What is claimed is:

1. A method of exchanging data between a mobile node and an access point on a communication network. comprising the steps of:

a) providing at least two data links between the mobile node and the access
point:

b) measuring impedance on each data link: and

c) transmitting said data across the data link having the lowest impedance.

2. A method as defined in claim 1, wherein a first of said data links is established on a spread spectrum band.

10 3. A method as defined in claim 1, wherein said mobile node and said access point are IEEE 802.11 compliant.

4. A method as defined in claim 1, wherein one of said data links is a satellite RF packet network.

5. A method as defined in claim 1, wherein one of said data links is a terrestrial 15 RF packet network.

6. A communications system, comprising

a mobile node.

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a fixed communications network having an access point,

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a pair of alternative data links, each of which joins said mobile node with said access point, and

a switching unit for switching between said alternative data links to exchange data between said mobile node and said access point.

5 7. A system as defined in claim 6, wherein said mobile node is Internet addressable.

8. A system as defined in claim 6, further comprising a measuring module for measuring impedance on each of said data links, said switching unit being operable to select the data link having the least impedance.

10 9. A system as defined in claim 6, wherein both said mobile node and said access point are IEEE 802.11 compliant.

10. A system as defined in claim 6, wherein said mobile node is one of a plurality of mobile nodes on a communications network.

11. A system as defined in claim 10, wherein each of said mobile nodes is on a 15 vehicle.

12. A system as defined in claim 6, wherein said fixed communications network includes a plurality of access points, wherein said data links join each mobile node with at least one access point.

13. A system as defined in claim 12, wherein some of said access points are20 located adjacent a roadway.

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14. A system as defined in claim 10 wherein at least some of said mobile nodes are Internet addressable.

15. A system as defined in claim 10, wherein at least some of said mobile nodes are IPv6 addressable.

- 5 16. A communications network for exchanging data between a plurality of vehicles, comprising a computing unit onboard a corresponding vehicle, each computing unit operable in a first phase to broadcast enquiry messages in a region surrounding said vehicle, a second phase to receive reply messages from other vehicles in said region, a third phase to exchange status messages with selected ones of said other vehicles.
- 10 17. A network as defined in claim 16, wherein each computing unit includes an IEEE 802.11 node.

18. A network as defined in claim 16, wherein each computing unit exchanges data using an SNMP-derived protocol.

19. A network as defined in claim 16, wherein each node is Internet addressable.

- 15 20. A vehicle comprising an onboard computing unit which is operable in a first phase to broadcast neighbour solicitation messages in a region surrounding said vehicle. a second phase to receive neighbour response messages from computing units of other vehicles in said region, and a third phase to exchange status messages with computing units of selected other vehicles.
- 20 21. A vehicle as defined in claim 20, which is operable in a fourth phase to exchange data with a remote site.

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22. A vehicle as defined in claim 21, wherein the remote site is reached through non-mobile network gateway.

23. A vehicle as defined in claim 20 wherein said computing unit includes an IEEE 802.11 node.

- 5 24. A vehicle as defined in claim 20, wherein said computing unit is capable of exchanging data using an SNMP protocol.
 - A hybrid communications system, comprising a wired network portion and
 a wireless network portion, each having a network connection node, at least two data link
 means between the network connection nodes, and a switch means for enabling either of the
 data links for data exchange between said connection nodes.
 - 26. A system as defined in claim 25, further comprising measurement means for measuring impedance on said data links, said switch means being responsive to said measurement means for enabling the data link having a lower impedance.
- A vehicle communications system having a controller, a data pathway joining
 said controller with a plurality of vehicle components and means for establishing a data link
 with other vehicles within a given region surrounding said vehicle in order to exchange data
 therewith.

28. A system as defined in claim 27, wherein said data link is operable in A spread spectrum band.

20 29. An operational event-reporting system for use by a plurality of neighboring vehicles to support IVHS comprising a plurality of communication units, each onboard a

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corresponding vehicle to collect operational data from selected components thereof and to exchange data with the communication units of one or more of the neighboring vehicles.

30. A system as defined in claim 29, wherein the communication units broadcast messages on a spread spectrum band.

5 31. A method of exchanging data between a vehicle and at least one remote site, comprising the step of providing the vehicle with a transmitter and receiver capable of transmitting and receiving messages under an SNMP protocol.

32. A method as defined in claim 31, wherein the at least one data exchange site includes a neighboring vehicle.

10 33. A method as defined in claim 32, further comprising the steps of:

- exchanging discovery signals with neighboring vehicles: and

- exchanging status data with selected ones of the neighbouring vehicles.

34. A system for transferring data between a vehicle and a data exchange site, comprising a pair of data link means, wherein at least one of said data link means has a varying signal impedance level and switch means for switching between said data link means so that said data is transferred on the data link means having the least impedance.

35. A system as defined in claim 34, wherein a first of said data link means is operable in a spread spectrum band.

36. An extension of the hybrid **RF** packet network comprising:

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