

Amended Set of Claims 1 to 112

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;
generating a compressed beacon comprising the shortened network identifier; and
transmitting, at an access point, the compressed beacon,
wherein the compressed beacon comprises a shortened timestamp comprising fewer bits than a full timestamp.
2. The method of Claim 1, wherein the shortened network identifier comprises a 4-byte cyclic redundancy check (CRC) computed on the full network identifier.
3. The method of Claim 2, wherein the CRC comprises the same generator polynomial used to compute an 802.11 frame check for the compressed beacon.
4. The method of Claim 1, wherein creating the shortened network identifier comprises 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 further comprises:
a frame control field;
a source address;
a change sequence;
the shortened network identifier; and
a frame check.

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 frame check 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 one or more least significant bits of the full timestamp.

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

11. 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.

12. The method of Claim 11, 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 flag 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.

13. The method of Claim 11, 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.

14. The method of Claim 6, wherein the compressed beacon further

comprises a compressed capability information field.

15. 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;
 - creating an expected shortened network identifier based on the network identifier of the network associated with the wireless device;
 - 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, and
- wherein the compressed beacon comprises a shortened timestamp comprising fewer bits than a full timestamp.

16. The method of Claim 15, wherein the expected shortened network identifier comprises a 4-byte cyclic redundancy check (CRC) computed on the full network identifier.

17. The method of Claim 16, wherein the CRC comprises the same generator polynomial used to compute an 802.11 frame check for the compressed beacon.

18. The method of Claim 15, wherein creating the expected shortened network identifier comprises creating a hash of a service set identifier (SSID).

19. The method of Claim 18, 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.

20. The method of Claim 15, wherein the compressed beacon further comprises:

- a frame control field;
- a source address;
- a change sequence;
- the shortened network identifier; and
- a frame check.

21. The method of Claim 20, 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 frame check comprises 4 bytes.

22. The method of Claim 20, wherein the source address comprises a basic service set identification (BSSID) of the access point.

23. The method of Claim Error! Reference source not found., wherein the timestamp comprises a one or more least significant bits of the full timestamp.

24. The method of Claim 20, 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.

25. The method of Claim 20, wherein the frame control field comprises a version field, a type field, a subtype field, a next full beacon time indication (NTBTI) 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.

26. The method of Claim 20, 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 flag 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.

27. The method of Claim 20, 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.

28. The method of Claim 20, wherein the compressed beacon further comprises a compressed capability information field.

29. 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; and

generate a compressed beacon comprising the shortened network identifier; and

a transmitter configured to transmit the compressed beacon,

wherein the compressed beacon comprises a shortened timestamp comprising fewer bits than a full timestamp.

30. The wireless device of Claim 29, wherein the shortened network identifier comprises a 4-byte cyclic redundancy check (CRC) computed on the full network identifier.

31. The wireless device of Claim 30, wherein the CRC comprises the same generator polynomial used to compute an 802.11 frame check for the compressed beacon.

32. The wireless device of Claim 29, wherein the processor is configured to

create the shortened network identifier by creating a hash of a service set identifier (SSID).

33. The wireless device of Claim 32, wherein the processor is configured to create 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.

34. The wireless device of Claim 29, wherein the compressed beacon further comprises:

- a frame control field;
- a source address;
- a change sequence;
- the shortened network identifier; and
- a frame check.

35. The wireless device of Claim 34, 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 frame check comprises 4 bytes.

36. The wireless device of Claim 34, wherein the source address comprises a basic service set identification (BSSID) of the access point.

37. The wireless device of Claim Error! Reference source not found., wherein the timestamp comprises a one or more least significant bits of the full timestamp.

38. The wireless device of Claim 34, wherein the processor is further configured to change the change sequence when an access point or network configuration changes or when there is a substantial change in the content of a full beacon.

39. The wireless device of Claim 34, 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.

40. The wireless device of Claim 39, 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 flag 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.

41. The wireless device of Claim 39, 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.

42. The wireless device of Claim 34, wherein the compressed beacon further comprises a compressed capability information field.

43. 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 identifier;

- a processor configured to:

- create an expected shortened network identifier based on the network identifier of the network associated with the wireless device;

- 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, and

wherein the compressed beacon comprises a shortened timestamp comprising fewer bits than a full timestamp.

44. The wireless device of Claim 43, wherein the expected shortened network identifier comprises a 4-byte cyclic redundancy check (CRC) computed on the full network identifier.

45. The wireless device of Claim 44, wherein the CRC comprises the same generator polynomial used to compute an 802.11 frame check for the compressed beacon.

46. The wireless device of Claim 43, wherein the processor is configured to create the expected shortened network identifier by creating a hash of a service set identifier (SSID).

47. The wireless device of Claim 46, 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.

48. The wireless device of Claim 43, wherein the compressed beacon further comprises:

- a frame control field;
- a source address;
- a change sequence;
- the shortened network identifier; and
- a frame check.

49. The wireless device of Claim 48, 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 frame check comprises 4 bytes.

50. The wireless device of Claim 48, wherein the source address comprises a basic service set identification (BSSID) of the access point.

51. The wireless device of Claim ~~Error! Reference source not found.~~, wherein the timestamp comprises a one or more least significant bits of the full timestamp.

52. The wireless device of Claim 48, 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.

53. The wireless device of Claim 48, 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.

54. The wireless device of Claim 48, 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 flag 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.

55. The wireless device of Claim 48, 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.

56. The wireless device of Claim 48, wherein the compressed beacon further comprises a compressed capability information field.

57. An apparatus for communicating in a wireless network, comprising:
means for 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;
means for generating a compressed beacon comprising the shortened network identifier; and
means for transmitting the compressed beacon,
wherein the compressed beacon comprises a shortened timestamp comprising fewer bits than a full timestamp.

58. The apparatus of Claim 57, wherein the shortened network identifier comprises a 4-byte cyclic redundancy check (CRC) computed on the full network identifier.

59. The apparatus of Claim 58, wherein the CRC comprises the same generator polynomial used to compute an 802.11 frame check for the compressed beacon.

60. The apparatus of Claim 57, wherein means for creating the shortened network identifier comprises means for creating a hash of a service set identifier (SSID).

61. The apparatus of Claim 60, wherein means for creating the hash of the SSID comprises means for computing the hash of the SSID using a hashing algorithm with parameters available to all devices on the wireless network.

62. The apparatus of Claim 57, wherein the compressed beacon further comprises:

a frame control field;

a source address;

a change sequence;
the shortened network identifier; and
a frame check.

63. The apparatus of Claim 62, 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 frame check comprises 4 bytes.

64. The apparatus of Claim 62, wherein the source address comprises a basic service set identification (BSSID) of the access point.

65. The apparatus of Claim Error! Reference source not found., wherein the timestamp comprises a one or more least significant bits of the full timestamp.

66. The apparatus of Claim 62, further comprising means for changing the change sequence when an access point or network configuration changes or when there is a substantial change in the content of a full beacon.

67. The apparatus of Claim 62, 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.

68. The apparatus of Claim 67, 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 flag 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.

69. The apparatus of Claim 67, 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.

70. The apparatus of Claim 62, wherein the compressed beacon further comprises a compressed capability information field.

71. An apparatus for communicating in a wireless network, associated with a network having a network identifier, comprising:

means for receiving a compressed beacon comprising a shortened network identifier;

means for creating an expected shortened network identifier based on the network identifier of the network associated with the wireless device;

means for comparing the expected shortened network identifier to the received shortened network identifier;

means for discarding the compressed beacon when the expected shortened network identifier does not match the received shortened network identifier; and

means for 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, and

wherein the compressed beacon comprises a shortened timestamp comprising fewer bits than a full timestamp.

72. The apparatus of Claim 71, wherein the expected shortened network identifier comprises a 4-byte cyclic redundancy check (CRC) computed on the full network identifier.

73. The apparatus of Claim 72, wherein the CRC comprises the same generator polynomial used to compute an 802.11 frame check for the compressed beacon.

74. The apparatus of Claim 71, wherein means for creating the expected

shortened network identifier comprises means for creating a hash of a service set identifier (SSID).

75. The apparatus of Claim 74, wherein means for creating the hash of the SSID comprises means for computing the hash of the SSID using a hashing algorithm with parameters available to all devices on the wireless network.

76. The apparatus of Claim 71, wherein the compressed beacon further comprises:

- a frame control field;
- a source address;
- a change sequence;
- the shortened network identifier; and
- a frame check.

77. The apparatus of Claim 76, 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 frame check comprises 4 bytes.

78. The apparatus of Claim 76, wherein the source address comprises a basic service set identification (BSSID) of the access point.

79. The apparatus of Claim **Error! Reference source not found.**, wherein the timestamp comprises a one or more least significant bits of the full timestamp.

80. The apparatus of Claim 76, further comprising:
means for detecting a change in the change sequence;
means for transmitting a probe request when a change in the change sequence is detected; and

means for receiving a probe response in response to the probe request.

81. The apparatus of Claim 76, 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.

82. The apparatus of Claim 76, 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 flag 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.

83. The apparatus of Claim 76, 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.

84. The apparatus of Claim 76, wherein the compressed beacon further comprises a compressed capability information field.

85. A non-transitory computer-readable medium comprising code that, when executed, causes an apparatus 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;

- generate a compressed beacon comprising the shortened network identifier; and

- transmit the compressed beacon,

- wherein the compressed beacon comprises a shortened timestamp comprising fewer bits than a full timestamp.

86. The medium of Claim 85, wherein the shortened network identifier comprises a 4-byte cyclic redundancy check (CRC) computed on the full network identifier.

87. The medium of Claim 86, wherein the CRC comprises the same generator polynomial used to compute an 802.11 frame check for the compressed beacon.

88. The medium of Claim 85, wherein creating the shortened network identifier comprises creating a hash of a service set identifier (SSID).

89. The medium of Claim 88, 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.

90. The medium of Claim 86, wherein the compressed beacon further comprises:

- a frame control field;
- a source address;
- a change sequence;
- the shortened network identifier; and
- a frame check.

91. The medium of Claim 90, 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 frame check comprises 4 bytes.

92. The medium of Claim 90, wherein the source address comprises a basic service set identification (BSSID) of the access point.

93. The medium of Claim **Error! Reference source not found.**, wherein the timestamp comprises a one or more least significant bits of the full timestamp.

94. The medium of Claim 90, further comprising code that, when executed, causes the apparatus to change the change sequence when an access point or network configuration changes or when there is a substantial change in the content of a full beacon.

95. The medium of Claim 90, 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.

96. The medium of Claim 95, 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 flag 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.

97. The medium of Claim 95, 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.

98. The medium of Claim 90, wherein the compressed beacon further comprises a compressed capability information field.

99. A non-transitory computer readable medium comprising code that, when executed, causes an apparatus, associated with a network having a network identifier, to:

- receive a compressed beacon comprising a shortened network identifier;
- create an expected shortened network identifier based on the network identifier of the network associated with the wireless device;
- 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, and

wherein the compressed beacon comprises a shortened timestamp comprising fewer bits than a full timestamp.

100. The medium of Claim 99, wherein the expected shortened network identifier comprises a 4-byte cyclic redundancy check (CRC) computed on the full network identifier.

101. The medium of Claim 100, wherein the CRC comprises the same generator polynomial used to compute an 802.11 frame check for the compressed beacon.

102. The medium of Claim 99, wherein creating the expected shortened network identifier comprises creating a hash of a service set identifier (SSID).

103. The medium of Claim 102, 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.

104. The medium of Claim 99, wherein the compressed beacon further comprises:

- a frame control field;
- a source address;
- a change sequence;
- the shortened network identifier; and
- a frame check.

105. The medium of Claim 104, 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 frame check comprises 4 bytes.

106. The medium of Claim 104, wherein the source address comprises a basic service set identification (BSSID) of the access point.

107. The medium of Claim Error! Reference source not found., wherein the timestamp comprises a one or more least significant bits of the full timestamp.

108. The medium of Claim 104, further comprising code that, when executed, causes the apparatus to:

- detect a change in the change sequence;
- transmit a probe request when a change in the change sequence is detected; and
- receive a probe response in response to the probe request.

109. The medium of Claim 104, 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.

110. The medium of Claim 104, 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 flag 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.

111. The medium of Claim 104, 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.

112. The medium of Claim 104, wherein the compressed beacon further

comprises a compressed capability information field.

CLAIMS

1. An invention not claimed in any divisional application.