

CLAIMS:

1. A method for execution by a network node of a wireless network, the method comprising:
 - transmitting, to a wireless device that is in a first state, a unicast notification message notifying the wireless device of an impending data transmission to the wireless device by the network node, wherein the first state is different from an active state and supports data transmission and reception with a light connection management mechanism; and
 - transmitting data to the wireless device that is in the first state, at a time after transmitting the unicast notification.
2. The method of claim 1, further comprising:
 - receiving, in response to the unicast notification message, measurement related information from the wireless device that is in the first state;
 - wherein transmitting the data to the wireless device that is in the first state comprises transmitting the data to the wireless device based on the measurement related information received in response to the unicast notification message.
3. The method of claim 2, further comprising receiving first measurement related information from the wireless device that is in the first state;
 - wherein the measurement related information received in response to the unicast notification message is additional measurement related information.
4. The method of claim 3, wherein:
 - receiving the first measurement related information comprises receiving the first measurement related information on an ongoing basis; and
 - receiving the additional measurement related information in response to the unicast notification message comprises receiving the additional measurement related information on a more frequent basis than the ongoing basis.
5. The method of claim 1, wherein the unicast notification message indicates timing of when the data is to be transmitted.
6. The method of claim 1, further comprising:
 - accepting at least one input for determining whether to enable unicast notification for the wireless device that is in the first state

wherein transmitting the unicast notification message to the wireless device is executed only when unicast notification is enabled.

7. The method of claim 6, wherein:

accepting at least one input comprises receiving from the wireless device an indication of preference for enabling unicast notification;

wherein determining whether to enable unicast notification for the wireless device that is in the first state is based on the indication of preference from the wireless device.

8. The method of claim 6, wherein:

accepting at least one input comprises receiving signalling from which the network node determines whether the network node has the ability to track boundary conditions of the wireless device to satisfy QoS (Quality of Service) of traffic;

wherein determining whether to enable unicast notification for the wireless device that is in the first state is based on whether the network node has the ability to track boundary conditions of the wireless device to satisfy QoS of traffic.

9. The method of claim 6, further comprising:

conveying to the wireless device whether unicast notification is enabled.

10. A non-transitory computer-readable medium having recorded thereon instructions that when executed by a processor of a network node of a wireless network implement a method comprising:

transmitting, to a wireless device that is in a first state, a unicast notification message notifying the wireless device of an impending data transmission to the wireless device by the network node, wherein the first state is different from an active state and supports data transmission and reception with a light connection management mechanism; and

transmitting data to the wireless device that is in the first state, at a time after transmitting the unicast notification.

11. A network node of a wireless network, the network node comprising:

circuitry implementing a first state transmit function for a transceiver and being configured to:

transmit, to a wireless device that is in the first state, a unicast notification message notifying the wireless device of an impending data transmission to the wireless device by the network node, wherein the first state is different from an active state and supports data transmission and reception with a light connection management mechanism; and

transmit data to the wireless device that is in the first state, at a time after transmitting the unicast notification.

12. The network node of claim 11, wherein:

the circuitry implementing the first state transmit function comprises a processor; and
the network node further comprises a computer-readable medium having recorded thereon instructions that when executed by the processor configure the processor to implement the first state transmit function.

13. The network node of claim 11, wherein the circuitry implementing the first state transmit function is further configured to:

receive, in response to the unicast notification message, measurement related information from the wireless device that is in the first state;

wherein the circuitry implementing the first state transmit function is configured to transmit the data to the wireless device that is in the first state based on the measurement related information received in response to the unicast notification message.

14. The network node of claim 13, wherein the circuitry implementing the first state transmit function is further configured to:

receive first measurement related information from the wireless device that is in the first state;

wherein the measurement related information received in response to the unicast notification message is additional measurement related information.

15. The network node of claim 14, wherein:

the circuitry implementing the first state transmit function is further configured to receive the first measurement related information on an ongoing basis; and

the circuitry implementing the first state transmit function is further configured to receive the additional measurement related information on a more frequent basis than the ongoing basis.

16. The network node of claim 11, wherein the unicast notification message indicates timing of when the data is to be transmitted.

17. The network node of claim 11, wherein the circuitry implementing the first state transmit function is further configured to:

accept at least one input for determining whether to enable unicast notification for the wireless device that is in the first state

wherein the circuitry implementing the first state transmit function is configured to transmit the unicast notification message to the wireless device only when unicast notification is enabled.

18. The network node of claim 17, wherein:

the circuitry implementing the first state transmit function is configured to accept at least one input by receiving from the wireless device an indication of preference for enabling unicast notification;

wherein the circuitry implementing the first state transmit function determines whether to enable unicast notification for the wireless device that is in the first state based on the indication of preference from the wireless device.

19. The network node of claim 17, wherein:

the circuitry implementing the first state transmit function is configured to accept at least one input by receiving signalling from which the network node determines whether the network node has the ability to track boundary conditions of the wireless device to satisfy QoS (Quality of Service) of traffic;

wherein the circuitry implementing the first state transmit function determines whether to enable unicast notification for the wireless device that is in the first state based on whether the network node has the ability to boundary conditions of the wireless device to satisfy QoS of traffic.

20. The network node of claim 17, wherein the circuitry implementing the first state transmit function is further configured to:

convey to the wireless device whether unicast notification is enabled.

21. A method for execution by a wireless device, the method comprising:

receiving, from a network node of a wireless network while the wireless device is in a first state, a unicast notification message notifying the wireless device of an impending data transmission to the wireless device by the network node, wherein the first state is different from an active state and supports data transmission and reception with a light connection management mechanism; and

receiving, while the wireless device is in the first state, data from the network node in accordance with the unicast notification message, at a time after receiving the unicast notification.

22. The method of claim 21, further comprising:
transmitting, while the wireless device is in the first state, measurement related information to the network node in response to the unicast notification message.
23. The method of claim 22, further comprising:
transmitting, while the wireless device is in the first state, first measurement related information to the network node;
wherein the measurement related information transmitted in response to the unicast notification message is additional measurement related information.
24. The method of claim 23, wherein:
transmitting the first measurement related information comprises transmitting the first measurement related information on an ongoing basis; and
transmitting the additional measurement related information in response to the unicast notification message comprises transmitting the additional measurement related information on a more frequent basis than the ongoing basis.
25. The method of claim 21, wherein:
the unicast notification message indicates timing of when the data is to be received;
and
receiving, while the wireless device is in the first state, data from the network node in accordance with the unicast notification message comprises receiving the data according to the timing indicated by the unicast notification message.
26. The method of claim 21, further comprising:
conveying to the network node an indication of preference for enabling unicast notification;
wherein the unicast notification message is received from the network node only when unicast notification is enabled.
27. The method of claim 21, further comprising:
receiving an indication of whether unicast notification is enabled;
wherein the unicast notification message is received from the network node only when unicast notification is enabled.

28. A non-transitory computer-readable medium having recorded thereon instructions that when executed by a processor of a wireless device implement a method comprising:

receiving, from a network node of a wireless network while the wireless device is in a first state, a unicast notification message notifying the wireless device of an impending data transmission to the wireless device by the network node, wherein the first state is different from an active state and supports data transmission and reception with a light connection management mechanism; and

receiving, while the wireless device is in the first state, data from the network node in accordance with the unicast notification message, at a time after receiving the unicast notification.

29. A wireless device comprising:

a wireless access radio configured to communicate with a network node of a wireless network; and

circuitry implementing a first state receive function with the wireless access radio and being configured to:

receive, from the network node while the wireless device is in the first state, a unicast notification message notifying the wireless device of an impending data transmission to the wireless device by the network node, wherein the first state is different from an active state and supports data transmission and reception with a light connection management mechanism; and

receive, while the wireless device is in the first state, data from the network node in accordance with the unicast notification message, at a time after receiving the unicast notification.

30. The wireless device of claim 29, wherein:

the circuitry implementing the first state receive function comprises a processor; and

the wireless device further comprises a computer-readable medium having recorded thereon instructions that when executed by the processor configure the processor to implement the first state receive function.

31. The wireless device of claim 29, wherein the circuitry implementing the first state receive function is further configured to:

transmit, while the wireless device is in the first state, measurement related information to the network node in response to the unicast notification message.

32. The wireless device of claim 31, wherein the circuitry implementing the first state receive function is further configured to:

transmit, while the wireless device is in the first state, first measurement related information to the network node;

wherein the measurement related information transmitted in response to the unicast notification message is additional measurement related information.

33. The wireless device of claim 32, wherein:

the circuitry implementing the first state receive function is configured to transmit the first measurement related information on an ongoing basis; and

the circuitry implementing the first state receive function is configured to transmit the additional measurement related information on a more frequent basis than the ongoing basis.

34. The wireless device of claim 29, wherein:

the unicast notification message indicates timing of when the data is to be received; and

the circuitry implementing the first state receive function is configured to receive the data in accordance with the unicast notification message by receiving the data according to the timing indicated by the unicast notification message.

35. The wireless device of claim 29, wherein the circuitry implementing the first state receive function is further configured to:

convey to the network node an indication of preference for enabling unicast notification;

wherein the unicast notification message is received from the network node only when unicast notification is enabled.

36. The wireless device of claim 29, wherein the circuitry implementing the first state receive function is further configured to:

receive an indication of whether unicast notification is enabled;

wherein the unicast notification message is received from the network node only when unicast notification is enabled.