CLAIMS

What is Claimed:

1. A method for packet data unit prioritization, comprising:

identifying, by a wireless transmit/receive unit (WTRU), data for data transmission;

determining, by the WTRU, a priority of the data transmission relative to other data transmissions by the WTRU based on a type or contents of the data for transmission, wherein determining the priority of the data transmission includes determining that the data comprises real-time audio data and selecting a priority higher than a priority for data lacking real-time audio data;

generating, by the WTRU, a packet data unit (PDU) set comprising a plurality of PDUs including the identified data, wherein each PDU of the PDU set comprises a header value that indicates a priority corresponding to the determined priority; and

transmitting, by the WTRU, the generated PDU set.

2. The method of claim 1, further comprising:

identifying, by the WTRU, second data for second data transmission;

determining, by the WTRU, a priority of the second data transmission relative to other data transmissions by the WTRU based on a type or contents of the second data for transmission, the priority of the second data lower than the priority of the other data transmissions; and

generating, by the WTRU, a second PDU set comprising a second plurality of PDUs including the identified second data, wherein each PDU of the second PDU set comprises a header value that indicates a discardability, lower importance, or lower priority of the second PDU set.

3. The method of claim 2, wherein determining a priority of the second data transmission comprises:

determining that the second data comprises a non-reference frame of a video.

4. The method of claim 2, wherein determining a priority of the second data transmission comprises:

determining that the second data comprises a temporal identifier having a maximum value.

5. The method of claim 2, wherein determining a priority of the second data transmission comprises:

determining that the second data comprises a non-reference frame of a video associated with a subsequent reference frame of the video.

6. The method of claim 2, wherein the header value that indicates a discardability, lower importance, or lower priority of the second PDU set is a header extension flag or an importance field of a header extension.

7. The method of claim 6, wherein the header value is received, by the WTRU, from an application function or application server.

8. The method of claim 2, further comprising discarding, by the WTRU, the second PDU set without transmitting the second PDU set, responsive to detection of a network condition meeting a discard policy.

9. The method of claim 1, wherein determining the priority of the data transmission comprises:

determining that the data comprises a reference frame of a video; and

selecting a priority higher than a priority for data including a non-reference frame of the video.

10. The method of claim 1, wherein determining the priority of the data transmission comprises:

determining that the data comprises a parameter set for decoding or presenting a video; and

selecting a priority higher than a priority for data including a non-reference frame of the video.

11. The method of claim 1, further comprising determining, by the WTRU, a number of slices per picture of a frame of video of the identified data exceeds a threshold;

wherein generating the PDU set further comprises setting a header value in each PDU of the PDU set that indicates the number of slices per picture exceeds the threshold; and

wherein, in each PDU of the PDU set, a header field indicating a PDU set sequence number has a greater number of bits than a header field indicating a PDU sequence number.

12. The method of claim 1, wherein the header value and a header extension type are negotiated by an application function and application server.

13. The method of claim 1, further comprising signaling the header value and a header extension type to an application function or application server.

14. A wireless transmit receive unit (WTRU) comprising:

a processor; and

a transceiver communicatively coupled to the processor, the processor and transceiver configured to:

identify data for data transmission;

determine a priority of the data transmission relative to other data transmissions by the WTRU based on a type or contents of the data for transmission, wherein determining the priority of the data transmission includes determining that the data comprises real-time audio data and selecting a priority higher than a priority for data lacking real-time audio data;

generating a packet data unit (PDU) set comprising a plurality of PDUs including the identified data, wherein each PDU of the PDU set comprises a header value that indicates a priority corresponding to the determined priority; and

transmitting the generated PDU set.

15. The WTRU of claim 14, wherein the processor and transceiver are further configured to:

identify second data for second data transmission;

determine a priority of the second data transmission relative to other data transmissions by the WTRU based on a type or contents of the second data for transmission, the priority of the second data lower than the priority of the other data transmissions; and

generate a second PDU set comprising a second plurality of PDUs including the identified second data, wherein each PDU of the second PDU set comprises a header value that indicates a discardability, lower importance, or lower priority of the second PDU set.

16. The WTRU of claim 15, wherein determining a priority of the second data transmission comprises at least one of determining that the second data comprises a non-reference frame of a video, determining that the second data comprises a temporal identifier having a maximum value, and determining that the second data comprises a non-reference frame of a video associated with a subsequent reference frame of the video.

17. The WTRU of claim 15, wherein the header value that indicates a discardability, lower importance, or lower priority of the second PDU set is a header extension flag or an importance field of a header extension.

18. The WTRU of claim 17, wherein the header value is received from an application function or application server, and wherein the header value and a header extension type are negotiated by the application function and application server.

19. The WTRU of claim 15, wherein the processor and transceiver are further configured to discard the second PDU set without transmitting the second PDU set, responsive to detection of a network condition meeting a discard policy.

20. The WTRU of claim 14, wherein the processor and transceiver are further configured to signal the header value and a header extension type to an application function or application server.