CLAIMS

What is claimed is:

1. A multicast service receiving method, performed by a terminal and comprising:

receiving configuration information of a multicast broadcast service MBS service sent by a network-side device, wherein the configuration information of the MBS service comprises information for determining whether to enable reordering for a packet data convergence protocol PDCP layer and/or a radio link control RLC layer; and

receiving the MBS service based on the configuration information of the MBS service;

wherein the information for determining whether to enable reordering for the PDCP layer and/or the RLC layer comprises:

first configuration information, used to implicitly indicate whether to enable reordering for the PDCP layer and/or the RLC layer, wherein

the first configuration information comprises at least one of the following: a hybrid automatic repeat request, HARQ, feedback configuration parameter, a quality of service, QoS, related parameter, a block error rate, and whether to enable an in-order delivery function for a service layer; and

the HARQ feedback configuration parameter comprises at least one of the following: whether the MBS service requires a HARQ feedback; and a parameter used for the HARQ feedback.

2. The method according to claim 1, wherein the information for determining whether to enable reordering for the PDCP layer and/or the RLC layer further comprises at least one of the following:

a configuration parameter of the PDCP layer, wherein the configuration parameter of the PDCP layer comprises at least one of the following: whether the

PDCP layer is required; whether to enable reordering for the PDCP layer; and a reordering parameter of the PDCP layer; and

a configuration parameter of the RLC layer, wherein the configuration parameter of the RLC layer comprises at least one of the following: whether to enable reordering for the RLC layer; and a reordering parameter of the RLC layer.

3. The method according to claim 2, further comprising:

if the configuration parameter of the PDCP layer comprises the reordering parameter of the PDCP layer, performing at least one of the following: determining to enable reordering for the PDCP layer; determining to enable reordering for the RLC layer; if the reordering parameter of the PDCP layer is configured, using the configured reordering parameter, or if the reordering parameter of the PDCP layer is not configured, using a default value; and using a default value for the reordering parameter of the RLC layer, wherein the configured reordering parameter of the PDCP layer comprises at least one of the following: a reordering window, a reordering timer, and a sequence number SN space size; or

if the configuration parameter of the PDCP layer does not comprise the reordering parameter of the PDCP layer, performing at least one of the following: determining to disable reordering for the PDCP layer; and determining to disable reordering for the RLC layer; or

if the configuration parameter of the RLC layer comprises the reordering parameter of the RLC layer, performing at least one of the following: determining to enable reordering for the PDCP layer; determining to enable reordering for the RLC layer; if the reordering parameter of the RLC layer is configured, using the configured reordering parameter, or if the reordering parameter of the RLC layer is not configured, using a default value; and using a default value for the reordering parameter of the PDCP layer, wherein the configured reordering parameter of the RLC layer comprises at least one of the following: a reordering window, a reordering timer, and an SN space size; or

if the configuration parameter of the RLC layer does not comprise the reordering parameter of the RLC layer, performing at least one of the following:

determining to disable reordering for the PDCP layer; and determining to disable reordering for the RLC layer.

4. The method according to claim 2, further comprising one of the following:

if the configuration information of the MBS service comprises a group of configuration parameters of the PDCP layer or a group of configuration parameters of the RLC layer, and the group of configuration parameters indicates that reordering is to be enabled, determining to enable reordering for both the PDCP layer and the RLC layer;

if the configuration information of the MBS service comprises a group of configuration parameters of the PDCP layer or a group of configuration parameters of the RLC layer, and the group of configuration parameters indicates that reordering is to be disabled, determining to disable reordering for both the PDCP layer and the RLC layer; or

if the configuration information of the MBS service comprises a group of configuration parameters of the PDCP layer or a group of configuration parameters of the RLC layer, determining to use the group of configuration parameters for one of the PDCP layer and the RLC layer and use default configuration parameters for the other.

5. The method according to claim 1, wherein the information for determining whether to enable reordering for the PDCP layer and/or the RLC layer comprises:

indication information, used to indicate whether to enable reordering for the PDCP layer and/or the RLC layer; and

the method further comprises one of the following:

if the indication information indicates that reordering is to be disabled, using a first group of default configuration parameters for the PDCP layer and/or the RLC layer, wherein the first group of default configuration parameters comprises at least one of the following: a reordering window size is 0 and a reordering timer length is 0;

if the indication information indicates that reordering is to be enabled, using a second group of default configuration parameters for the PDCP layer and/or the RLC

layer, wherein the second group of default configuration parameters comprises at least one of the following: a reordering window size is N1 and a reordering timer length is m1, wherein both N1 and m1 are non-zero positive values; or

if the indication information indicates that reordering is to be enabled, using a third group of default configuration parameters for the PDCP layer, and using a fourth group of default configuration parameters for the RLC layer, wherein the third group of default configuration parameters comprises at least one of the following: a reordering window size is N2 and a reordering timer length is m2, and the fourth group of default configuration parameters comprises at least one of the following: a reordering window size is N3 and a reordering timer length is m3, wherein N2, m2, N3, and m3 are all non-zero positive values.

6. The method according to claim 1, wherein the first configuration information comprises the HARQ feedback configuration parameter; and the method further comprises one of the following:

if the MBS service does not require the HARQ feedback, determining at least one of the following: not requiring the PDCP layer; disabling reordering for the PDCP layer; disabling reordering for the RLC layer; and using a first group of default configuration parameters for the PDCP layer and/or the RLC layer, wherein the first group of default configuration parameters comprises at least one of the following: a reordering window size is 0 and a reordering timer length is 0;

if the MBS service requires the HARQ feedback, determining at least one of the following: requiring the PDCP layer; enabling reordering for the PDCP layer; enabling reordering for the RLC layer; and using a second group of default configuration parameters for the PDCP layer and/or the RLC layer, wherein the second group of default configuration parameters comprises at least one of the following: a reordering window size is N1 and a reordering timer length is m1, wherein both N1 and m1 are non-zero positive values;

if the MBS service requires the HARQ feedback, determining at least one of the following: requiring the PDCP layer; enabling reordering for the PDCP layer; enabling reordering for the RLC layer; and using a third group of default

configuration parameters for the PDCP layer and using a fourth group of default configuration parameters for the RLC layer, wherein the third group of default configuration parameters comprises at least one of the following: a reordering window size is N2 and a reordering timer length is m2, and the fourth group of default configuration parameters comprises at least one of the following: a reordering window size is N3 and a reordering timer length is m3, wherein N2, m2, N3, and m3 are all non-zero positive values;

if the MBS service requires the HARQ feedback, and only one HARQ process is configured for the MBS service, or the network-side device explicitly or implicitly indicates that MBS data packets are not out of order, determining at least one of the following: not requiring the PDCP layer; disabling reordering for the PDCP layer; disabling reordering for the RLC layer; and using a first group of default configuration parameters for the PDCP layer and/or the RLC layer, wherein the first group of default configuration parameters comprises at least one of the following: a reordering window size is 0 and a reordering timer length is 0;

if the MBS service requires the HARQ feedback, and a plurality of HARQ processes are configured for the MBS service, or the network-side device explicitly or implicitly indicates that MBS data packets are out of order, determining at least one of the following: requiring the PDCP layer; enabling reordering for the PDCP layer; enabling reordering for the RLC layer; and using a second group of default configuration parameters for the PDCP layer and/or the RLC layer, wherein the second group of default configuration parameters comprises at least one of the following: a reordering window size is N1 and a reordering timer length is m1, wherein both N1 and m1 are non-zero positive values; or

if the MBS service requires the HARQ feedback, and a plurality of HARQ processes are configured for the MBS service, or the network-side device explicitly or implicitly indicates that MBS data packets are out of order, determining at least one of the following: requiring the PDCP layer; enabling reordering for the PDCP layer; enabling reordering for the RLC layer; and using a third group of default configuration parameters for the PDCP layer and using a fourth group of default

configuration parameters for the RLC layer, wherein the third group of default configuration parameters comprises at least one of the following: a reordering window size is N2 and a reordering timer length is m2, and the fourth group of default configuration parameters comprises at least one of the following: a reordering window size is N3 and a reordering timer length is m3, wherein N2, m2, N3, and m3 are all non-zero positive values.

7. The method according to claim 1, wherein the method further comprises one of the following:

not establishing the PDCP layer;

establishing the PDCP layer for which reordering is disabled; and

establishing the PDCP layer for which reordering is enabled;

and/or

wherein the method further comprises one of the following:

establishing the RLC layer for which reordering is enabled; and

establishing the RLC layer for which reordering is disabled.

8. The method according to claim 7, wherein the establishing the PDCP layer for which reordering is disabled comprises at least one of the following:

setting initial values of all sequence number SN-related variables of the PDCP layer to 0, wherein the variable comprises at least one of the following: RX_NEXT, RX_DELIV, and RX_REORD;

setting a length of a reordering timer of the PDCP layer to 0; and

setting a size of a reordering window of the PDCP layer to 0;

wherein the establishing the PDCP layer for which reordering is enabled comprises at least one of the following:

initializing an SN-related variable of the PDCP layer, wherein an initial value of the SN-related variable of the PDCP layer is calculated based on an SN of a first received data packet, and the variable comprises at least one of the following: RX_NEXT, RX_DELIV, and RX_REORD;

setting a length of a reordering timer of the PDCP layer to a non-zero positive value, wherein the non-zero positive value is configured by the configuration information of the MBS service or prescribed in a protocol; and

setting a size of a reordering window of the PDCP layer to a non-zero positive value, wherein the non-zero positive value is configured by the configuration information of the MBS service or prescribed in a protocol.

9. The method according to claim 8, wherein

an SN part of an initial value of RX_NEXT is equal to the SN of the first received data packet or SN+1 modulo SN space size, and a hyperframe number HFN part needs to ensure that RX_NEXT is positive;

an SN part of an initial value of RX_DELIV is equal to (SN of the first received data packet–0.5*reordering window size) modulo SN space size, and an HFN part needs to ensure that a count value is positive; and

an initial value of RX_REORD is 0.

10. The method according to claim 7, wherein the establishing the RLC layer for which reordering is enabled comprises at least one of the following:

initializing an SN-related variable of the RLC layer, wherein an initial value of the SN-related variable of the RLC layer is calculated based on an RLC SN of a first received data packet, and the variable comprises at least one of the following: RX_Next_Reassembly, RX_Timer_Trigger, and RX_Next_Highest;

setting a length of a reordering timer of the RLC layer to a non-zero positive value, wherein the non-zero positive value is configured by the configuration information of the MBS service or prescribed in a protocol; and

setting a size of a reordering window of the RLC layer to a non-zero positive value, wherein the non-zero positive value is configured by the configuration information of the MBS service or prescribed in a protocol;

wherein the establishing the RLC layer for which reordering is disabled comprises at least one of the following:

setting initial values of SN-related variables of the RLC layer to 0, wherein the variable comprises at least one of the following: RX_Next_Reassembly, RX_Timer_Trigger, or RX_Next_Highest;

setting a length of a reordering timer of the RLC layer to 0; or

setting a size of a reordering window of the RLC layer to 0.

11. The method according to claim 10, wherein

an initial value of RX_Next_Reassembly is set to the SN of the first received RLC PDU or SN+1 modulo SN space size;

an initial value of RX_Timer_Trigger is set to 0; and

an initial value of RX_Next_Highest is set to the SN of the first received RLC PDU or SN+1 modulo SN space size.

12. The method according to claim 1, wherein the receiving the MBS service based on the configuration information of the MBS service comprises:

if reordering is configured as disabled for the PDCP layer, for each received data packet, directly obtaining an SDU through parsing and then delivering the SDU to a higher layer, and directly setting an SN part of a variable RX_NEXT or RX_DELIV of the PDCP layer to an SN of the received data packet or SN+1, and setting an HFN part to 0 or any other arbitrary or prescribed value that ensures that a count value is positive.

13. The method according to claim 1, wherein a multicast radio bearer MRB or a data radio bearer DRB is used to carry the MBS service; and

the method further comprises:

if switching from an MRB to a DRB is required, receiving configuration information of the MBS service of the DRB, and establishing a new PDCP layer and/or RLC layer for the DRB based on the configuration information of the MBS service of the DRB;

or

if switching from an MRB to a DRB is required, using a PDCP layer configuration and/or an RLC configuration of the MRB for the DRB;

or

if switching from a DRB to an MRB is required, receiving configuration information of the MBS service of the MRB, and establishing a new PDCP layer and/or RLC layer for the MRB based on the configuration information of the MBS service of the MRB;

or

if switching from a DRB to an MRB is required, using a PDCP layer configuration and/or an RLC configuration of the DRB for the MRB.

14. The method according to claim 13, wherein the configuration information of the MBS service of the MRB is configured in at least one of the following modes:

a system information block, system information, or a broadcast mode; and

dedicated signaling.

15. A multicast service configuration method, performed by a network-side device and comprising:

sending configuration information of a multicast broadcast service MBS service to a terminal, wherein the configuration information of the MBS service comprises information for determining whether to enable reordering for a packet data convergence protocol PDCP layer and/or a radio link control RLC layer;

wherein the information for determining whether to enable reordering for the PDCP layer and/or the RLC layer comprises:

first configuration information, used to implicitly indicate whether to enable reordering for the PDCP layer and/or the RLC layer, wherein

the first configuration information comprises at least one of the following: a hybrid automatic repeat request, HARQ, feedback configuration parameter, a quality of service, QoS, related parameter, a block error rate, and whether to enable an in-order delivery function for a service layer; and

the HARQ feedback configuration parameter comprises at least one of the following: whether the MBS service requires a HARQ feedback; and a parameter used for the HARQ feedback.

16. The method according to claim 15, wherein the configuration information of the MBS service is sent to the terminal in at least one of the following modes:

a system information block, system information, or a broadcast mode;

dedicated signaling; and

preconfiguration information.

17. The method according to claim 15, wherein the information for determining whether to enable reordering for the PDCP layer and/or the RLC layer further comprises at least one of the following:

a configuration parameter of the PDCP layer, wherein the configuration parameter of the PDCP layer comprises at least one of the following: whether the PDCP layer is required; whether to enable reordering for the PDCP layer; and a reordering parameter of the PDCP layer;

a configuration parameter of the RLC layer, wherein the configuration parameter of the RLC layer comprises at least one of the following: whether to enable reordering for the RLC layer; and a reordering parameter of the RLC layer;

indication information, used to indicate whether to enable reordering for the PDCP layer and/or the RLC layer.

18. A terminal, comprising a processor, a memory, and a program or instructions stored in the memory and capable of running on the processor, wherein when the program or instructions are executed by the processor, the steps of the multicast service receiving method according to any one of claims 1 to 14 are implemented.

19. A network-side device, comprising a processor, a memory, and a program or instructions stored in the memory and capable of running on the processor, wherein when the program or instructions are executed by the processor, the steps of the multicast service configuration method according to any one of claims 15 to 17 are implemented.