustrative but non-limiting communication techniques and/or mechanisms that could be provided by a variety of the nodes (either mobile or fixed), which could include certain ones of the mobile directional antenna **10** or **14**.

[0127] A generalized embodiment of the communication network **100** is now described. FIG. **22** shows a schematic diagram of a communication network **100** having a subsystem **110** with data routed via a route **180** between a node **140** and a node **190**, which can be physically separated or remote from one another (separated by some fraction of a meter, or more). The route **180** can include channel **150** or one or more parallel channels **160** that could transport at least one signal **72** as described with respect to FIG. **1**. In certain embodiments, the channel **150** that could transport at least one signal **72** can be arranged in series with an upstream wireless link **145** and a downstream wireless link **185**. In certain embodiments, the channel **150** that could transport at least one signal **72** can include a node **154** through which the channel **150** passes or extends. Certain embodiments of the channel **150** that could transport at least one signal **72** may also include one or more of the in-channel links **155**, and one or more additional channel nodes **156**. In certain embodiments, the subsystem **110** can optionally include a channel controller **170** that can include a circuitry of the node **140**, the node **190**, or the in-channel node(s) **154**, **156** as shown and described in this disclosure. In certain embodiments, the channel controller **170** can be composed partially, or entirely, outside of all intermediate nodes available for routing the data

[0128] As described in this disclosure, certain embodiments of the route **180** can also include a linkage **135** that is communicationally associated with one or more source nodes **133**. In certain embodiments, the one or more source nodes **133** can be operationally situated outside of the communication network **100**. In certain embodiments, the route **180** can likewise include a linkage **195** that can be communicatingly associated with a one or more destination node(s) **197**. In certain embodiments, the one or more destination node(s) can be situated operationally outside of the communication network **100**. In certain alternate or additional embodiments, the node **140** can communicate with the node **190** at least in part by one or more other routes **182** such as by a channel **162**.

[0129] Referring now to FIG. **23**, one embodiment of the communication network **100** in a schematic form, can include a network subsystem **220** that can interact with, or become part of, a signal route **210**. In certain embodiments, the signal route can extend from a source node **212** to a mobile node **240**. In certain embodiments, the source node **212** can be configured to receive information from an information input source that can include, but is not limited to, a speedometer **248**, a GPS unit, a radar unit, or another information indicator of the mobile node **240**. In certain embodiments, the mobile node **240** can also provided location data to a modeler **218** that can be least partially integrated within the source node **212**. As such, a modeler **218**, including the source node **212**, can receive location data **247** from the mobile node **240**. Certain embodiments of the network subsystem **220** can include a module **225** that can be configured to receive data directly or indirectly from the source node **212** and to provide information to the circuitry **227**. Certain embodimets of the circuitry **227** can optionally be configured as to apply one or more criteria **228** to the data in determining how, when, or where to transmit the data, as explained below.

[0130] In certain embodiments of the communication network **100**, information can be transferred between one or more source node(s). For example, FIG. **24** shows an embodiment of a flow chart **300** that facilitate a desirable form of information transfer such as data transfer. Certain embodiments of the operational flow chart **300** can include a determining operation **330** and a routing operation **350**. In certain embodiments, the flow chart **300** may include a "prediction" or predictive value may be utilized that can include a variety of information such as information or data relating to one or more of a time-dependent function, a quantity, an identifier, a single Boolean value, a prose description, a probabilistic model of future or other uncertain attributes or behaviors, and/or some other characterization of a prediction. As described below, certain embodiments of the operation **330** and/or the operation **350** can be performed at least partially by the source node **212**, or alternately by the network subsystem **220** as described with respect to FIG. **23**. More generally, flow charts described herein need not occur in the prescribed order, and in certain cases may warrant some interspersion or other overlap with other operations.

[0131] FIG. **25** shows an alternative embodiment of a flow charts **400** that can be configured to facilitate another desirable form of data transfer. Certain embodiments of the flow charts **400** can include an obtaining operation **430** and to a routing operation **450**. As described below, certain embodiments of operation **430** and/or operation **450** can be performed by the source node **212** or alternately by the network subsystem **220** as described with respect to FIG. **23**. Certain embodiments of the operations **430** and/or **450** can likewise be performed by controller **170** or by any of several nodes as described with respect to FIG. **22**. Certain embodiments of the node **190** can perform a variant of the flow chart **400**, for example, by including as a portion of the routing operation **450** an operation **455** that can include performing one or more error correction operations on at least a portion of the data. In our correction operations may be desired to ensure that the data and/or information which can be transmitted by at least one transmitting node that corresponds to the data and/or information that is received by at least one receiving node.

[0132] Certain embodiments of the mobile directional antennas as described in this disclosure with respect to FIGS. **1**, **6**, etc. can be configured to enhance, allow, improve, optimize, and/or provide a data transfer between multiple nodes, and in certain embodiments at least some of the nodes being directional. FIG. **26** shows another embodiment of an alternative flow chart **500** having operations that facilitate another desirable form of data transfer. Certain embodiments of the flow chart **500** can include a receiving operation **530** and a relaying operation **550**. As described below, certain embodiments of the operation **530** and operation **550** can be performed by the source node **212** or alternately by the network subsystem **220** as described for example with respect to FIG. **23**. Certain embodiments of the operations **530** and/or **550** can likewise be performed by controller **170**, by certain of several nodes of FIG. **22**, or by a combination of more than one of these. Certain embodiments of the controller **170** can perform a variant of flow chart **500** by including as at least a portion of the relaying operation **550** a photographic operation **555**, which operates by including at least some information and/or data, that can in certain embodiments be in the form of wireless-transmitted data.

[0133] Certain embodiments of the communication network **100**, as described with respect to FIGS. **22** and **23**, can utilize a look-up mechanism but which data or information that may be at least partially contained in a memory, database, or other memory storage element associated with the communication network **100** can be accessed and/or looked-up. The particular embodiment(s) of look-up circuitry, table(s), mechanism(s), operation(s), and/or technique(s) as described in this disclosure are intended to be illustrative in nature, and not limiting in scope. Certain embodiments of look-up mechanisms are commercially available. Certain embodiments of a circuitry **770** can include a controller **778** having a memory **779** operable to contain one or more instructions that when executed cause the controller **778**. For example, certain embodiments of the instruction(s) can include machine code for transferring a portion of the wireless data to or from a register. Certain embodiments of the circuitry **770** can likewise include one or more circuitry **771** for implementing a look-up table having a speed as an operand, circuitry **772** for implementing a time-dependent traffic model, circuitry **774** for implementing a location-dependent speed model, or circuitry **775** for implementing a vehicle-dependent speed model. In one embodiment, the circuitry **772** for implementing a time-dependent traffic model includes circuitry **773** for implementing a look-up table having a time as an operand. More generally, circuitry **770** can include logic **776**, such as logic **777** for implementing a look-up table. For example, logic **777** can include logic for accessing a storage element containing part of or the entire table.

[0134] Certain embodiments of the mobile directional antenna **10** or **14** can be configured to transmit and/or receive information, data, signals, etc. as described with respect to FIGS. **22** and **23**, and also as described with respect to FIG. **29**. FIG. **29** illustrates an embodiment of the vehicle **11**. Any or all of the nodes of FIG. **22** can be embodied as the vehicle **11**, for example. The vehicle **11** includes a communication network **830**, a drive mechanism **860** operable to start the vehicle **11** moving, and a common power source **820**. Power source **820** can be operable to provide power selectively to drive mechanism **860** (optionally via drive shaft **865**) or to the circuitry such as the communication system **830**. For example, certain embodiments of the power source **820** can include a combustion engine **824** that can be operable to provide power to the drive shaft **865** and to an electrical supply **822** of the power source **820**. Certain embodiments of the electrical supply **822** can selectively provide power to the controller **834** and/or to the mobile directional antenna **10** or **14**, (which one embodiment can include the vehicle directional antenna operably coupled to a transceiver). Certain embodiments of the controller **834** can include a processor **837** that can be operably coupled to an interface **836** and a memory **838**. Certain embodiments of the mobile directional antenna **10** or **14** can be operably coupled to the controller **834** (e.g., to the processor **837** within the controller) such as at leat partially via a conduit **833**.

[0135] Certain embodiments of the interface **836** can be accessible to a user **885** that can travel within the vehicle, e.g., a driver, operator, passenger, pilot, etc. within a passenger compartment **880** of the vehicle **11**. Certain embodiments of the interface **836** may be configured to allow the vehcile's operator, driver, passenger, etc. to at least partially operate, drive, monitor, or perform other operations with respect to the vehicle **11**. Certain embodiments of the interface **836** can be configured as a graphical user interface, a driver's interface, etc. Other embodiments of the interface **836** can be configured with more traditional gauges, meters, electromechanical-based, optical-based, computer-based (relying on hardware, software, and/or firmware), mechanical-based, chemical-based, and/or other known interface device(s) that have been used to indicate operations of the vehicle **11**.

[0136] Certain embodiments of the vehicle **11** may be operated by and/or controlled by a variety of users **885** depending upon the type of the vehicle. In certain embodiments, the user **885** can be a driver, a pilot, an operator, a captain, or a passenger. Certain embodiments of the memory **838** can be configured as the signal-bearing medium **650**, in any of the illustrative but non-limiting configurations as described with respect to FIG. **27**. Certain embodiments of the processor **837** can thus perform one or more of the flow charts **300**, **400** or **500** as described herein. Certain embodiments of the controller **834** can include at least one general purpose and/or specific purpose computers, such as are generally known and are commercially available that may utilize at least one of software, hardware, and/or firmware.

[0137] Certain embodiments of the flow chart **800** can include the mobile directional antenna **10** or **14** for receiving communication information such as from a signal route (e.g., at least partially over the channel **870**); and circuitry (e.g., at least partially utilizing the controller **834**) that can be configured for relaying at least a portion of the communication information. There are a variety of embodiments of the mobile directional antennas that are generally understood by those skilled the art, and may be commercially available. For example, certain embodiments of the mobile directional antenna **10** or **14** can include passive and/or active aspects. Certain embodiments of the mobile directional antenna **10** or **14** can be operable in association with a transmitter to transmit signals, information, data, etc. Certain embodiments of the mobile directional antenna **10** or **14** can be operable in association with a receiver to receive signals, information, data, etc. Certain embodiments of the mobile directional antenna **10** or **14** are operable with a transceiver to both transmit and receive signals, information, data, etc. Additionally, a variety of types, powers, configurations, operational characteristics, etc. of directional antennas are commercially available such as could be selected by a designer based, at least in part, on such factors as the vehicle's **11** size, directional antenna operations, supportable directional antenna dimensions, etc.

[0138] In general, the vehicle(s) **11** (whether configured to operate on land, in air, in space, or in water) as described with respect to FIGS. **1**, **2**, **3**, **4**, **5**, **6**, or elsewhere in this disclosure, can move by definition. Many embodiments of the vehicle **11** can at least partially utilize a motive mechanism to propel the vehicle; while other embodiments of the vehicle **11** can be at least partially human, solar, and/or other energy powered. Certain embodiments of the power source **820** that can provide at least some of the power to move the vehicle **11** (e.g., the motive force) can be operable to provide power selectively to the drive mechanism **860**. In certain embodiments, the drive mechanism may be connected to a drive shaft **865** and/or to the circuitry of the controller **834**. Certain embodiments of the vehicle **11** can further include a combustion engine **824**, (and/or other motive source) to at least partially provide motive power to the vehicle **11**. Certain embodiments of the drive mechanism can be operatively coupled, via electrical supply **822**, e.g., to provide power to the circuitry.

[0139] In certain embodiments, a positioning mechanism can be provided such as a GPS **840**, a compass **850**, radar, etc. In certain embodiments, the positioning mechanism can be operably coupled (e.g., via a short range wireless connection to mobile directional antenna **10** or **14**, a direct wired-based connection, and/or another connection) such as to transmit position information to another location of the vehicle **11**. In certain embodiments, a direct and/or indirect output of the positioning mechanism may be provided as a signal to the processor **837** as to be computed by the processor. In certain embodiments, the positioning mechanism can be at least partially included in the vehicle **11**, while in others it can be at least partially remote or outside of the vehicle and transmit its indications to the vehicle.

[**0140**] Certain embodiments of a look-up table can be configured to provide values, information, and/or data that corresponds to operands, as described in this disclosure. FIG. **30** shows one embodiment of the look-up table **900** and its associated operands that can be accessed, e.g., by the circuitry **771** as described with respect to FIG. **28**. Certain embodiments of the look-up table can be used for determining a suitability value **960** at least partly based on each of several operands including operand **941** through operand **949**. The configuration, operand values, operand structures, and other aspects of the look-up table as described with respect to FIG. **30** are intended to be illustrative in nature, and not limiting in scope. Certain embodiments the table **900** can be implemented at least partially by the logic **777** as described with respect to FIG. **28**, which can be in the form of firmware, software, and/or hardware. Alternatively, in certain embodiments of the vehicle **11**, as described with respect to FIG. **29**, the table **900** can be maintained and/or stored in the memory **838** such as a hard drive, a floppy drive, a storage device, and/or a flash memory.

[**0141**] Certain embodiments of the operand **941** as described with respect to FIG. **30** can represent, e.g., a fractional-degree portion of a latitude coordinate. Certain embodiments of the operand **942** can represent, e.g., a whole-degree portion of the longitude coordinate. Certain embodiments of the operand **943** can represent a fractional-degree portion of the longitude coordinate complementing operand **941**. Certain embodiments of the operand **944** can represent an altitude expressed in meters relative to ground or sea level, providing for those embodiments of the vehicle(s) **11** that can include altitude-dependent suitability indicators, such as aircraft or certain land or sea vehicles. Certain embodiments of the operand **945** can represent a speed or velocity of a node, which can be measured either relatively to some other vehicle **11** or network device, or absolutely relatively to the Earth or some loction thereon, or relative to some other structure or location. Certain embodiments of the operand **944** and/or the operand **945** can be operable with certain embodiments of computers of controllers, and can in certain embodiments be marked in some manner recognizable by computers or controllers (e.g., with asterisks). In certain instances, such marking can indicate an exponential scale in which each binary number may be taken to be a power of 2. For the operand vector of row **973**, for example, the indicated altitude can therefore be approximately 2 to the power of 0 (=1) as measured in meters above the ground, and the indicated speed can be approximately 2 to the power of 6=64 meters per second.

[**0142**] Certain embodiments of the operand **946** can be representative of a node heading in which (magnetic) North=0000 and the other compass points increase clockwise to 1111 (NNW), or some other directional convention. Certain embodiments of the operand **946** can be, for example, ignored, however, for rows in which operand **945**=0000. In certain embodiments, speeds of 1 meter per second or less are treated as being stationary, in this model. Certain embodiments of the operand **949** can be an information format indicator, which can be encoded to indicate video, audio, proprietary, encoded, or any of the other format-indicative descriptors used in this document as a matter of design choice in light of present teachings. Additional operands **955** can also be used in determining suitability value **960**.

[**0143**] Certain embodiments of the vehicles **11**, such as described with respect to FIG. **29**, can provide or display position information to the driver, passenger, pilot, or other occupants of the vehicle. Referring now to FIG. **31** in light of FIG. **30**, certain embodiments of FIG. **31** can depict a map **1000** that can be utilized to plot latitude **1041** against longitude **1042**. A location of each of node **1060** through node **1073** as described with respect to FIG. **31** can also be plotted on the map **1000**, some or all of the nodes are suitable for relaying such information as position information. In certain embodiments, the position information can be associated with the vehicle **11** to provide information as to where each vehicle (or some equipment associated therewith) may be situated. One illustrative node **1061**, for example, is shown at 39.070 degrees North, 104.287 degrees West, for example, in this detailed illustration. Referring again to FIG. **30**, row **961** corresponds to operands that describe illustrative node **1061**. Node **1061** can therefore be essentially stationary, as indicated by the 0000 in the column of operands **945**.

[**0144**] Row **962** can be similar to row **961** except for the data format (at column **949**, e.g.) and the suitability value (at the column of values **960**). Row **961** can have a suitability value of 11001, a binary number that indicates a high suitability. Row **962** can indicate an even higher suitability, though, illustrating that the model implemented in table **900** has a format-dependent suitability indicator at the column of values **960**.

[**0145**] Row **963** of FIG. **30** can correspond to illustrated operands that describe node **1063** of FIG. **31**. Row **963** and row **964** illustrate that the model implemented in table **900** has a speed-dependent suitability indicator (in the column of values **960**), having operand values that are similar except for illustrated speed (in the column of operands **945**). Therefore the suitability indicator of node **1063** as illustrated might decrease (from 11111 to 10100, according to table **900**) if the illustrated speed of node **1063** were about 8 meters per second rather than being about 1 meter per second.

[**0146**] Row **965** of FIG. **30** might correspond to illustrated operands that describe node **1065** of FIG. **31**. Operand **948** can as illustrated be a binary load indicator such that 000 indicates no loading and 111 indicates saturation, in terms of a fractional usage of a critical resource such as a maximum data transfer rate and/or a reduction of available space in a memory such as memory **838** in the embodiment of FIG. **29** described above. Row **965** and row **966** illustrates that the model implemented in table **900** has a load-dependent suitability indicator, and can have operands that are similar except for, e.g., load (in the column of operands **948**). Therefore the suitability indicator of node **1065** would increase (from 01010 to 11010, according to table **900**) if the load indicator of node **1065** were 010 rather than being 101.

[**0147**] Row **968** of FIG. **30** can in certain embodiments correspond to operands that describe node **1068** of FIG. **31**. Row **967** and row **968** illustrate that the model implemented in table **900** has a heading-dependent suitability indicator (in the column of values **960**), having operand values that are similar except for heading (in the column of operands **946**). Therefore the suitability indicator of node **1068** could increase (from 10110 to 11111, according to table **900**) if the heading of node **1068** were eastward (dir=0100) rather than westward (dir=1100).

[**0148**] Rows **969** & **970** of FIG. **30** can as illustrated correspond respectively to operands that describe nodes **1069** & **1070** of FIG. **31**. Rows **969** & **970** illustrate that the model implemented in table **900** could have a position-index-dependent suitability indicator (in the column of values **960**), having illustrated operand values that are similar except for latitude (in the column of operands **941**). Node **1069** and node **1070** as illustrated are both traveling north at about 32 m/s. The suitability indicator of node **1069** is higher than that of node **1070**, according to table **900**, just because it is not as far north.

[**0149**] Row **973** of FIG. **30** can correspond to operands that describe node **1073** of FIG. **31**. Operand **947** may be a node class indicator corresponding to attributes of a given node that affect its ability to provide service. Operand **947** can indicate some combination of a nominal directional antenna range, a nominal transmitter power, a nominal bandwidth, a nominal gain-bandwidth product, a nominal data rate, a wireless protocol, a service provider, or a service level, for example. In one implementation, operand **947**=0011 uniquely indicates a combination of node attributes that include a nominal operating frequency of 900 MHz and/or 1,800 MHz and an unlimited-duration service. Other values of operand **947** shown indicate no such nominal operating frequency and/or limited-duration service, for example, when table **900** may be used in any of the above-described flow chart.

[**0150**] Row **972** and row **973** illustrate that certain embodiments of the model, as implemented in table **900**, could include a load-dependent suitability indicator, having operand values that are similar except for node class (in the column of operands **947**). Therefore certain embodiments of the suitability indicator of node **1073** could decrease (e.g., from 01001 to 00110, according to table **900**) if the class of node **1073** were 0110 rather than being 0100.

[**0151**] The contents and/or configurations of the rows are intended to be illustrative in nature. Table **900** can be of any consiguration such as large, small, regular, irregular, etc. In fact, in some contexts it would be convenient to use a simpler model as the table. One embodiment of a mechanism to establish the table could be to implement a table in a stationary router for a given area of land, and to utilize a local model that assumes a local value of one or more position indices within a zone (by omitting column of operands **942**, for example). Part of the model can be executed before looking up the suitability value, alternatively or additionally, such as by using a route that includes one or more predicted speeds to predict a location at a given future point in time. By using a prediction that has been computed in a prior computational operation, for example, the heading or speed operands can be omitted from the look-up operation.

[**0152**] Certain embodoments of the network subsystem can be utlilized. For example, FIG. **32** illustrates a schematic embodiment of the network subsystem **1100** that can include a module **1150** and circuitry **1170**. Module **1150** can be configured for receiving and/or transmitting information (which may include communication information and/or position information), from certain embodiments of a signal route and can include certain embodiments of circuitry **1170**. Certain embodiments of the module **1150** can be configured for relaying at least a portion of the information. Certain embodiment of the subsystem **1100** can further include a power source (or a partial, additional, or accessory power source) such as a fuel cell **1121** or photovoltaic cell **1122** that could be operatively coupled to provide power to the components of circuitry **1170** or module **1150**. Certain embodiments of the module **1150** can include, but may not not limited to: an directional antenna **1152**, a processor **1153**, or a memory **1159**.

[**0153**] Certain embodiments of the circuitry **1170** can include a transmitter **1173** and/or transceiver **1174**, and can be operable to communicate with at least one of the mobile node **1181** and/or **1182**. For example, certain embodiments of the transceiver can receive the position index and the loading indicator, which processor **1153** can use to generate the node identifier of whichever of the available nodes (of mobile node **1181** and mobile node **1182**, e.g.) may be suitable for relaying a signal to a stationary node (tower **1183**, e.g.). Certain embodiments of the circuitry **1170** can also include a controller **1171**, which can optionally have access to a medium **1172** configured similarly or identical to medium **1240** of FIG. **33**. Alternatively, certain embodiments of the medium **1172** can be a transmission medium or a reception medium (such as a conduit) or a medium of communication (such as a display, e.g.).

[**0154**] Referring now to FIG. **33**, there is shown a system **1200** (which can, e.g., be configured as the network subsystem **1100** or a computer program product **1220**) that can include at least a signal-bearing medium **1240**. Certain embodiments of the signal bearing medium **1240** can, for example, include one or more of an optical, electromagnetic, magnetic, and/or other media that can be configured in hardware, firmware, or software as a computer-readable medium **1245**, a recordable medium **1246**, and/or a disk **1247**. Certain embodiments of the computer-readable medium **1245**, the recordable medium **1246**, and/or the disk **1247** can store, recall, access, retrive, or otherwise maintain one or more determining instruction(s) **1250**, or one or more routing instruction(s) **1260**. Certain embodiments of the determining instruction(s) **1250** can be one or more instructions for determining a node-speed-change-prediction-dependent signal route. Certain embodiments of the instruction set can include one or more of instruction(s) **1251**, instruction(s) **1253**, instruction(s) **1255**, instruction(s) **1257**, or instruction(s) **1258**, which are intended to be illustrative nature and not limiting scope. Certain embodiments of the instruction(s) **1251** refer to one or more instructions that can be utilized for determining the node-speed-change-prediction-dependent signal route at least partly based on one or more measured speeds. Certain embodiments of the instruction(s) **1253** can refer to one or more instructions for determining the node-speed-change-prediction-dependent signal route at least partly based on a traffic report. Certain embodiments of the instruction(s) **1255** can refer to one or more instructions for determining the node-speed-change-prediction-dependent signal route at least partly based on a schedule. Certain embodiments of the instruction(s) **1257** can refer to one or more instruction(s) for determining the node-speed-change-prediction-dependent signal route at least partly based on a vehicular travel prediction. Certain embodiments of the instruction(s) **1258** refers to one or more instructions for determining the node-speed-change-prediction-dependent signal route at least partly based on one or more speed limits. One or more routing instruction(s) **1260** can refer to one or more instruction(s) for routing wireless data along the determined node-speed-change-prediction-dependent signal route.

[0155] Referring now to FIG. **34**, there are shown several variants of flow chart **300** of FIG. **24**. For example, the operation **330** of the flow chart **300** can include one or more of operation **1331**, operation **1333**, operation **1335**, or operation **1337**. Operation **1331** includes identifying a first node by route information received by a second node. Operation **1333** includes modifying certain embodiments of the node-speed-change-prediction-dependent signal route at least partly based on state information. In this disclosure, an item "outside" a route or set may not be limited to permanently excluded items, but also could refer to candidates for inclusion within the route or set., e.g. Certain embodiments of a flow chart is also shown including operation **1335** of receiving state information about a node and operation **1337** of excluding the node from the node-speed-change-prediction-dependent signal route at least partly based on the state information.

[0156] At least certain ones of the features as described in this disclosure can optionally be used in combination with any of the variants of the operation **350**. Certain embodiments of the operation **350** can include an operation **1355** of streaming at least a portion of the wireless data. The data streaming may not be limited to directing unidirectional data flow chart in a single channel, but can include any technique for handling data at one or more stages in a steady and continuous stream, typically facilitated by buffering and/or multiplexing at least some of the data. Alternatively or additionally, operation **350** can include an operation **1358** of including at least a data priority indication in the wireless data. A high priority may indicate that the data may be of a time-sensitive nature, that the data may be likely to be relatively small, or that the sender, owner or receiver has a high status relative to that of some other messages.

[0157] Referring now to FIG. **35**, there are shown several other variants and optional features of flow chart **300** of FIGS. **24** & **34**. For example, the operation **330** of the flow chart **300** can include one or more of certain embodiments of operation **1431**, operation **1435**, operation **1437**, or operation **1439**. Operation **1431** includes receiving information from outside the node-speed-change-prediction-dependent signal route. In performing flow chart **300**, node **140** can receive state information from node **154** in FIG. **22**, for example, indicating that node **154** may be expected to be stopped and unavailable for service imminently. If certain embodiments of the node **140** receives a transmission along the route **180** that only includes a linkage **135** from source node **133** to intermediate node **140**, for example, node **140** can then respond by appending a channel such as channel **160** to the route **180** responsive to the node speed change prediction from node **154**.

[0158] Alternatively or additionally, node **140** can receive from outside the node-speed-change-prediction-dependent signal route a prediction of at least one of a node speed or a node speed change (by operation **1435**, e.g.) or of a node heading or a node heading change (by operation **1437**, e.g.). Certain embodiments of the node **140** can use one or more of these items of information to predict a node speed change from which to determine at least part of the route **180**.

[0159] In lieu of any of receiving operations **1431**, **1435**, and **1437**, node **140** can instead receive a zone identifier from outside the node-speed-change-prediction-dependent signal route (such as the route **180**, by operation **1439**, e.g.). For example, node **140** can receive the zone identifier as an indication of where node **154** will be at a given moment, based on a speed change prediction. Node **140** can use this zone identifier in determining to append channel **150** in lieu of channel **160** (by operation **330**, e.g.).

[0160] In combination with any of the above-described variants of operation **330**, the routing operation **350** can also comprise operation **1451** or operation **1453**. Operation **1451** comprises including at least a data ownership indication in the wireless data. This may not be limited to a copyright notice but can also be an anonymous indication that the data is proprietary. Certain embodiments of the operation **1453** can include at least a destination indication in the wireless data. For example, the destination indication can include an identifiable geographic zone, an identifiable destination network, or a particular identifiable node or entity.

[0161] FIG. **36** shows several further illustrative variants and optional features of flow chart **300** of FIGS. **24**, **34**, and **35**. For example, the operation **330** of the flow chart **300** can include one or more of operation **1531**, operation **1535**, operation **1537**, or operation **1539**. Certain embodiments of the operation **1531** can include, but does not limited to: receiving from outside the node-speed-change-prediction-dependent signal route at least one of a latitude prediction, an altitude prediction, a zone identifier prediction, a node deceleration prediction, a node acceleration prediction, a node orientation prediction, or a predicted node orientation change. For example, certain embodiments of the received information can include a description of a node that can be a candidate for addition to the node-speed-change-prediction-dependent signal route. Similarly, certain embodiments of the determining operation **330** can include receiving a node speed prediction (by operation **1535**, e.g.), receiving a node speed change prediction (by operation **1537**, e.g.), or receiving a node heading prediction (by operation **1539**, e.g.).

[0162] Alternatively or in combination with any of the above-described variants of operation **330** or operation **350**, certain embodiments of the routing operation **350** can further comprise including at least an estimate of a destination's position index (by operation **1553**, e.g.) or including at least an estimate of an arrival time (by operation **1556**, e.g.) in, for example, the wireless data. For example, the position index can include an altitude, a set of coordinates, or an offset distance from some reference point. In certain embodiments, the arrival time may not bge limited exclusively to an arrival time of a signal, but can alternatively be describe as a planned or otherwise approximate arrival of one or more nodes or other physical objects.

[0163] Certain embodiments of the flow chart **300** can be modified, such as to affect the operation of the vehicle **11**, as described with respect to FIG. **29**. Referring now to FIG. **37**, for example, there are shown several further variants and optional features of flow chart **300** as described with respect to FIGS. **24**, **34**, **35**, or **36**. For example, one embodiment of the operation **330** of the flow chart **300** can include one or more of operation **1631**, operation **1634**, operation **1637**, or operation **1639**. The operation **350** can similarly include one or more of operation **1655** or operation **1658**.

[0164] For example, referring again to FIG. **22**, node **154** can receive a node heading change prediction (by operation **1631**, e.g.) or receive a prediction of a zone identifier (by operation **1634**, e.g.) that node **154** uses for position or velocity prediction (by operation **330**, e.g.). For example, node **154** can be a stationary node that receives one or more predictions bearing upon the availability and suitability of a mobile node, which can be node **156**. Certain embodiments of the node **154** can use the one or more predictions to determine the route **180**, which route **180** can be amended to include channel **150**. Certain embodiments of the node **154** can respond by transmission of wireless information, signals, data, etc. (by operation **350**, e.g.), and optionally by encrypting at least part of the wireless data (by operation **1655**, e.g.) before completing the routing operation **350**.

[0165] In another example, the node **156** can receive a prediction of an directional antenna position (by operation **1639**, e.g.) or another node component position (by operation **1637**, e.g.) in performing the determining operation **330**. Certain embodiments of the node **156** can receive a prediction that a component of the node **190** will be in a given position enabling transmission through node **156** at a given time. Cerain embodiments of the node **156** can use this prediction in responding to a routing request broadcast indicating that node **140** has a message for node **197**. Certain embodiments of the node **156** can determine a node-speed-change-prediction-dependent signal route (by operation **330**, e.g.) at least to the node **190** and route wireless data along the route (by operation **350**, e.g.) by transmitting the route to the node **140**.

[0166] In another example in which the node **140** may be a source node, certain embodiments of the node **140** can perform one of the above-described variants of flow chart **300** in which the routing operation **350** can comprise at least audio data in the wireless data (by operation **1658**, e.g.). Audio data can be included by operation **1658**, and his not limited to telephonic data but can also include music, speech, or other recordings or artificial sounds. The audio data may be optionally encrypted by node **140** also, such as by operation **1655**.

[0167] Referring now to FIG. **38**, there are shown several further variants and optional features of flow chart **300** of FIG. **24**, **34**, **35**, **36**, or **37**. For example, one embodiment of the operation **330** of the flow chart **300** can include one or more of operation **1733**, operation **1734**, operation **1737**, or operation **1738**. Certain embodiments of the operation **350** can similarly include one or more of operation **1752** or operation **1753**. Certain embodiments of the operation **1733** can include receiving a prediction of at least one of a longitude, an altitude, a zone identifier, a location, a position index, a node deceleration, a node acceleration, a node orientation, a node orientation change, or a node heading change. For example, certain embodiments of the source node **212** of FIG. **22** can receive any or all of these in describing mobile node **240**. Certain embodiments of the node **212** can use this information in the determining operation **330**, and thereupon respond by performing the routing operation **350**. Optionally the routing operation **350** can comprise including at least user-specified data in the wireless data (e.g., by operation **1752**). Certain embodiments of the routing operation **350** can also include routing one or more types of information or data that can describe one or more remote node (e.g., node **240**) to another remote node (e.g., one that includes module **225**).

[0168] In one example, certain embodiments of the network subsystem **220** can receive a node description (e.g., by operation **1737**) in performing the determining operation **330**. For example, network subsystem **220** can receive an indication of a node class (e.g, by operation **1734**) or can receive node state information (by operation **1738**, e.g.) from source node **212**. Certain embodiments of the network subsystem **220** can complete the determining operation **330** by determining to route data along a signal route to the mobile node **240**. Optionally, certain embodiments of the network subsystem **220** can reserve at least a portion of the determined node-speed-change-prediction-dependent signal route (by operation **350** and including operation **1753**, e.g.).

[0169] FIG. **39** shows certain embodiments of further variants and optional features of flow chart **300**, e.g., of FIG. **24**, **34**, **35**, **36**, **37**, or **38**. For example, certain embodiments of the operation **330** of the flow chart **300** can include one or more of operation **1831**, operation **1832**, operation **1835**, or operation **1836**. Certain embodiments of the operation **350** can similarly include one or more operations **1857** and/or **1858**. For example, certain embodiments of the module **1150** of FIG. **32** can perform any of these variants of the determining operation **330**, including receiving node load information **1831**, receiving a definition of the node-speed-change-prediction-dependent signal route **1835**, or receiving a suitability indicator **1836**. Alternatively or additionally, module **1150** can receive at least one of a definition of the node-speed-change-prediction-dependent signal route, a suitability indicator, node state information, a node description, or node class information **1832**.

[0170] Certain embodiments of the circuitry **1170** can route wireless data along the signal route determined by the module **1150**, such as via a route through mobile node **1181** to tower **1183**. Certain embodiments of the circuitry **1170** can also perform operation **1857** by displaying at least a portion of the wireless data within a mobile node (within the subsystem **1100**, which may be the vehicle **11**, e.g., via medium **1172**). If the network subsystem **1100** does not include a vehicle, in certain embodiments the circuitry **1170** can still display at least a portion of the wireless data via an element of a mobile node (by performing displaying operation **1858**, e.g., via medium **1172**).

[0171] FIG. **40**, there are further optional features defining variants of flow chart **300** of FIG. **24**, **34**, **35**, **36**, **37**, **38**, or **39**. For example, the operation **330** of the flow chart **300** can include one or more of operation **1931**, operation **1935**, operation **1937**, or operation **1939**. For example, network subsystem **800** of FIG. **29** can perform many of these variants. Certain embodiments of the mobile directional antenna **10** or **14** can perform the operation **1931** of receiving a burden indicator, for example, optionally in combination with operation **1537** of receiving a node speed change prediction. Alternatively or additionally, certain embodiments of the mobile directional antenna **10** or **14** can perform the operation **1935** of receiving at least one of node state information, a definition of the determined node-speed-change-prediction-dependent signal route, a suitability indicator, a node description, or node class information.

[0172] Similarly, certain embodiments of the controller **834** can perform the operation **1937** of storing information about a node outside the node-speed-change-prediction-dependent signal route and the operation **1939** of determining the node-speed-change-prediction-dependent signal route at least partly based on the information. Certain embodiments of the controller **834** can receive and store node state information and other descriptions from or about nearby nodes, for example, in memory **838**. In response to a route request, processor **837** can then use or provide the stored information for the determining operation **1937**.

[0173] Optionally, the routing operation **350** can include one or more of operation **1956** or operation **1959**. Certain embodiments of the communication network **830** can route other wireless data along another signal route parallel to the determined node-speed-change-prediction-dependent signal route (at operation **1956**, e.g.). For example, system **830** can determine two or more parallel channels across which to spread received data, such as by code division or time division multiplexing. Alternatively or additionally, communication network **830** can await an acknowledgment signal before sending a portion of the wireless data along the determined node-speed-change-prediction-dependent signal routes (e.g., at operation **1959**).

[0174] Referring now to FIG. **41**, there are further optional features defining variants of flow chart **300** of FIG. **24**, **34**, **35**, **36**, **37**, **38**, **39**, or **40**. For example, the operation **330** of the flow chart can include one or more of operation **2031**, operation **2035**, operation **2036**, operation **2038**, or operation **2039**. For example, node **140** of FIG. **22** can be configured as a device **600** that includes a signal bearing medium **650** containing instructions **653**. The one or more instructions for performing determining operation **330** can enable node **140** to request information from outside the node-speed-change-prediction-dependent signal route (at operation **2031**, e.g.) in performing flow chart **300**. Node **140** can poll all nodes within a direct-transmission zone of node **140** for a route table, for example, which includes information about a plurality of channels not yet on a given signal's defined route. These channels can include channel **150**, channel **160**, and channel **162**, for example. Node **140** can use this information in determining the route **180**, such as by appending channel **150** to whatever route through which node **140** receives the data.

[0175] Node **140** can also perform operation **2035** of obtaining at least one of a node speed prediction or a node speed change prediction, optionally by operation **2036** of estimating a future speed of a node such as node **154**. Node **140** can estimate at least one of a node heading or a node heading change **2038** (of node **154**, e.g.). Alternatively or additionally, node **140** can perform operation **2039** of receiving a predictive zone identifier from outside the node-speed-change-prediction-dependent signal route. For example, node **140** can receive from node **156** a predictive or other zone identifier describing a past or future location of node **156**, and use this information in determining the node-speed-change-prediction-dependent signal route through channel **150**. Optionally, the full signal route definition (i.e. all the way from a source node) can be included in a transmission sent to node **154** and node **156**.

[0176] Optionally, the same network subsystem that performs the determining operation **330** can perform one or both of operation **2055** or operation **2056**. Operation **2055** includes converting at least a portion of the wireless data into optical data. For example, in an embodiment in which linkage **195** includes a fiberoptic or other optical communication link, node **190** of the subsystem **110** can perform the converting operation **2055**. Node **190** can also perform flow chart **300**, alternatively or additionally, by routing at least a portion of the wireless data to a stationary node (to node **197** by operation **2056**, e.g.).

[0177] Some variants of flow chart **300** can be performed by controller **170**, including many that incorporate one or more of executing operation **3138**, receiving operation **3139**, or generating operation **3155**. Executing operation **3138** can be performed by executing one or more instructions for measuring a speed of a node of the node-speed-change-prediction-dependent signal route. For example, the controller **170** can be configured as a device **600**, including signal bearing medium **650** containing "one or more instructions for performing determining operation **330**" of the instructions **653**. The instructions **653** can further include the "one or more instructions for measuring a speed" for execution at operation **3138**. Receiving operation **3139** includes receiving at a first node (such as node **140**, e.g.) route information identifying a second node (such as a downstream node **154** or an upstream node **133**, e.g.). Generating operation **3155** (of routing operation **350**) can include generating at a first node (such as node **140**, e.g.) route information identifying a second node (such as a node list including node **154** and node **156**).

[0178] Referring now to FIG. **53**, there are further optional features relating to flow chart **300** and its multiple variant flow charts as describe above. For example, the operation **330** can include one or more of operation **3233**, operation **3234**, operation **3236**, or operation **3239**. Likewise the routing operation **350** can include a transmitting operation **3256**. Any of these optional features can optionally be performed by network subsystem **110** performing flow chart **300**. Module **1150** optionally transmits at least one of node state information, a definition of the determined node-speed-change-prediction-dependent signal route, a suitability indicator, a node description, or node class information (by operation **3233**). Alternatively or additionally, module **1150** can perform one or more of operation **3239** of evaluating a probability of an availability of a resource or operation **3236** of obtaining an indication of an availability of a node. Module **1150** can optionally be configured to include a signal-bearing medium (such as memory **1159**) bearing one or more instructions (such as instructions **653**, e.g.) for identifying a location of a node (such as node **1181**, e.g.) of the node-speed-change-prediction-dependent signal route (by operation **3234**, e.g.). Certain embodiments of the circuitry **1170** can perform operation **3256** of transmitting to a first node route information identifying a second node.

[0179] Certain embodiments of the directional antenna **10** or **14** can also broadcasting at least the portion of the signal, data, or information. Including operation **3356** comprises including at least a message length value in a first portion of the signal, data, or information. Certain embodiments of the information used in transmitting or receiving digital signals or data can also include at least a message length value in a header of the signal, data, or information. The travel time can describe a movement of a signal or data set, or a movement to a physical object or system, for example. One or more intermediate nodes can use the estimate in making a routing decision, such as by module **1150** determining the signal route dependent on a destination-node-movement speed.

[**0180**] Certain operation can include transmitting state information with the data or transmitting the data via a free space medium. Certain embodiments of the operations can optionally perform a retry operation, such as by using a different or compound route.

[**0181**] There are shown several additional variants of flow. For example, module **1150** of FIG. **32** can optionally perform operation by which a processor can optionally update state information in the data, indicate a position of an intermediate node to a next-upstream-node, and/or broadcast the load indicator, for example. Certain embodiments of the operation can display at least an indication of the data at the mobile node. Alternatively, certain embodiments of the flow chart can perform the operation of streaming at least a portion of the data.

[**0182**] Alternatively or additionally, certain embodiments of the node can perform one or more operation of indicating a suitability of a signal route (optionally including a suitability of route using an intermediate node). Certain embodiments of the operation can utilize received latitude and/or longitude of the mobile node as position information.

[**0183**] Alternatively or additionally, the node can perform one or more of operation of including at least a destination position index in the data, and/or encrypting at least a portion of the data. Certain embodiments of the operation can include reserving a route. Certain embodiments of the operation can include displaying at least a portion of the data via an element of a mobile node. Certain embodiments of the operation can include awaiting an acknowledgment signal before sending a portion of the data.

[**0184**] Certain embodiments of the operation can include converting at least a portion of the data into an optical signal, which might be expedient if, for example, linkage **195** includes a long haul fiberoptic conduit. Certain embodiments of the operation can include multiplexing at least a portion of the data.

[**0185**] Referring again to FIG. **33**, in an alternate embodiment, computer program product **1220** can be configured to include a recordable medium **1246** as the signal-bearing medium **650** of FIG. **27**. More particularly the recordable medium **1246** can contain instructions **654** including one or more instructions for performing routing operation **450**. The one or more included instructions can optionally comprise: one ore more instructions for performing one or more operations of operations **4251** through **4458**. One embodiment, for example, may include a computer program product (product **1220**, e.g.) comprising a signal-bearing medium (medium **650**, e.g.) bearing at least one of: one or more instructions; and one or more instructions for streaming at least a portion of the data.

VI. Conclusion

[**0186**] Those having skill in the art will recognize that the state of the art has progressed to the point where there may be little distinction left between hardware and software implementations of aspects of systems; the use of hardware or software may generally (but not always, in that in certain contexts the choice between hardware and software can become significant) represent a design choice representing cost vs. efficiency tradeoffs. Those having skill in the art will appreciate that there are various vehicle(s) **11** by which processes and/or systems and/or other technologies described herein can be effected (e.g., hardware, software, and/or firmware), and that the vehicle might vary with the context in which the processes and/or systems and/or other technologies are deployed. For example, if an implementer determines that speed and accuracy are paramount, the implementer may opt for a mainly hardware and/or firmware implementation; alternatively, if flexibility may be a consideration, the implementer may opt for a mainly software implementation; or, yet again alternatively, the implementer may opt for some combination of hardware, software, and/or firmware. Hence, there are several possible vehicles and/or antennas by which the processes and/or devices and/or other technologies described herein may be effected, none of which may be preferred to the other in that the vehicle **11** to be utilized may be a choice dependent upon the context in which the vehicle and/or antennas will be deployed and the specific concerns (e.g., speed, flexibility, or predictability) of the implementer, any of which may vary. Those skilled in the art will recognize that optical aspects of implementations will typically employ optically-oriented hardware, software, and or firmware.

[**0187**] The foregoing detailed description has set forth various embodiments of the devices and/or processes via the use of block diagrams, flowcharts, and/or examples. Insofar as such block diagrams, flowcharts, and/or examples contain one or more functions and/or operations, it will be understood by those within the art that each function and/or operation within such block diagrams, flowcharts, or examples can be implemented, individually and/or collectively, by a wide range of hardware, software, firmware, or virtually any combination thereof. In one embodiment, several portions of the subject matter described herein may be implemented via Application Specific Integrated Circuits (ASICs), Field Programmable Gate Arrays (FPGAs), digital signal processors (DSPs), or other integrated formats. However, those skilled in the art will recognize that some aspects of the embodiments disclosed herein, in whole or in part, can be equivalently implemented in integrated circuits, as one or more computer programs running on one or more computers (e.g., as one or more programs running on one or more computer systems), as one or more programs running on one or more processors (e.g., as one or more programs running on one or more microprocessors), as firmware, or as virtually any combination thereof, and that designing the circuitry and/or writing the code for the software and or firmware would be well within the skill of one of skill in the art in light of this disclosure. In addition, those skilled in the art will appreciate that the mechanisms of the subject matter described herein are capable of being distributed as a program product in a variety of forms, and that an illustrative embodiment of the subject matter described herein applies regardless of the particular type of signal bearing medium used to actually carry out the distribution. Examples of a signal bearing medium include, but are not limited to, the following: a recordable type medium such as a floppy disk, a hard disk drive, a Compact Disc (CD), a Digital Video Disk (DVD), a digital tape, a computer memory, etc.; and a transmission type medium such as a digital and/or an analog communication medium (e.g., a fiber optic cable, a waveguide, a wired communications link, a wireless communication link, etc.).

[0188] While particular aspects of the present subject matter described herein have been shown and described, it will be apparent to those skilled in the art that, based upon the teachings herein, changes and modifications may be made without departing from this subject matter described herein and its broader aspects and, therefore, the appended claims are to encompass within their scope all such changes and modifications as are within the true spirit and scope of this subject matter described herein. Furthermore, it is to be understood that the invention is solely defined by the appended claims. It will be understood by those within the art that, in general, terms used herein, and especially in the appended claims (e.g., bodies of the appended claims) are generally intended as "open" terms (e.g., the term "including" should be interpreted as "including but not limited to," the term "having" should be interpreted as "having at least," the term "includes" should be interpreted as "includes but is not limited to," etc.). It will be further understood by those within the art that if a specific number of an introduced claim recitation is intended, such an intent will be explicitly recited in the claim, and in the absence of such recitation no such intent is present. For example, as an aid to understanding, the following appended claims may contain usage of the introductory phrases "at least one" and "one or more" to introduce claim recitations. However, the use of such phrases should not be construed to imply that the introduction of a claim recitation by the indefinite articles "a" or "an" limits any particular claim containing such introduced claim recitation to inventions containing only one such recitation, even when the same claim includes the introductory phrases "one or more" or "at least one" and indefinite articles such as "a" or "an" (e.g., "a" and/or "an" should typically be interpreted to mean "at least one" or "one or more"); the same holds true for the use of definite articles used to introduce claim recitations. In addition, even if a specific number of an introduced claim recitation is explicitly recited, those skilled in the art will recognize that such recitation should typically be interpreted to mean at least the recited number (e.g., the bare recitation of "two recitations," without other modifiers, typically means at least two recitations, or two or more recitations). Furthermore, in those instances where a convention analogous to "at least one of A, B, and C, etc." is used, in general such a construction is intended in the sense one having skill in the art would understand the convention (e.g., " a system having at least one of A, B, and C" would include but not be limited to systems that have A alone, B alone, C alone, A and B together, A and C together, B and C together, and/or A, B, and C together, etc.). In those instances where a convention analogous to "at least one of A, B, or C, etc." is used, in general such a construction is intended in the sense one having skill in the art would understand the convention (e.g., " a system having at least one of A, B, or C" would include but not be limited to systems that have A alone, B alone, C alone, A and B together, A and C together, B and C together, and/or A, B, and C together, etc.). It will be further understood by those within the art that any disjunctive word and/or phrase presenting two or more alternative terms, whether in the description, claims, or drawings, should be understood to contemplate the possibilities of including one of the terms, either of the terms, or both terms. For example, the phrase "A or B" will be understood to include the possibilities of "A" or "B" or "A and B." Moreover, "can" and "optionally" and other permissive terms are used herein for describing optional features of various embodiments. These terms likewise describe selectable or configurable features generally, unless the context dictates otherwise.

[0189] The herein described aspects depict different components contained within, or connected with, different other components. It is to be understood that such depicted architectures are merely exemplary, and that in fact many other architectures can be implemented which achieve the same functionality. In a conceptual sense, any arrangement of components to achieve the same functionality is effectively "associated" such that the desired functionality is achieved. Hence, any two components herein combined to achieve a particular functionality can be seen as "associated with" each other such that the desired functionality is achieved, irrespective of architectures or intermedial components. Likewise, any two components so associated can also be viewed as being "operably connected," or "operably coupled," to each other to achieve the desired functionality. Any two components capable of being so associated can also be viewed as being "operably couplable" to each other to achieve the desired functionality. Specific examples of operably couplable include but are not limited to physically mateable and/or physically interacting components and/or wirelessly interactable and/or wirelessly interacting components and/or logically interactable and/or logically interacting components.

[0190] While certain features of the described implementations have been illustrated as disclosed herein, many modifications, substitutions, changes and equivalents will now occur to those skilled in the art. It is, therefore, to be understood that the appended claims are intended to cover all such modifications and changes as fall within the true spirit of the embodiments of the invention.

What is claimed is:

1. A method comprising:

adjusting a directional antenna from a first state to a second state to improve a network operation of the directional antenna relative to a mobile node to at least partially compensate for motion of the mobile node.

2. The method of claim 1, wherein the adjusting a directional antenna from a first state to a second state to improve a network operation of the directional antenna relative to a mobile node to at least partially compensate for motion of the mobile node comprises:

adjusting a direction of the directional antenna from the first state to the second state in an attempt to improve the network operation of the directional antenna relative to the mobile node.

3. The method of claim 1, wherein the adjusting a directional antenna from a first state to a second state to improve a network operation of the directional antenna relative to a mobile node to at least partially compensate for motion of the mobile node comprises:

adjusting a power of the directional antenna from the first state to the second state to improve the network operation of the directional antenna relative to the mobile node.

4. The method of claim 1, wherein the adjusting a directional antenna from a first state to a second state to improve a network operation of the directional antenna relative to a mobile node to at least partially compensate for motion of the mobile node comprises:

adjusting the directional antenna from the first state to the second state to improve a communication ability of the directional antenna relative to the mobile node.

5. The method of claim 1, wherein the adjusting a directional antenna from a first state to a second state to improve a network operation of the directional antenna relative to a mobile node to at least partially compensate for motion of the mobile node comprises:

adjusting the directional antenna from the first state to the second state to improve a S/N Ratio of the directional antenna relative to the mobile node.

6. The method of claim 1, wherein the adjusting a directional antenna from a first state to a second state to improve a network operation of the directional antenna relative to a mobile node to at least partially compensate for motion of the mobile node comprises:

adjusting the directional antenna from the first state to the second state to improve the network operation of the directional antenna relative to the mobile node at least partially considering a position of the mobile node.

7. The method of claim 1, wherein the adjusting a directional antenna from a first state to a second state to improve a network operation of the directional antenna relative to a mobile node to at least partially compensate for motion of the mobile node comprises:

adjusting the directional antenna from the first state to the second state to improve the network operation of the directional antenna relative to the mobile node at least partially considering a movement of the mobile node.

8. The method of claim 1, wherein the adjusting a directional antenna from a first state to a second state to improve a network operation of the directional antenna relative to a mobile node to at least partially compensate for motion of the mobile node comprises:

adjusting the directional antenna from the first state to the second state towards a target state of the directional antenna.

9. The method of claim 1, wherein the directional antenna is secured relative to an at least one other mobile node.

10. The method of claim 1, wherein the directional antenna is secured relative to an at least one other mobile node, and a vehicle at least partially includes the at least one other mobile node.

11. The method of claim 1, wherein a vehicle at least partially includes the mobile node.

12. A method, comprising.

identifying a network operational characteristic;

determining a desired directional antenna configuration to direct a directional antenna at least partially with respect to a first mobile node at least partially according to the network operational characteristic; and

establishing a directional antenna directionality at least partially according to a desired directional antenna direction.

13. The method of claim 12, wherein the identifying a network operational characteristic comprises:

identifying a network transmission parameter.

14. The method of claim 12, wherein the identifying a network operational characteristic comprises:

determining a signal strength.

15. The method of claim 12, wherein the identifying a network operational characteristic comprises:

determining a signal to noise ratio.

16. The method of claim 12, wherein the identifying a network operational characteristic comprises:

determining the network operational characteristic; and

predicting a maximum value of the network operational characteristic.

17. The method of claim 12, wherein the identifying a network operational characteristic comprises:

determining an orientation or position of the first mobile node relative to a fixed node.

18. The method of claim 12, wherein the identifying a network operational characteristic comprises:

determining an orientation or position of the first mobile node relative to a second mobile node.

19. The method of claim 12, wherein the determining a desired directional antenna configuration to direct a directional antenna at least partially with respect to a first mobile node at least partially according to the network operational characteristic comprises:

determining the desired directional antenna direction of the directional antenna at least partially corresponding to a predicted maximum of a transmission parameter.

20. The method of claim 12, wherein the establishing a directional antenna directionality at least partially according to a desired directional antenna direction comprises:

physically repositioning or reorienting the directional antenna at least partially according to the desired directional antenna direction.

21. The method of claim 12, wherein the establishing a directional antenna directionality at least partially according to a desired directional antenna direction comprises:

activating a micro electomechanical system (MEMS) device.

22. The method of claim 12, wherein the establishing a directional antenna directionality at least partially according to a desired directional antenna direction comprises:

altering relative phases or amplitudes of signals at selected components of the directional antenna.

23. The method of claim 12, wherein the establishing a directional antenna directionality at least partially according to a desired directional antenna direction comprises:

optimizing the directional antenna directionality.

24. The method of claim 12, wherein the desired directional antenna configuration is at least partially provided for an active directional antenna.

25. The method of claim 12, wherein the desired directional antenna configuration is at least partially provided for a passive directional antenna.

26. The method of claim 12, wherein the desired directional antenna configuration is at least partially provided for a patch directional antenna.

27. A method, comprising:

directing a directionality of a directional antenna that is at least partially associated with a mobile node from a first position to a second position, in an attempt to achieve a target position by which a network operational characteristic of a communication between the mobile node to at least a node can be improved.

28. The method of claim 27, comprising:

identifying the network operational characteristic, wherein the directing the directionality of the directional antenna can be performed at least partially according to identifying the network operational characteristic.

29. The method of claim 28, wherein the identifying the network operational characteristic further comprises:

identifying a network transmission parameter.

30. The method of claim 27, wherein the directing a directionality of a directional antenna further comprises:

directing a network transmission parameter.

31. The method of claim 27, wherein the directing a directionality of a directional antenna further comprises:

directing the directionality of the directional antenna based at least partially on feedback.

32. The method of claim 27, wherein the directing a directionality of a directional antenna further comprises:

directing the directionality of the directional antenna based at least partially on discovery.

33. The method of claim 27, wherein the directing a directionality of a directional antenna further comprises:

directing the directionality of the directional antenna based on a position information.

34. The method of claim 27, wherein the directing a directionality of a directional antenna further comprises:

directing the directionality of the directional antenna based on a position information as indicating a roadway structure or direction.

35. The method of claim 27, wherein the directing a directionality of a directional antenna further comprises:

directing the directionality of a receiving directional antenna.

36. The method of claim 27, wherein the directing a directionality of a directional antenna further comprises:

directing the directionality of a transmitting directional antenna.

37. The method of claim 27, wherein the directing a directionality of a directional antenna further comprises:

directing the directionality of a transceiving directional antenna.

38. A method, comprising:

directing a directionality of a directional antenna that is at least partially associated with a first mobile node from a first position to a second position, in an attempt to achieve a target position by which a network operational characteristic of at least one communication between the first mobile node to a second mobile node can be improved.

39. The method of claim 38, comprising:

identifying the network operational characteristic, wherein the directing the directionality of the directional antenna can be performed at least partially according to identifying the network operational characteristic.

40. The method of claim 38, wherein the directing a directionality of a directional antenna further comprises:

directing the directionality of the directional antenna based at least partially on feedback.

41. The method of claim 38, wherein the directing a directionality of a directional antenna further comprises:

directing the directionality of the directional antenna based at least partially on discovery.

42. The method of claim 38, wherein the directing a directionality of a directional antenna further comprises:

directing the directionality of the directional antenna based on a position information.

43. The method of claim 38, wherein the directing a directionality of a directional antenna further comprises:

directing the directionality of the directional antenna based on a position information as indicating a roadway structure or direction.

44. The method of claim 38, wherein the directing a directionality of a directional antenna further comprises:

directing the directionality of a receiving directional antenna.

45. The method of claim 38, wherein the directing a directionality of a directional antenna further comprises:

directing the directionality of a transmitting directional antenna.

46. The method of claim 38, wherein the directing a directionality of a directional antenna further comprises:

directing the directionality of a transceiving directional antenna.

47. An apparatus comprising:

at least one mobile node that includes a directional antenna, wherein the directional antenna is operable to be adjusted to improve a network operation of the directional antenna relative to the mobile node by at least partially compensating for motion of the mobile node.

48. An apparatus comprising:

at least one first mobile node that includes a directional antenna, wherein the directional antenna is operable to be adjusted to improve a network operation of the directional antenna relative to an at least one second mobile node by at least partially compensating for motion of the at least one second mobile node.

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