WHAT IS CLAIMED IS:

1. **(Amended)** A method of wireless communication performed by an apparatus, the method comprising:

transmitting a discovery packet during a first discovery interval of a plurality of discovery intervals, the discovery packet advertising a service provided in a wireless communications network, the plurality of discovery intervals comprising recurring time intervals when a plurality of devices are configured to transmit and receive discovery packets, each of the plurality of discovery intervals beginning with a discovery interval start packet configured to indicate a start of the discovery interval; and

receiving a paging packet from a first device during a first paging interval of a plurality of paging intervals, the paging packet indicating interest in the service, the plurality of paging intervals comprising recurring time intervals when the plurality of devices are configured to transmit and receive paging packets, the plurality of paging intervals not overlapping the plurality of discovery intervals.

2. The method of claim 1, wherein the discovery packet is configured to advertise a first service provided by the apparatus, and the paging packet is configured to indicate interest in the first service provided by the apparatus.

3. The method of claim 2, further comprising:

determining when to transmit the discovery packet based on contention for a wireless communication medium; and

delaying the contention until after a delay period determined based at least in part on a random value.

4. The method of claim 2, wherein the apparatus is configured to enter a power save mode at times other than the plurality of discovery intervals and the plurality of paging intervals unless the apparatus is scheduled to communicate at times other than the plurality of discovery intervals and the plurality of paging intervals.

5. The method of claim 2, wherein said transmitting the discovery packet during the first discovery interval comprises transmitting the discovery packet during a first sub-interval of a plurality of sub-intervals of the first discovery interval, each sub-interval being of a same duration that is known by the plurality of devices.

6. The method of claim 5, further comprising determining the first sub-interval based on contention for a wireless communication medium.

7. The method of claim 5, further comprising determining the first sub-interval based on a scheduled sub-interval received from another device.

8. The method of claim 2, wherein said receiving the paging packet from the first device during the first paging interval comprises receiving the paging packet during a scheduled sub-interval of a plurality of sub-intervals of the first paging interval, each sub-interval being of a same duration that is known by the plurality of devices.

9. The method of claim 2, wherein the discovery packets transmitted during the plurality of discovery intervals have a fixed size and comprise at least one of a data frame, a management frame, and a management action frame.

10. The method of claim 9, wherein the discovery packets transmitted during the plurality of discovery intervals comprise a timestamp field configured to enable the plurality of devices to synchronize clocks.

11. The method of claim 9, wherein the discovery packets transmitted during the plurality of discovery intervals include discovery information generated by a higher layer discovery protocol or an application-based discovery protocol.

12. The method of claim 2, wherein the paging packets transmitted during the plurality of paging intervals have a fixed size and comprise a source address field and a recipient address field.

13. The method of claim 2, wherein a wireless communication medium is cleared of transmissions other than discovery packets during the plurality of discovery intervals, and the wireless communication medium is cleared of transmissions other than paging packets during the plurality of paging intervals.

14. **(Amended)** The method of claim 13, further comprising transmitting a first discovery interval start packet indicating the start of the first discovery interval and comprising a clear to send frame to clear the wireless communication medium of transmissions other than discovery packets during the first discovery interval ~~and indicate a start of the first discovery interval~~.

15. The method of claim 1, further comprising:

receiving a registration packet from a second device, the registration packet configured to enable the apparatus to transmit the discovery packet, the

discovery packet configured to advertise a first service provided by the second device; and

transmitting a notification packet configured to enable the first device and the second device to communicate directly,

wherein the paging packet is configured to indicate interest in the first service provided by the second device.

16. (Amended) The method of claim 15, further comprising ~~: transmitting a power save message configured to instruct the first device to enter a power save mode; and~~ transmitting an awaken message configured to instruct the ~~first~~ second device to leave a power-save mode, the awaken message comprising a traffic indication message.

17. (Amended) The method of claim 15, wherein said transmitting the notification packet comprises transmitting the notification packet to the ~~first~~ second device.

18. (Amended) The method of claim 17, wherein the notification packet comprises a page forward frame configured to forward the paging packet received from the ~~second~~ first device.

19. (Amended) The method of claim 15, wherein said transmitting the notification packet comprises transmitting the notification packet to the ~~second~~ first device.

20. (Amended) A method of discovering devices in a wireless communication system performed by an apparatus, the method comprising:

receiving a discovery packet from a first device during a first discovery interval of a plurality of discovery intervals, the discovery packet advertising a service provided by the first device in a wireless communications network, the plurality of discovery intervals comprising recurring time intervals when a plurality of devices are configured to transmit and receive discovery packets, each of the plurality of discovery intervals beginning with a discovery interval start packet configured to indicate a start of the discovery interval; and

transmitting a paging packet to the first device during a first paging interval of a plurality of paging intervals, the paging packet indicating interest in the service provided by the first device, the plurality of paging intervals comprising recurring time intervals when the plurality of devices are configured

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to transmit and receive paging packets, the plurality of paging intervals not overlapping the plurality of discovery intervals.

21. The method of claim 20, further comprising:

determining when to transmit the paging packet based on contention for a wireless communication medium; and

delaying the contention until after a delay time determined based at least in part on a random value.

22. The method of claim 20, wherein the apparatus is configured to enter a power-save mode at times other than the plurality of discovery intervals and the plurality of paging intervals unless the apparatus is scheduled to communicate at times other than the plurality of discovery intervals and the plurality of paging intervals.

23. The method of claim 20, wherein said receiving the discovery packet during the first discovery interval comprises receiving the discovery packet during a first scheduled sub-interval of a plurality of sub-intervals of the first discovery interval, each sub-interval being of a same time duration that is known by the plurality of devices.

24. The method of claim 20, wherein said transmitting the paging packet to the first device during the first paging interval comprises transmitting the paging packet during a first sub-interval of a plurality of sub-intervals of the first paging interval, each sub-interval being of a same time duration that is known by the plurality of devices.

25. The method of claim 24, further comprising determining the first sub-interval based on contention for a wireless communication medium.

26. The method of claim 24, further comprising determining the first sub-interval based on a scheduled sub-interval received from another device.

27. The method of claim 20, wherein the discovery packets transmitted during the plurality of discovery intervals have a fixed size and comprise at least one of a data frame, a management frame, and a management action frame.

28. The method of claim 20, wherein the discovery packet from the first device indicates a start of the first paging interval.

29. The method of claim 20, wherein the discovery packet includes discovery information generated by a higher layer discovery protocol or an application-based discovery protocol.

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30. The method of claim 20, wherein the paging packets transmitted during the plurality of paging intervals have a fixed size and comprise a source address field and a recipient address field.

31. The method of claim 20, wherein a wireless communication medium is cleared of transmissions other than discovery packets during the plurality of discovery intervals, and the wireless communication medium is cleared of transmissions other than paging packets during the plurality of paging intervals.

32. **(Amended)** An apparatus ~~operable~~ configured to operate in a wireless communication system comprising:

a transmitter configured to transmit a discovery packet during a first discovery interval of a plurality of discovery intervals, the discovery packet advertising a service provided in a wireless communications network, the plurality of discovery intervals comprising recurring time intervals when a plurality of devices are configured to transmit and receive discovery packets, each of the plurality of discovery intervals beginning with a discovery interval start packet configured to indicate a start of the discovery interval; and

a receiver configured to receive a paging packet from a first device during a first paging interval of a plurality of paging intervals, the paging packet indicating interest in the service, the plurality of paging intervals comprising recurring time intervals when the plurality of devices are configured to transmit and receive paging packets, the plurality of paging intervals not overlapping the plurality of discovery intervals.

33. The apparatus of claim 32, wherein the discovery packet is configured to advertise a first service provided by the apparatus, and the paging packet is configured to indicate interest in the first service provided by the apparatus.

34. The apparatus of claim 33, further comprising a processor configured to:

determine when to transmit the discovery packet based on contention for a wireless communication medium; and

delay the contention until after a delay period determined based at least in part on a random value.

35. The apparatus of claim 33, wherein the apparatus is configured to enter a power-save mode at times other than the plurality of discovery intervals and the plurality

of paging intervals unless the apparatus is scheduled to communicate at times other than the plurality of discovery intervals and the plurality of paging intervals.

36. The apparatus of claim 33, wherein the transmitter is configured to transmit the discovery packet during a first sub-interval of a plurality of sub-intervals of the first discovery interval, each sub-interval being of a same duration that is known by the plurality of devices.

37. The apparatus of claim 36, further comprising a processor configured to determine the first sub-interval based on contention for a wireless communication medium.

38. The apparatus of claim 36, further comprising a processor configured to determine the first sub-interval based on a scheduled sub-interval received from another device.

39. The apparatus of claim 33, wherein the receiver is configured to receive the paging packet during a scheduled sub-interval of a plurality of sub-intervals of the first paging interval, each sub-interval being of a same duration that is known by the plurality of devices.

40. The apparatus of claim 33, wherein the discovery packets transmitted during the plurality of discovery intervals have a fixed size and comprise at least one of a data frame, a management frame, and a management action frame.

41. The apparatus of claim 40, wherein the discovery packets transmitted during the plurality of discovery intervals comprise a timestamp field configured to enable the plurality of devices to synchronize clocks.

42. The apparatus of claim 40, wherein the discovery packets transmitted during the plurality of discovery intervals include discovery information generated by a higher layer discovery protocol or an application-based discovery protocol.

43. The apparatus of claim 33, wherein the paging packets transmitted during the plurality of paging intervals have a fixed size and comprise a source address field and a recipient address field.

44. **(Amended)** The apparatus of claim 33, wherein a wireless communication medium is ~~cleared~~ clear of transmissions other than discovery packets during the plurality of discovery intervals, and the wireless communication medium is ~~cleared~~ clear of transmissions other than paging packets during the plurality of paging intervals.

45. (Amended) The apparatus of claim 44, wherein the transmitter is further configured to transmit a first discovery interval packet indicating the start of the first discovery interval and comprising a clear to send frame to clear the wireless communication medium of transmissions other than discovery packets during the first discovery interval ~~and indicate a start of the first discovery interval~~.

46. The apparatus of claim 32, wherein

the receiver is further configured to receive a registration packet from a second device, the registration packet configured to enable the apparatus to transmit the discovery packet, the discovery packet configured to advertise a first service provided by the second device; and

the transmitter is further configured to transmit a notification packet configured to enable the first device and the second device to communicate directly,

wherein the paging packet is configured to indicate interest in the first service provided by the second device.

47. (Amended) The apparatus of claim 46, ~~further comprising: transmitting a power save message configured to instruct the first device to enter a power save mode; and transmitting~~ wherein the transmitter is further configured to transmit an awaken message configured to instruct the ~~first~~ second device to leave a power-save mode, the awaken message comprising a traffic indication message.

48. (Amended) The ~~method~~ apparatus of claim 46, wherein ~~said transmitting the notification packet comprises transmitting~~ the transmitter is further configured to transmit the notification packet to the ~~first~~ second device.

49. (Amended) The ~~method~~ apparatus of claim 48, wherein the notification packet comprises a page forward frame configured to forward the paging packet received from the ~~second~~ first device.

50. (Amended) The ~~method~~ apparatus of claim 46, wherein ~~said transmitting the notification packet comprises transmitting~~ the transmitter is further configured to transmit the notification packet to the ~~second~~ first device.

51. (Amended) An apparatus ~~operable~~ configured to operate in a wireless communication system comprising:

a receiver configured to receive a discovery packet from a first device during a first discovery interval of a plurality of discovery intervals, the

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discovery packet advertising a service provided by the first device in a wireless communications network, the plurality of discovery intervals comprising recurring time intervals when a plurality of devices are configured to transmit and receive discovery packets, each of the plurality of discovery intervals beginning with a discovery interval start packet configured to indicate a start of the discovery interval; and

a transmitter configured to transmit a paging packet to the first device during a first paging interval of a plurality of paging intervals, the paging packet indicating interest in the service provided by the first device, the plurality of paging intervals comprising recurring time intervals when the plurality of devices are configured to transmit and receive paging packets, the plurality of paging intervals not overlapping the plurality of discovery intervals.

52. The apparatus of claim 51, further comprising processor configured to:

determine when to transmit the paging packet based on contention for a wireless communication medium; and

delay the contention until after a delay time determined based at least in part on a random value.

53. The apparatus of claim 51, wherein the apparatus is configured to enter a power-save mode at times other than the plurality of discovery intervals and the plurality of paging intervals unless the apparatus is scheduled to communicate at times other than the plurality of discovery intervals and the plurality of paging intervals.

54. The apparatus of claim 51, wherein the receiver is configured to receive the discovery packet during a first scheduled sub-interval of a plurality of sub-intervals of the first discovery interval, each sub-interval being of a same time duration that is known by the plurality of devices.

55. The apparatus of claim 51, wherein the transmitter is configured to transmit the paging packet during a first sub-interval of a plurality of sub-intervals of the first paging interval, each sub-interval being of a same time duration that is known by the plurality of devices.

56. The apparatus of claim 55, further comprising a processor configured to determine the first sub-interval based on contention for a wireless communication medium.

57. The apparatus of claim 55, further comprising a processor configured to determine the first sub-interval based on a scheduled sub-interval received from another device.

58. The apparatus of claim 51, wherein the discovery packets transmitted during the plurality of discovery intervals have a fixed size and comprise at least one of a data frame, a management frame, and a management action frame.

59. The apparatus of claim 51, wherein the discovery packet from the first device indicates a start of the first paging interval.

60. The apparatus of claim 51, wherein the discovery packet includes discovery information generated by a higher layer discovery protocol or an application-based discovery protocol.

61. The apparatus of claim 51, wherein the paging packets transmitted during the plurality of paging intervals have a fixed size and comprise a source address field and a recipient address field.

62. **(Amended)** The apparatus of claim 51, wherein a wireless communication medium is ~~cleared~~ clear of transmissions other than discovery packets during the plurality of discovery intervals, and the wireless communication medium is ~~cleared~~ clear of transmissions other than paging packets during the plurality of paging intervals.

63. **(Amended)** An apparatus ~~operable~~ configured to operate in a wireless communication system comprising:

means for transmitting a discovery packet during a first discovery interval of a plurality of discovery intervals, the discovery packet advertising a service provided in a wireless communications network, the plurality of discovery intervals comprising recurring time intervals when a plurality of devices are configured to transmit and receive discovery packets, each of the plurality of discovery intervals beginning with a discovery interval start packet configured to indicate a start of the discovery interval; and

means for receiving a paging packet from a first device during a first paging interval of a plurality of paging intervals, the paging packet indicating interest in the service, the plurality of paging intervals comprising recurring time intervals when the plurality of devices are configured to transmit and receive

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paging packets, the plurality of paging intervals not overlapping the plurality of discovery intervals.

64. **(Amended)** An apparatus ~~operable~~ configured to operate in a wireless communication system comprising:

means for receiving a discovery packet from a first device during a first discovery interval of a plurality of discovery intervals, the discovery packet advertising a service provided by the first device in a wireless communications network, the plurality of discovery intervals comprising recurring time intervals when a plurality of devices are configured to transmit and receive discovery packets, each of the plurality of discovery intervals beginning with a discovery interval start packet configured to indicate a start of the discovery interval; and

means for transmitting a paging packet to the first device during a first paging interval of a plurality of paging intervals, the paging packet indicating interest in the service provided by the first device, the plurality of paging intervals comprising recurring time intervals when the plurality of devices are configured to transmit and receive paging packets, the plurality of paging intervals not overlapping the plurality of discovery intervals.

65. **(Amended)** A non-transitory computer-readable medium comprising instructions that when executed cause an apparatus to:

transmit a discovery packet during a first discovery interval of a plurality of discovery intervals, the discovery packet advertising a service provided in a wireless communications network, the plurality of discovery intervals comprising recurring time intervals when a plurality of devices are configured to transmit and receive discovery packets, each of the plurality of discovery intervals beginning with a discovery interval start packet configured to indicate a start of the discovery interval; and

receive a paging packet from a first device during a first paging interval of a plurality of paging intervals, the paging packet indicating interest in the service, the plurality of paging intervals comprising recurring time intervals when the plurality of devices are configured to transmit and receive paging packets, the plurality of paging intervals not overlapping the plurality of discovery intervals.

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66. **(Amended)** A non-transitory computer-readable medium comprising instructions that when executed cause an apparatus to:

receive a discovery packet from a first device during a first discovery interval of a plurality of discovery intervals, the discovery packet advertising a service provided by the first device in a wireless communications network, the plurality of discovery intervals comprising recurring time intervals when a plurality of devices are configured to transmit and receive discovery packets, each of the plurality of discovery intervals beginning with a discovery interval start packet configured to indicate a start of the discovery interval; and

transmit a paging packet to the first device during a first paging interval of a plurality of paging intervals, the paging packet indicating interest in the service provided by the first device, the plurality of paging intervals comprising recurring time intervals when the plurality of devices are configured to transmit and receive paging packets, the plurality of paging intervals not overlapping the plurality of discovery intervals.

CLAIMS

1. A method of wireless communication performed by an apparatus, the method comprising:

receiving an indication of a first start time for a first discovery interval of a plurality of discovery intervals, a first duration for the first discovery interval, a second start time for a first paging interval of a plurality of paging intervals, and a second duration for the first paging interval;

transmitting a discovery packet during the first discovery interval of the plurality of discovery intervals, the discovery packet advertising a service provided in a wireless communications network, the plurality of discovery intervals comprising recurring time intervals when a plurality of devices are configured to transmit and receive discovery packets, the plurality of devices being aware of the first start time and the first duration; and

receiving a paging packet from a first device during a first paging interval of a plurality of paging intervals, the paging packet indicating interest in the service, the plurality of paging intervals comprising recurring time intervals when the plurality of devices are configured to transmit and receive paging packets, the plurality of

devices being aware of the second start time and the second duration, the plurality of paging intervals not overlapping the plurality of discovery intervals.

2. The method of claim **1**, wherein the discovery packet is configured to advertise a first service provided by the apparatus, and the paging packet is configured to indicate interest in the first service provided by the apparatus.

3. The method of claim **2**, further comprising:

determining when to transmit the discovery packet based on contention for a wireless communication medium; and

delaying the contention until after a delay period determined based at least in part on a random value.

4. The method of claim **2**, wherein the apparatus is configured to enter a power-save mode at times other than the plurality of discovery intervals and the plurality of paging intervals unless the apparatus is scheduled to communicate at times other than the plurality of discovery intervals and the plurality of paging intervals.

5. The method of claim **2**, wherein said transmitting the discovery packet during the first discovery interval comprises transmitting the discovery packet during a first sub-interval of a plurality of sub-intervals of the first discovery interval, each sub-interval being of a same duration that is known by the plurality of devices.

6. The method of claim **5**, further comprising determining the first sub-interval based on contention for a wireless communication medium.

7. The method of claim **5**, further comprising determining the first sub-interval based on a scheduled sub-interval received from another device.

8. The method of claim **2**, wherein said receiving the paging packet from the first device during the first paging interval comprises receiving the paging packet during a scheduled

sub-interval of a plurality of sub-intervals of the first paging interval, each sub-interval being of a same duration that is known by the plurality of devices.

9. The method of claim **2**, wherein the discovery packets transmitted during the plurality of discovery intervals have a fixed size and comprise at least one of a data frame, a management frame, and a management action frame.

10. The method of claim **9**, wherein the discovery packets transmitted during the plurality of discovery intervals comprise a timestamp field configured to enable the plurality of devices to synchronize clocks.

11. The method of claim **2**, wherein the discovery packets transmitted during the plurality of discovery intervals include discovery information generated by a higher layer discovery protocol or an application-based discovery protocol.

12. The method of claim **2**, wherein the paging packets transmitted during the plurality of paging intervals have a fixed size and comprise a source address field and a recipient address field.

13. The method of claim **2**, wherein a wireless communication medium is cleared of transmissions other than discovery packets during the plurality of discovery intervals, and the wireless communication medium is cleared of transmissions other than paging packets during the plurality of paging intervals.

14. The method of claim **13**, further comprising transmitting a packet comprising a clear to send frame to clear the wireless communication medium of transmissions other than discovery packets during the first discovery interval and indicate a start of the first discovery interval.

15. The method of claim **1**, further comprising:

receiving a registration packet from a second device, the registration packet configured to enable the apparatus to

transmit the discovery packet, the discovery packet configured to advertise a first service provided by the second device; and

transmitting a notification packet configured to enable the first device and the second device to communicate directly,

wherein the paging packet is configured to indicate interest in the first service provided by the second device.

16. The method of claim **15**, further comprising:

transmitting a power-save message configured to instruct the first device to enter a power-save mode; and

transmitting an awaken message configured to instruct the first device to leave a power-save mode, the awaken message comprising a traffic indication message.

17. The method of claim **15**, wherein said transmitting the notification packet comprises transmitting the notification packet to the first device.

18. The method of claim **17**, wherein the notification packet comprises a page forward frame configured to forward the paging packet received from the second device.

19. The method of claim **15**, wherein said transmitting the notification packet comprises transmitting the notification packet to the second device.

20. A method of discovering devices in a wireless communication system performed by an apparatus, the method comprising:

receiving an indication of a first start time for a first discovery interval of a plurality of discovery intervals, a first duration for the first discovery interval, a second start time for a first paging interval of a plurality of paging intervals, and a second duration for the first paging interval;

receiving a discovery packet from a first device during the first discovery interval of the plurality of discovery intervals, the discovery packet advertising a service provided by the first device in a wireless communications network, the plurality of discovery intervals comprising recurring time intervals when a plurality of devices are configured to transmit and receive discovery packets, the plurality of devices being aware of the first start time and the first duration; and

transmitting a paging packet to the first device during a first paging interval of a plurality of paging intervals, the paging packet indicating interest in the service provided by the first device, the plurality of paging intervals comprising recurring time intervals when the plurality of devices are configured to transmit and receive paging packets, the plurality of devices being aware of the second start time and the second duration, the plurality of paging intervals not overlapping the plurality of discovery intervals.

21. The method of claim **20**, further comprising:

determining when to transmit the paging packet based on contention for a wireless communication medium; and

delaying the contention until after a delay time determined based at least in part on a random value.

22. The method of claim **20**, wherein the apparatus is configured to enter a power-save mode at times other than the plurality of discovery intervals and the plurality of paging intervals unless the apparatus is scheduled to communicate at times other than the plurality of discovery intervals and the plurality of paging intervals.

23. The method of claim **20**, wherein said receiving the discovery packet during the first discovery interval comprises receiving the discovery packet during a first scheduled sub-interval of a plurality of sub-intervals of the first discovery

interval, each sub-interval being of a same time duration that is known by the plurality of devices.

24. The method of claim **20**, wherein said transmitting the paging packet to the first device during the first paging interval comprises transmitting the paging packet during a first sub-interval of a plurality of sub-intervals of the first paging interval, each sub-interval being of a same time duration that is known by the plurality of devices.

25. The method of claim **24**, further comprising determining the first sub-interval based on contention for a wireless communication medium.

26. The method of claim **24**, further comprising determining the first sub-interval based on a scheduled sub-interval received from another device.

27. The method of claim **20**, wherein the discovery packets transmitted during the plurality of discovery intervals have a fixed size and comprise at least one of a data frame, a management frame, and a management action frame.

28. The method of claim **20**, wherein the discovery packet from the first device indicates a start of the first paging interval.

29. The method of claim **20**, wherein the discovery packet includes discovery information generated by a higher layer discovery protocol or an application-based discovery protocol.

30. The method of claim **20**, wherein the paging packets transmitted during the plurality of paging intervals have a fixed size and comprise a source address field and a recipient address field.

31. The method of claim **20**, wherein a wireless communication medium is cleared of transmissions other than discovery packets during the plurality of discovery intervals, and

the wireless communication medium is cleared of transmissions other than paging packets during the plurality of paging intervals.

32. An apparatus operable in a wireless communication system comprising:

a transmitter configured to transmit a discovery packet during a first discovery interval of a plurality of discovery intervals, the discovery packet advertising a service provided in a wireless communications network, the plurality of discovery intervals comprising recurring time intervals when a plurality of devices are configured to transmit and receive discovery packets, the plurality of devices being aware of a first start time for the first discovery interval and a first duration for the first discovery interval; and

a receiver configured to receive an indication of the first start time, the first duration, a second start time for the first paging interval, and a second duration for the first paging interval, and receive a paging packet from a first device during a first paging interval of a plurality of paging intervals, the paging packet indicating interest in the service, the plurality of paging intervals comprising recurring time intervals when the plurality of devices are configured to transmit and receive paging packets, the plurality of devices being aware of a second start time for the first paging interval and a second duration for the first paging interval, the plurality of paging intervals not overlapping the plurality of discovery intervals.

33. The apparatus of claim **32**, wherein the discovery packet is configured to advertise a first service provided by the apparatus, and the paging packet is configured to indicate interest in the first service provided by the apparatus.

34. The apparatus of claim **33**, further comprising a processor configured to:

determine when to transmit the discovery packet based on contention for a wireless communication medium; and

delay the contention until after a delay period determined based at least in part on a random value.

35. The apparatus of claim **33**, wherein the apparatus is configured to enter a power-save mode at times other than the plurality of discovery intervals and the plurality of paging intervals unless the apparatus is scheduled to communicate at times other than the plurality of discovery intervals and the plurality of paging intervals.

36. The apparatus of claim **33**, wherein the transmitter is configured to transmit the discovery packet during a first sub-interval of a plurality of sub-intervals of the first discovery interval, each sub-interval being of a same duration that is known by the plurality of devices.

37. The apparatus of claim **36**, further comprising a processor configured to determine the first sub-interval based on contention for a wireless communication medium.

38. The apparatus of claim **36**, further comprising a processor configured to determine the first sub-interval based on a scheduled sub-interval received from another device.

39. The apparatus of claim **33**, wherein the receiver is configured to receive the paging packet during a scheduled sub-interval of a plurality of sub-intervals of the first paging interval, each sub-interval being of a same duration that is known by the plurality of devices.

40. The apparatus of claim **33**, wherein the discovery packets transmitted during the plurality of discovery intervals have a fixed size and comprise at least one of a data frame, a management frame, and a management action frame.

41. The apparatus of claim **40**, wherein the discovery packets transmitted during the plurality of discovery intervals comprise a timestamp field configured to enable the plurality of devices to synchronize clocks.

42. The apparatus of claim **40**, wherein the discovery packets transmitted during the plurality of discovery intervals include discovery information generated by a higher layer discovery protocol or an application-based discovery protocol.

43. The apparatus of claim **33**, wherein the paging packets transmitted during the plurality of paging intervals have a fixed size and comprise a source address field and a recipient address field.

44. The apparatus of claim **33**, wherein a wireless communication medium is cleared of transmissions other than discovery packets during the plurality of discovery intervals, and the wireless communication medium is cleared of transmissions other than paging packets during the plurality of paging intervals.

45. The apparatus of claim **44**, wherein the transmitter is further configured to transmit a packet comprising a clear to send frame to clear the wireless communication medium of transmissions other than discovery packets during the first discovery interval and indicate a start of the first discovery interval.

46. The apparatus of claim **32**, wherein

the receiver is further configured to receive a registration packet from a second device, the registration packet configured to enable the apparatus to transmit the discovery packet, the discovery packet configured to advertise a first service provided by the second device; and

the transmitter is further configured to transmit a notification packet configured to enable the first device and the second device to communicate directly,

wherein the paging packet is configured to indicate interest in the first service provided by the second device.

47. The apparatus of claim **46**, further comprising:

transmitting a power-save message configured to instruct the first device to enter a power-save mode; and

transmitting an awaken message configured to instruct the first device to leave a power-save mode, the awaken message comprising a traffic indication message.

48. The method of claim **46**, wherein said transmitting the notification packet comprises transmitting the notification packet to the first device.

49. The method of claim **48**, wherein the notification packet comprises a page forward frame configured to forward the paging packet received from the second device.

50. The method of claim **46**, wherein said transmitting the notification packet comprises transmitting the notification packet to the second device.

51. An apparatus operable in a wireless communication system comprising:

a receiver configured to receive an indication of a first start time for a first discovery interval of a plurality of discovery intervals, a first duration for the first discovery interval, a second start time for a first paging interval of a plurality of paging intervals, and a second duration for the first paging interval, and receive a discovery packet from a first device during the first discovery interval of the plurality of discovery intervals, the discovery packet advertising a service provided by the first device in a wireless communications network, the plurality of discovery intervals comprising recurring time intervals when a plurality of devices are configured to transmit and receive discovery packets, the plurality of devices being aware of the first start time and the first duration; and

a transmitter configured to transmit a paging packet to the first device during a first paging interval of a plurality of paging intervals, the paging packet indicating interest in the service provided by the first device, the plurality of paging intervals comprising recurring time intervals when the plurality of devices are configured to transmit and receive paging packets, the plurality of devices being aware of the second start time and the second duration, the plurality of paging intervals not overlapping the plurality of discovery intervals.

52. The apparatus of claim **51**, further comprising processor configured to:

determine when to transmit the paging packet based on contention for a wireless communication medium; and

delay the contention until after a delay time determined based at least in part on a random value.

53. The apparatus of claim **51**, wherein the apparatus is configured to enter a power-save mode at times other than the plurality of discovery intervals and the plurality of paging intervals unless the apparatus is scheduled to communicate at times other than the plurality of discovery intervals and the plurality of paging intervals.

54. The apparatus of claim **51**, wherein the receiver is configured to receive the discovery packet during a first scheduled sub-interval of a plurality of sub-intervals of the first discovery interval, each sub-interval being of a same time duration that is known by the plurality of devices.

55. The apparatus of claim **51**, wherein the transmitter is configured to transmit the paging packet during a first sub-interval of a plurality of sub-intervals of the first paging interval, each sub-interval being of a same time duration that is known by the plurality of devices.

56. The apparatus of claim **55**, further comprising a processor configured to determine the first sub-interval based on contention for a wireless communication medium.

57. The apparatus of claim **55**, further comprising a processor configured to determine the first sub-interval based on a scheduled sub-interval received from another device.

58. The apparatus of claim **51**, wherein the discovery packets transmitted during the plurality of discovery intervals have a fixed size and comprise at least one of a data frame, a management frame, and a management action frame.

59. The apparatus of claim **51**, wherein the discovery packet from the first device indicates a start of the first paging interval.

60. The apparatus of claim **51**, wherein the discovery packet includes discovery information generated by a higher layer discovery protocol or an application-based discovery protocol.

61. The apparatus of claim **51**, wherein the paging packets transmitted during the plurality of paging intervals have a fixed size and comprise a source address field and a recipient address field.

62. The apparatus of claim **51**, wherein a wireless communication medium is cleared of transmissions other than discovery packets during the plurality of discovery intervals, and the wireless communication medium is cleared of transmissions other than paging packets during the plurality of paging intervals.

63. An apparatus operable in a wireless communication system comprising:

means for receiving an indication of a first start time for a first discovery interval of a plurality of discovery intervals, a first duration for the first discovery interval, a second start time for a first paging interval of a plurality

of paging intervals, and a second duration for the first paging interval;

means for transmitting a discovery packet during the first discovery interval of the plurality of discovery intervals, the discovery packet advertising a service provided in a wireless communications network, the plurality of discovery intervals comprising recurring time intervals when a plurality of devices are configured to transmit and receive discovery packets, the plurality of devices being aware of the first start time and the first duration; and

means for receiving a paging packet from a first device during a first paging interval of a plurality of paging intervals, the paging packet indicating interest in the service, the plurality of paging intervals comprising recurring time intervals when the plurality of devices are configured to transmit and receive paging packets, the plurality of devices being aware of the second start time and the second duration, the plurality of paging intervals not overlapping the plurality of discovery intervals.

64. An apparatus operable in a wireless communication system comprising:

means for receiving an indication of a start time and a duration for a first discovery interval of a plurality of discovery intervals, the start time and the duration shared among a plurality of devices;

means for receiving a discovery packet from a first device during the first discovery interval of the plurality of discovery intervals, the discovery packet advertising a service provided by the first device in a wireless communications network, the plurality of discovery intervals comprising recurring time intervals when a plurality of devices are configured to transmit and receive discov-

ery packets, the plurality of devices being aware of the first start time and the first duration; and

means for transmitting a paging packet to the first device during a first paging interval of a plurality of paging intervals, the paging packet indicating interest in the service provided by the first device, the plurality of paging intervals comprising recurring time intervals when the plurality of devices are configured to transmit and receive paging packets, the plurality of devices being aware of the second start time and the second duration, the plurality of paging intervals not overlapping the plurality of discovery intervals.

65. A non-transitory computer-readable medium comprising instructions that when executed cause an apparatus to:

receive an indication of a start time and a duration for a first discovery interval of a plurality of discovery intervals, the start time and the duration shared among a plurality of devices;

transmit a discovery packet during the first discovery interval of the plurality of discovery intervals, the discovery packet advertising a service provided in a wireless communications network, the plurality of discovery intervals comprising recurring time intervals when a plurality of devices are configured to transmit and receive discovery packets, the plurality of devices being aware of the first start time and the first duration; and

receive a paging packet from a first device during a first paging interval of a plurality of paging intervals, the paging packet indicating interest in the service, the plurality of paging intervals comprising recurring time intervals when the plurality of devices are configured to

transmit and receive paging packets, the plurality of devices being aware of the second start time and the second duration, the plurality of paging intervals not overlapping the plurality of discovery intervals.

66. A non-transitory computer-readable medium comprising instructions that when executed cause an apparatus to:

receive an indication of a start time and a duration for a first discovery interval of a plurality of discovery intervals, the start time and the duration shared among a plurality of devices;

receive a discovery packet from a first device during the first discovery interval of the plurality of discovery intervals, the discovery packet advertising a service provided by the first device in a wireless communications network, the plurality of discovery intervals comprising recurring time intervals when a plurality of devices are configured to transmit and receive discovery packets, the plurality of devices being aware of the first start time and the first duration; and

transmit a paging packet to the first device during a first paging interval of a plurality of paging intervals, the paging packet indicating interest in the service provided by the first device, the plurality of paging intervals comprising recurring time intervals when the plurality of devices are configured to transmit and receive paging packets, the plurality of devices being aware of the second start time and the second duration, the plurality of paging intervals not overlapping the plurality of discovery intervals.