CLAIMS

1. A method of communicating in a wireless network, comprising: creating a shortened network identifier having a first length from a full network identifier having a second length, the first length being shorter than the second length, wherein creating the shortened network identifier comprises computing a cyclic redundancy check (CRC) on the full network identifier; generating a compressed beacon comprising a shortened network identifier field and adding another CRC field, the shortened network identifier field comprising the shortened network identifier, the another CRC field allowing identification of transmission errors in the compressed beacon, wherein the another CRC field is different than the shortened network identifier field; and transmitting, at an access point, the compressed beacon.

2. The method of claim 1, wherein the CRC on the full network identifier comprises a 4-byte CRC.

3. The method of claim 1, wherein the CRC on the full network identifier comprises a same generator polynomial used to compute an 802.11 frame check for the compressed beacon, and wherein the CRC field includes the 802.11 frame check.

4. The method of claim 1, further comprising creating a second shortened network identifier by creating a hash of a service set identifier (SSID).

5. The method of claim 4, wherein creating the hash of the SSID comprises computing the hash of the SSID using a hashing algorithm with parameters available to all devices on the wireless network.

6. The method of claim 1, wherein the compressed beacon comprises: a frame control field; a source address; a timestamp; a change sequence; and the shortened network identifier.

7. The method of claim 6, wherein the frame control field comprises 2 bytes, the source address comprises 5 bytes, the timestamp comprises 4 bytes, the change sequence comprises 1 byte, the shortened network identifier comprises 4 bytes, and the CRC field comprises 4 bytes.

8. The method of claim 6, wherein the source address comprises a basic service set identification (BSSID) of the access point.

9. The method of claim 6, wherein the timestamp comprises a shortened timestamp comprising fewer bits than a full timestamp.

10. The method of claim 9, wherein the timestamp comprises a one or more least significant bits of the full timestamp.

11. The method of claim 6, the method further comprising changing the change sequence when the access point or network configuration changes or when there is a change in the content of a full beacon.

12. The method of claim 6, wherein the frame control field comprises a version field, a type field, a subtype field, a next full beacon time indication (NFBTI) present field, a service set identifier (SSID) present field, an internetworking present field, a bandwidth field, a security field, and one or more reserved bits.

13. The method of claim 12, wherein the version field comprises 2 bits, the type field comprises 2 bits, the subtype field comprises 4 bits, the NFBTI present field comprises 1 bit, the SSID present field comprises 1 bit, the internetworking present field comprises 1 bit, the bandwidth field comprises 3 bits, the security field comprises 1 bit, and the one or more reserved bits comprise 1 bit.

14. The method of claim 12, wherein type field comprises a value of "11" and the subtype field comprises a value of "0001," indicating that the beacon is a compressed beacon.

15. The method of claim 6, wherein the compressed beacon further comprises a compressed capability information field.

16. A method of communicating in a wireless network, comprising: receiving, at a wireless device associated with a network having a network identifier, a compressed beacon comprising a shortened network identifier field and a CRC field, the CRC field allowing identification of transmission errors in the compressed beacon, the shortened network identifier field comprising a received shortened network identifier wherein the CRC field is different than the shortened network identifier field; creating an expected shortened network identifier based on the network identifier of the network associated with the wireless device, wherein creating the expected shortened network identifier comprises computing another cyclic redundancy check (CRC) on the network identifier; comparing the expected shortened network identifier to the received shortened network identifier; discarding the compressed beacon when the expected shortened network identifier does not match the received shortened network identifier; and processing the compressed beacon when the expected shortened network identifier matches the received shortened network identifier, wherein the expected shortened network identifier is shorter than the network identifier.

17. The method of claim 16, wherein the CRC on the network identifier comprises a 4-byte CRC.

18. The method of claim 16, wherein the CRC on the network identifier comprises a same generator polynomial used to compute an 802.11 frame check for the compressed beacon, and wherein the CRC field includes the 802.11 frame check.

19. The method of claim 16, further comprising creating a second expected shortened network identifier by creating a hash of a service set identifier (SSID).

20. The method of claim 19, wherein creating the hash of the SSID comprises computing the hash of the SSID using a hashing algorithm with parameters available to all devices on the wireless network.

21. The method of claim 16, wherein the compressed beacon comprises: a frame control field; a source address; a timestamp; a change sequence; and the shortened network identifier.

22. The method of claim 21, wherein the frame control field comprises 2 bytes, the source address comprises 5 bytes, the timestamp comprises 4 bytes, the change sequence comprises 1 byte, the shortened network identifier comprises 4 bytes, and the CRC field comprises 4 bytes.

23. The method of claim 21, wherein the source address comprises a basic service set identification (BSSID) of an access point.

24. The method of claim 21, wherein the timestamp comprises a shortened timestamp comprising fewer bits than a full timestamp.

25. The method of claim 24, wherein the timestamp comprises a one or more least significant bits of the full timestamp.

26. The method of claim 21, the method further comprising: detecting a change in the change sequence; transmitting a probe request when a change in the change sequence is detected; and receiving a probe response in response to the probe request.

27. The method of claim 21, wherein the frame control field comprises a version field, a type field, a subtype field, a next full beacon time indication (NFBTI) present field, a service set identifier (SSID) present field, an internetworking present field, a bandwidth field, a security field, and one or more reserved bits.

28. The method of claim 27, wherein the version field comprises 2 bits, the type field comprises 2 bits, the subtype field comprises 4 bits, the NFBTI present field comprises 1 bit, the SSID present field comprises 1 bit, the internetworking present field comprises 1 bit, the bandwidth field comprises 3 bits, the security field comprises 1 bit, and the one or more reserved bits comprise 1 bit.

29. The method of claim 21, wherein type field comprises a value of "11" and the subtype field comprises a value of "0001," indicating that the beacon is a compressed beacon.

30. The method of claim 21, wherein the compressed beacon further comprises a compressed capability information field.

31. A wireless device configured to communicate in a wireless network, comprising: a processor configured to: create a shortened network identifier having a first length from a full network identifier having a second length, the first length being shorter than the second length, wherein the shortened network identifier is created by computing another cyclic redundancy check (CRC) on the full network identifier; and generate a compressed beacon comprising a shortened network identifier field and adding another CRC field, the shortened network identifier field comprising the shortened network identifier, the another CRC field allowing identification of transmission errors in the compressed beacon, wherein the another CRC field is different than the shortened network identifier field; and a transmitter configured to transmit the compressed beacon.

32. The wireless device of claim 31, wherein the CRC on the full network identifier comprises a 4-byte CRC.

33. The wireless device of claim 31, wherein the CRC on the full network identifier comprises a same generator polynomial used to compute an 802.11 frame check for the compressed beacon, and wherein the CRC field includes the 802.11 frame check.

34. The wireless device of claim 31, wherein the processor is configured to create a second shortened network identifier by creating a hash of a service set identifier (SSID).

35. The wireless device of claim 34, wherein the processor is configured to create the hash of the SSID by computing the hash of the SSID using a hashing algorithm with parameters available to all devices on the wireless network.

36. The wireless device of claim 31, wherein the compressed beacon comprises: a frame control field; a source address; a timestamp; a change sequence; and the shortened network identifier.

37. The wireless device of claim 36, wherein the frame control field comprises 2 bytes, the source address comprises 5 bytes, the timestamp comprises 4 bytes, the change sequence comprises 1 byte, the shortened network identifier comprises 4 bytes, and the CRC field comprises 4 bytes.

38. The wireless device of claim 36, wherein the source address comprises a basic service set identification (BSSID) of an access point.

39. The wireless device of claim 36, wherein the timestamp comprises a shortened timestamp comprising fewer bits than a full timestamp.

40. The wireless device of claim 39, wherein the timestamp comprises a one or more least significant bits of the full timestamp.

41. The wireless device of claim 36, wherein the processor is further configured to change the change sequence when an access point or network configuration changes or when there is a change in the content of a full beacon.

42. The wireless device of claim 36, wherein the frame control field comprises a version field, a type field, a subtype field, a next full beacon time indication (NFBTI) present field, a service set identifier (SSID) present field, an internetworking present field, a bandwidth field, a security field, and one or more reserved bits.

43. The wireless device of claim 42, wherein the version field comprises 2 bits, the type field comprises 2 bits, the subtype field comprises 4 bits, the NFBTI present field comprises 1 bit, the SSID present field comprises 1 bit, the internetworking present field comprises 1 bit, the bandwidth field comprises 3 bits, the security field comprises 1 bit, and the one or more reserved bits comprise 1 bit.

44. The wireless device of claim 42, wherein type field comprises a value of "11" and the subtype field comprises a value of "0001," indicating that the beacon is a compressed beacon.

45. The wireless device of claim 36, wherein the compressed beacon further comprises a compressed capability information field.

46. A wireless device, associated with a wireless network having a network identifier, comprising: a receiver configured to receive a compressed beacon comprising a shortened network field identifier and a CRC field, the CRC field allowing identification of transmission errors in the compressed beacon, the shortened network identifier field comprising a received shortened network identifier, wherein the CRC field is different than the shortened network identifier field; a processor configured to: create an expected shortened network identifier based on the network identifier of the network associated with the wireless device, wherein the expected shortened network identifier is created by computing another cyclic redundancy check (CRC) on the network identifier; compare the expected shortened network identifier to the received shortened network identifier; discard the compressed beacon when the expected shortened network identifier does not match the received shortened network identifier; and process the compressed beacon when the expected shortened network identifier matches the received shortened network identifier, wherein the expected shortened network identifier is shorter than the network identifier.

47. The wireless device of claim 46, wherein the CRC on the network identifier comprises a 4-byte CRC.

48. The wireless device of claim 46, wherein the CRC on the network identifier comprises a same generator polynomial used to compute an 802.11 frame check for the compressed beacon, and wherein the CRC field includes the 802.11 frame check.

49. The wireless device of claim 46, wherein the processor is configured to create a second expected shortened network identifier by creating a hash of a service set identifier (SSID).

50. The wireless device of claim 49, wherein the processor is configured to create the hash of the SSID by computing the hash of the SSID using a hashing algorithm with parameters available to all devices on the wireless network.

51. The wireless device of claim 46, wherein the compressed beacon comprises: a frame control field; a source address; a timestamp; a change sequence; and the shortened network identifier.

52. The wireless device of claim 51, wherein the frame control field comprises 2 bytes, the source address comprises 5 bytes, the timestamp comprises 4 bytes, the change sequence comprises 1 byte, the shortened network identifier comprises 4 bytes, and the CRC field comprises 4 bytes.

53. The wireless device of claim 51, wherein the source address comprises a basic service set identification (BSSID) of an access point.

54. The wireless device of claim 51, wherein the timestamp comprises a shortened timestamp comprising fewer bits than a full timestamp.

55. The wireless device of claim 54, wherein the timestamp comprises a one or more least significant bits of the full timestamp.

56. The wireless device of claim 51, wherein: the processor is further configured to detect a change in the change sequence; the device further comprises a transmitter configured to transmit a probe request when a change in the change sequence is detected; and the receiver is further configured to receive a probe response in response to the probe request.

57. The wireless device of claim 51, wherein the frame control field comprises a version field, a type field, a subtype field, a next full beacon time indication (NFBTI) present field, a service set identifier (SSID) present field, an internetworking present field, a bandwidth field, a security field, and one or more reserved bits.

58. The wireless device of claim 57, wherein the version field comprises 2 bits, the type field comprises 2 bits, the subtype field comprises 4 bits, the NFBTI present field comprises 1 bit, the SSID present field comprises 1 bit, the internetworking present field comprises 1 bit, the bandwidth field comprises 3 bits, the security field comprises 1 bit, and the one or more reserved bits comprise 1 bit.

59. The wireless device of claim 51, wherein type field comprises a value of "11" and the subtype field comprises a value of "0001," indicating that the beacon is a compressed beacon.

60. The wireless device of claim 51, wherein the compressed beacon further comprises a compressed capability information field.