METHOD AND DEVICE FOR GENERATING PROTOCOL DATA UNIT (PDU) PACKET

CROSS-REFERENCE TO RELATED APPLICATION

This application is a national phase of International Application No. PCT/CN2016/104679, filed November 4, 2016, the entire contents of which are incorporated herein by reference.

TECHNICAL FIELD

[0001] The present disclosure relates to the field of communication technologies, and in particular, to a method and device for generating protocol data unit (PDU) packet.

BACKGROUND

[0002] A radio link control (RLC) layer in long term evolution (LTE) is located between a packet data convergence protocol (PDCP) layer and a media access control (MAC) layer. The data packet exchanged between the RLC layer and the PDCP layer is called a service data unit (SDU) packet, and the data packet exchanged between the RLC layer and the MAC layer is called a protocol data unit (PDU) packet.

[0003] In actual implementation, the MAC layer can specify the size of the PDU packet, and generally, the size of the SDU packet received by the RLC layer is not equal to the size of the PDU packet specified by the MAC layer. Therefore, the RLC layer can process the received SDU packet, for example, the SDU packet can be segmented, cascaded or the like. After processing the SDU packet, the RLC layer can generate a PDU packet of the specified size. The PDU packet includes a packet header and a data section, and the packet header includes a data/control (D/C) field, a resegmentation flag (RF) field, a polling bit (P) field, a framing indication (FI) field, a length indication (LI) field, an extension bit (E) field, a sequence number (SN) field, a last segment flag (LSF) field, a segmentation offset (SO) field and the like.

[0004] [Intentionally left blank]

SUMMARY

[0005] The present disclosure provides a method and device for generating protocol data unit (PDU) packet.

[0006] According to a first aspect of the present disclosure, there is provided a method for generating protocol data unit packet (PDU). The method comprises: acquiring a service data unit (SDU) packet; processing the SDU packet according to a size of a preset data packet; and generating a packet header and a data section of a PDU packet according to a processing result, the packet header and the data section constituting the PDU packet; wherein the packet header omits a framing indication (FI) field and a resegmentation flag (RF) field but comprises a preset field, and the preset field comprises other fields except the FI field and the RF field that are redefined in a common packet header, or a target field that is newly added, the field length of the target field that is newly added being smaller than the total length of the FI field and the RF field.

[0007] Optionally, the preset field comprises the other fields, and the other fields comprise a sequence number (SN) field, a last segment flag (LSF) field, and a segmentation offset (SO) field.

[0008] When the SDU packet is cascaded, generating packet header of the PDU packet according to the processing result comprises: acquiring SN number to which a first SDU packet of the data section corresponds; acquiring first indication information that is used to indicate whether a last byte of the data section is a last byte of a last SDU; acquiring a starting byte position of a first byte of the data section correspondingly in the SDU packet; and generating the packet header that comprises the SN field, the LSF field and the SO field, the SN field comprising the acquired SN number, the LSF field comprising the acquired first indication information, and the SO field comprising the acquired starting byte position.

[0009] Optionally, the preset field comprises the target field that is newly added; and generating packet header of the PDU packet according to the processing result comprises: acquiring second indication information, wherein when the SDU packet is cascaded, the second indication information is used to indicate whether a first SDU in the data section is an SDU segment, and when the SDU packet is not cascaded, the second indication information is used to indicate whether the data section is an SDU segment; and generating the packet header that comprises the target field, the target field comprising the second indication information.

header of the PDU packet according to the processing result, the RRC configuration messages being used to disable a segment function for segmenting the SDU packet; and a disabling module, configured to disable the segment function for segmenting the SDU packet after receiving the RRC configuration messages.

[0025] According to a third aspect of the present disclosure, there is provided a device for generating protocol data unit packet (PDU). The device comprises: a processor; and a memory for storing a processor-executable instruction, wherein the processor is configured to: acquire a service data unit (SDU) packet; process the SDU packet according to a size of a preset data packet; and generate a packet header and a data section of the PDU packet according to a processing result, the packet header and the data section constituting the PDU packet; wherein the packet header omits a framing indication (FI) field and a resegmentation flag (RF) field but comprises a preset field, and the preset field comprises other fields except the FI field and the RF field that are redefined in a common packet header, or a target field that is newly added, the field length of the target field that is newly added being smaller than the total length of the FI field and the RF field.

[0026] [Intentionally left blank]

[0027] [Intentionally left blank]

[0028] It is to be understood that both the foregoing general description and the following detailed description are exemplary only and are not restrictive of the present disclosure.

like. The buttons may include, but are not limited to, a home button, a volume button, a start button, and a lock button.

[00171] The sensor component 814 includes one or more sensors to provide status assessments of various aspects of the apparatus 800. For instance, the sensor component 814 may detect an on/off status of the apparatus 800, relative positioning of components, e.g., the display device and the mini keyboard of the apparatus 800, and the sensor component 814 may also detect a position change of the apparatus 800 or a component of the apparatus 800, presence or absence of user contact with the apparatus 800, orientation or acceleration/deceleration of the apparatus 800, and temperature change of the apparatus 800. The sensor component 814 may include a proximity sensor configured to detect the presence of nearby objects without any physical contact. The sensor component 814 may also include a light sensor, such as a CMOS or CCD image sensor, used for imaging applications. In some embodiments, the sensor component 814 may also include an accelerometer sensor, a gyroscope sensor, a magnetic sensor, a pressure sensor, or a temperature sensor.

[00172] The communication component 816 is configured to facilitate communication, wired or wirelessly, between the apparatus 800 and other devices. The apparatus 800 can access a wireless network based on a communication standard, such as WiFi, 2G, or 3G, or a combination thereof. In an exemplary embodiment, the communication component 816 receives broadcast signals or broadcast associated information from an external broadcast management system via a broadcast channel. In an exemplary embodiment, the communication component 816 further includes a near field communication (NFC) module to facilitate short-range communications.

[00173] In exemplary embodiments, the apparatus 800 may be implemented with one or more application specific integrated circuits (ASICs), digital signal processors (DSPs), digital signal processing devices (DSPDs), programmable logic devices (PLDs), field programmable gate arrays (FPGAs), controllers, micro-controllers, microprocessors, or other electronic components, for performing the above described methods.

[00174] In exemplary embodiments, a non-transitory computer-readable storage medium having stored therein instructions is also provided, such as-the memory 804 having stored therein instructions, executable by the processor 818 in the apparatus 800, for performing the above-described

Claims

What is claimed is:

1. A method for generating protocol data unit (PDU) packet, comprising:

acquiring a service data unit (SDU) packet;

processing the SDU packet according to a size of a preset data packet; and

generating a packet header and a data section of a PDU packet according to a processing result, the packet header and the data section constituting the PDU packet; wherein the packet header omits a framing indication (FI) field and a resegmentation flag (RF) field but comprises a preset field, and the preset field comprises a target field that is newly added, the field length of the target field that is newly added being smaller than the total length of the FI field and the RF field;

wherein generating the packet header and the data section of the PDU packet according to the processing result comprises: acquiring a second indication information, wherein when the SDU packet is cascaded, the second indication information is used to indicate whether a first SDU packet in the data section is an SDU segment, and when the SDU packet is not cascaded, the second indication information is used to indicate whether the data section is an SDU segment; and generating the packet header that comprises the target field, the target field comprising the second indication information.

2. The method for generating protocol data unit (PDU) packet according to claim 1, wherein generating the packet header and the data section of the PDU packet according to the processing result comprises: generating the packet header that comprises the target field but omits a SO field and a LSF field in a common packet header when the second indication information is used to indicate not the SDU segment; or generating the packet header that comprises the target field when radio resource control (RRC) configuration messages that are acquired historically are used to configure the packet header to comprise the target field.

3. The method for generating protocol data unit (PDU) packet according to claim 1, wherein generating the packet header and the data section of the PDU packet according to the processing result further comprises:

acquiring third indication information that is used to indicate whether the preset data packet is a small data packet, wherein when the SDU packet is cascaded, the preset data packet

is a complete SDU packet to which the first SDU packet in the data section corresponds, and when the SDU packet is not cascaded, the preset data packet is a complete SDU packet to which the SDU packet in the data section corresponds; and

generating the packet header that comprises the third indication information and a target SO field when the third indication information is used to indicate that the preset data packet is a small data packet, the length of the target SO field being smaller than the length of a SO field in a common packet header; and

wherein generating the packet header that comprises the third indication information and the target SO field comprises: generating the packet header that comprises the third indication information and the target SO field when RRC configuration messages that are acquired historically are used to configure the packet header to comprise the third indication information.

4. The method for generating protocol data unit (PDU) packet according to claim 1, wherein generating the packet header and the data section of the PDU packet according to the processing result further comprises: generating the packet header that comprises a SO field having a target length according to RRC configuration messages that are historically acquired, wherein the RRC configuration messages comprise the target length that is smaller than a length of the SO field in a common packet header.

5. The method for generating protocol data unit (PDU) packet according to claim 1, wherein when no cascade function is comprised, the method further comprises:

acquiring RRC configuration messages transmitted by a receiving end, the RRC configuration message being used to disable a segment function for segmenting the SDU packet; and

disabling the segment function for segmenting the SDU packet after receiving the RRC configuration messages.

6. A device for generating protocol data unit (PDU) packet, comprising:

a first acquiring module, configured to acquire a service data unit (SDU) packet;

a processing module, configured to process the SDU packet according to a size of a preset data packet; and

a generating module, configured to generate a packet header and a data section of a PDU packet according to a processing result of the processing module, the packet header and the

data section constituting the PDU packet; wherein the packet header omits a framing indication (FI) field and a resegmentation flag (RF) field but comprises a preset field, and the preset field comprises a target field that is newly added, the field length of the target field that is newly added being smaller than the total length of the FI field and the RF field;

wherein the generating module is further configured to: acquire a second indication information, wherein when the SDU packet is cascaded, the second indication information is used to indicate whether a first SDU packet in the data section is an SDU segment, and when the SDU packet is not cascaded, the second indication information is used to indicate whether the data section is an SDU segment; and generate the packet header that comprises the target field, the target field comprising the second indication information.

7. The device for generating protocol data unit (PDU) packet according to claim 6, wherein the generating module is further configured to: generate the packet header that comprises the target field but omits a SO field and a LSF field in a common packet header when the second indication information is used to indicate not the SDU segment; or generate the packet header that comprises the target field when radio resource control (RRC) configuration messages that are acquired historically are used to configure the packet header to comprise the target field.

8. The device for generating protocol data unit (PDU) packet according to claim 6, wherein the generating module is further configured to:

acquire third indication information that is used to indicate whether the preset data packet is a small data packet, wherein when the SDU packet is cascaded, the preset data packet is a complete SDU packet to which the first SDU packet in the data section corresponds, and when the SDU packet is not cascaded, the preset data packet is a complete SDU packet to which the SDU packet in the data section corresponds; and

generate the packet header that comprises the third indication information and a target SO field when the third indication information is used to indicate that the preset data packet is a small data packet, the length of the target SO field being smaller than the length of a SO field in a common packet header; and

wherein the generating module is further configured to: generate the packet header that comprises the third indication information and the target SO field when RRC configuration

messages that are acquired historically are used to configure the packet header to comprise the third indication information.

9. The device for generating protocol data unit (PDU) packet according to claim 6, wherein the generating module is further configured to generate the packet header comprising a SO field having a target length according to RRC configuration messages that are historically acquired, wherein the RRC configuration messages comprise the target length that is smaller than a length of the SO field in a common packet header.

10. The device for generating protocol data unit (PDU) packet according to claim 6, wherein when no cascade function is comprised, the device further comprises:

a second acquiring module, configured to acquire RRC configuration messages transmitted by a receiving end before the generating module generates the packet header of the PDU packet according to the processing result, the RRC configuration messages being used to disable a segment function for segmenting the SDU packet; and

a disabling module, configured to disable the segment function for segmenting the SDU packet after receiving the RRC configuration messages.

11. A device for generating protocol data unit (PDU) packet, comprising:

a processor; and

a memory for storing a processor-executable instruction, wherein

the processor is configured to:

acquire a service data unit (SDU) packet;

process the SDU packet according to a size of a preset data packet; and

generate a packet header and a data section of a PDU packet according to a processing result, the packet header and the data section constituting the PDU packet; wherein the packet header omits a framing indication (FI) field and a resegmentation flag (RF) field but comprises a preset field, and the preset field comprises a target field that is newly added, the field length of the target field that is newly added being smaller than the total length of the FI field and the RF field;

wherein generating a packet header and a data section of a PDU packet according to a processing result comprises: acquiring a second indication information, wherein when the SDU packet is cascaded, the second indication information is used to indicate whether a first SDU

packet in the data section is an SDU segment, and when the SDU packet is not cascaded, the second indication information is used to indicate whether the data section is an SDU segment; and generating the packet header that comprises the target field, the target field comprising the second indication information.