CLAIMS

What is claimed is:

1. A method for building packet data units (PDUs), comprising:

receiving and storing service data units (SDUs);

accessing a length value for a PDU to be built and a constraint value;

sequentially assembling stored SDUs without exceeding the length value; and

determining to perform one of segmenting a last SDU and padding the PDU to reach the length value based upon comparing a remaining portion of the PDU to the constraint value.

2. The method of claim 1, further comprising receiving the constraint value via radio resource control signaling from a network.

3. The method of claim 1, further comprising receiving the constraint value by specified provisioning.

4. The method of claim 1, further comprising voluntarily implementing the determination based upon comparing the remaining portion to the constraint value.

5. The method of claim 1, further comprising accessing at least one constraint value indicating maximum padding allowed and minimum segmenting allowed.

6. The method of claim 1, further comprising comparing an available grant for a radio link control (RLC) instance to constraint value.

7. The method of claim 6, further comprising padding the PDU in response to determining that an SDU has a segmented payload length that is less than the constraint value.

8. The method of claim 6, further comprising padding the PDU in response to determining that an SDU has a segmented payload length.

9. The method of claim 6, further comprising comparing an available grant for a selected one of a data and signaling radio bearer, wherein the constraint value applies to the selected one but not the other of a data and signaling radio bearer.

10. The method of claim 6, further comprising performing segmentation according to the available grant without reference to a maximum padding allowed constraint in response to determining that the available grant is less than or equal to the constraint value.

11. The method of claim 6, further comprising performing segmentation according to the available grant without reference to a maximum padding allowed constraint in response to determining that the available grant cannot fit in at least one complete SDU.

12. The method of claim 6, further comprising assembling only complete SDUs or last segment of an SDU in response to determining that the available grant is less than or equal to the constraint value.

13. The method of claim 6, further comprising performing RLC SDU segmentation for a selected one but not the other of data radio bearers and signaling radio bearer.

14. The method of claim 6, wherein the constraint value pertains to a plurality of radio link control (RLC) entities.

15. The method of claim 6, wherein the constraint value pertains to a per radio bearer basis.

16. The method of claim 1, wherein the constraint value pertains to a segmented fraction of an RLC SDU.

17. The method of claim 1, wherein the constraint value pertains to a segmented fraction of an RLC SDU and a maximum padding value.

18. The method of claim 1, further comprising considering lower layer header overhead before determining a length for segmenting or padding.

19. A computer program product for building packet data units (PDUs), comprising:

a computer-readable storage medium comprising:

a first set of codes for causing a computer to receive and store service data units (SDUs);

a second set of codes for causing the computer to access a length value for a PDU to be built and a constraint value;

a third set of codes for causing the computer to sequentially assemble stored SDUs without exceeding the length value; and

a fourth set of codes for causing the computer to determine to perform one of segmenting a last SDU and padding the PDU to reach the length value based upon comparing a remaining portion of the PDU to the constraint value.

20. An apparatus for building packet data units (PDUs), comprising:

means for receiving and storing service data units (SDUs);

means for accessing a length value for a PDU to be built and a constraint value;

means for sequentially assembling stored SDUs without exceeding the length value; and

means for determining to perform one of segmenting a last SDU and padding the PDU to reach the length value based upon comparing a remaining portion of the PDU to the constraint value.

21. An apparatus for building packet data units (PDUs), comprising:

a memory for receiving and storing service data units (SDUs), and

a computing platform for accessing a length value for a PDU to be built and a constraint value,

wherein the computing platform further for sequentially assembling stored SDUs without exceeding the length value; and

wherein the computing platform is further for determining to perform one of segmenting a last SDU and padding the PDU to reach the length value based upon comparing a remaining portion of the PDU to the constraint value.

22. The apparatus of claim 21, further comprising a receiver for receiving the constraint value via radio resource control signaling from a network.

23. The apparatus of claim 21, further comprising computer-readable storage medium for receiving the constraint value by specified provisioning.

24. The apparatus of claim 21, wherein the computing platform is further for voluntarily implementing the determination based upon comparing the remaining portion to the constraint value.

25. The apparatus of claim 21, wherein the computing platform is further for accessing at least one constraint value indicating maximum padding allowed and minimum segmenting allowed.

26. The apparatus of claim 21, wherein the computing platform is further for comparing an available grant for a radio link control (RLC) instance to constraint value.

27. The apparatus of claim 26, wherein the computing platform is further for padding the PDU in response to determining that an SDU has a segmented payload length is less than the constraint value.

28. The apparatus of claim 26, wherein the computing platform is further for padding the PDU in response to determining that an SDU has a segmented payload length.

29. The apparatus of claim 26, wherein the computing platform is further for comparing an available grant for a selected one of a data and signaling radio bearer, wherein the constraint value applies to the selected one but not the other of a data and signaling radio bearer.

30. The apparatus of claim 26, wherein the computing platform is further for performing segmentation according to the available grant without reference to a maximum padding allowed constraint in response to determining that the available grant is less than or equal to the constraint value.

31. The apparatus of claim 26, wherein the computing platform is further for assembling only complete SDUs or last segment of an SDU in response to determining that the available grant is less than or equal to the constraint value.

32. The apparatus of claim 26, wherein the computing platform is further for performing segmentation according to the available grant without reference to a maximum padding allowed constraint in response to determining that the available grant cannot fit in at least one complete SDU.

33. The apparatus of claim 26, wherein the computing platform is further for performing RLC SDU segmentation for a selected one but not the other of data radio bearers and signaling radio bearer.

34. The apparatus of claim 21, wherein the constraint value pertains to a segmented fraction of an RLC SDU.

35. The apparatus of claim 21, wherein the constraint value pertains to a segmented fraction of an RLC SDU and a maximum padding value.

36. The apparatus of claim 21, wherein the computing platform is further for considering lower layer header overhead before determining a length for segmenting or padding.

37. A method for decoding packet data units (PDUs), comprising:

wirelessly receiving and storing a packet data unit (PDU) from a transmitting entity; and

deterministically decoding segmentation and padding of service data units (SDUs) by predicting operation of a transmitting entity,

wherein the transmitting entity is known to have built the PDU by,

receiving and storing service data units (SDUs),

accessing a length value for a PDU to be built and a constraint value,

sequentially assembling stored SDUs without exceeding the length value, and

determining to perform one of segmenting a last SDU and padding the PDU to reach the length value based upon comparing a remaining portion of the PDU to the constraint value.

38. The method of claim 37, further comprising obtaining the constraint value by a selected one of a group consisting of wirelessly transmitting the constraint value via radio resource control signaling from a network,

receiving the constraint value by specified provisioning.

39. The method of claim 37, further comprising voluntarily implementing the determination based upon comparing the remaining portion to the constraint value.

40. The method of claim 37, further comprising predicting operation of the transmitting entity known to compare an available grant for a radio link control (RLC) instance to constraint value.

41. The method of claim 37, wherein the constraint value pertains to a segmented fraction of an RLC SDU.

42. The method of claim 37, wherein the constraint value pertains to a segmented fraction of an RLC SDU and a maximum padding value.

43. The apparatus of claim 37, wherein the computing platform is further for considering lower layer header overhead before determining a length for segmenting or padding.

44. A computer program product for building packet data units (PDUs), comprising:

a computer-readable storage medium comprising:

a first set of codes for causing a computer to wirelessly receive and store a packet data unit (PDU) from a transmitting entity; and

a second set of codes for causing the computer to deterministically decode segmentation and padding of service data units (SDUs) by predicting operation of a transmitting entity,

wherein the transmitting entity is known to have built the PDU by,

receiving and storing service data units (SDUs),

accessing a length value for a PDU to be built and a constraint value,

sequentially assembling stored SDUs without exceeding the length value, and

determining to perform one of segmenting a last SDU and padding the PDU to reach the length value based upon comparing a remaining portion of the PDU to the constraint value.

45. An apparatus for building packet data units (PDUs), comprising:

means for wirelessly receiving and storing a packet data unit (PDU) from a transmitting entity; and

means for deterministically decoding segmentation and padding of service data units (SDUs) by predicting operation of a transmitting entity,

wherein the transmitting entity is known to have built the PDU by,

receiving and storing service data units (SDUs),

accessing a length value for a PDU to be built and a constraint value,

sequentially assembling stored SDUs without exceeding the length value, and

determining to perform one of segmenting a last SDU and padding the PDU to reach the length value based upon comparing a remaining portion of the PDU to the constraint value.

46. An apparatus for decoding packet data units (PDUs), comprising:

a receiver for wirelessly receiving a packet data unit (PDU) from a transmitting entity;

a memory for storing the PDU; and

a computing platform for deterministically decoding segmentation and padding of service data units (SDUs) by predicting operation of a transmitting entity,

wherein the transmitting entity is known to have built the PDU by,

receiving and storing service data units (SDUs),

accessing a length value for a PDU to be built and a constraint value,

sequentially assembling stored SDUs without exceeding the length value, and

determining to perform one of segmenting a last SDU and padding the PDU to reach the length value based upon comparing a remaining portion of the PDU to the constraint value.

47. The apparatus of claim 46, wherein the computing platform is further for wirelessly transmitting the constraint value via radio resource control signaling from a network.

48. The apparatus of claim 46, wherein the computing platform is further for receiving the constraint value by specified provisioning.

49. The apparatus of claim 46, wherein the computing platform is further for voluntarily implementing the determination based upon comparing the remaining portion to the constraint value.

50. The apparatus of claim 46, wherein the computing platform is further for accessing at least one constraint value indicating maximum padding allowed and minimum segmenting allowed.

CLAIMS

1. A method for building packet data units (PDUs) comprising:

receiving and storing service data units (SDUs);

assessing a length value for a PDU to be built and a constraint value;

storing SDUs without exceeding the length value; and

determining whether to perform segmenting on a last SDU based on comparing a remaining portion of the PDU to the constraint value.

2. The method of claim 1, wherein the constraint value indicates a minimum segmentation size allowed.

3. The method of claim 1, wherein determining whether to perform segmenting comprises:

avoiding segmentation on the last SDU when the last SDU fits into the remaining portion of the PDU.

4. The method of claim 1, further comprising:

comparing an available grant for a radio link control (RLC) instance to the constraint value.

5. The method of claim 4, further comprising:

transmitting all SDUs belonging to the same RLC instance in the same PDU without exceeding the length value.

6. The method of claim 1, further comprising:

avoiding segmentation when a segmented payload length is less than a maximum padding allowed.

7. A non-transitory computer-readable medium for building packet data units (PDUs) having code stored thereon, the code executable by one or more processors for:

receiving and storing service data units (SDUs);

assessing a length value for a PDU to be built and a constraint value;

storing SDUs without exceeding the length value; and

determining whether to perform segmenting on a last SDU based on comparing a remaining portion of the PDU to the constraint value.

8. The non-transitory computer-readable medium of claim 7, wherein the constraint value indicates a minimum segmentation size allowed.

9. The non-transitory computer-readable medium of claim 7, wherein the code for determining whether to perform segmenting comprises:

code for avoiding segmentation on the last SDU when the last SDU fits into the remaining portion of the PDU.

10. The non-transitory computer-readable medium of claim 7, further comprising:

code for comparing an available grant for a radio link control (RLC) instance to the constraint value.

11. The non-transitory computer-readable medium of claim 10, further comprising:

code for transmitting all SDUs belonging to the same RLC instance in the same PDU without exceeding the length value.

12. The non-transitory computer-readable medium of claim 7, further comprising:

code for avoiding segmentation when a segmented payload length is less than a maximum padding allowed.

13. An apparatus for building packet data units (PDUs) comprising:

means for receiving and storing service data units (SDUs);

means for assessing a length value for a PDU to be built and a constraint value;

means for storing SDUs without exceeding the length value; and

means for determining whether to perform segmenting on a last SDU based on comparing a remaining portion of the PDU to the constraint value.

14. The apparatus of claim 13, wherein the constraint value indicates a minimum segmentation size allowed.

15. The apparatus of claim 13, wherein the means for determining whether to perform segmenting comprises:

means for avoiding segmentation on the last SDU when the last SDU fits into the remaining portion of the PDU.

16. The apparatus of claim 13, further comprising:

means for comparing an available grant for a radio link control (RLC) instance to the constraint value.

17. The apparatus, of claim 16, further comprising:

means for transmitting all SDUs belonging to the same RLC instance in the same PDU without exceeding the length value.

18. The apparatus of claim 13, further comprising:

means for avoiding segmentation when a segmented payload length is less than a maximum padding allowed.

19. An apparatus for building packet data units (PDUs) comprising:

a memory for receiving and storing service data units (SDUs); and

a computing platform for assessing a length value for a PDU to be built and a constraint value, for storing SDUs without exceeding the length value, and for determining whether to perform segmenting on a last SDU based on comparing a remaining portion of the PDU to the constraint value.

20. The apparatus of claim 19, wherein the constraint value indicates a minimum segmentation size allowed.

21. The apparatus of claim 19, wherein determining whether to perform segmenting comprises:

avoiding segmentation on the last SDU when the last SDU fits into the remaining portion of the PDU.

22. The apparatus of claim 19, wherein the computing platform is further for comparing an available grant for a radio link control (RLC) instance to the constraint value.

23. The apparatus, of claim 22, wherein the computing platform is further for transmitting all SDUs belonging to the same RLC instance in the same PDU without exceeding the length value.

24. The apparatus of claim 19, wherein the computing platform is further for avoiding segmentation when a segmented payload length is less than a maximum padding allowed.