

the present application may also be a dynamic grant or a configured grant. In addition, the second resource may also refer to a time domain and/or frequency domain resource of any size; and the second resource may refer to a continuous or discontinuous resource.

5 Similarly, the third resource in embodiments of the present application may also be a dynamic grant or a configured grant. In addition, the third resource may also refer to a time domain and/or frequency domain resource of any size; and the third resource may refer to a continuous or discontinuous resource.

10 In addition, the first resource overlaps with the second resource, which may mean that the first resource and the second resource partially overlap or completely overlap in the time domain and/or the frequency domain.

In an embodiment of the present application, the method 200 may further include: the first MAC PDU and the second MAC PDU are generated at the MAC layer, wherein the first MAC PDU corresponds to the first resource and the second MAC PDU corresponds to the second resource. Therefore, due to a conflict between the first resource and the second resource, the terminal device can only choose to send one of the first MAC PDU and the second MAC PDU to a receiving end (e.g., network device). Here, assuming that the second MAC PDU is sent to the receiving end, the method 200 further includes: the second MAC PDU is sent to the physical layer at the MAC layer, such that the physical layer transmits the second MAC PDU through the second resource; but for the first MAC PDU, the MAC layer may not send the first MAC PDU to the physical layer, or, the method 200 may further include that the first MAC PDU is sent to the physical layer at the MAC layer, but the physical layer does not send the second MAC PDU due to the conflict between the first resource and the second resource.

25 At this time, if the network side schedules a new transmission later, or there is a configured grant, that is, the terminal device determines the third resource, wherein the third resource may be a dynamic grant or a configured grant, then the third MAC PDU may be sent to the physical layer at the MAC layer, such that the physical layer transmits the third MAC PDU through the third resource. Herein, the third MAC PDU includes data in the first MAC PDU. For example, the data in the first MAC PDU may include an MAC SDU in the first MAC PDU, that is, the third MAC PDU includes the MAC SDU in the first MAC PDU. Optionally,

determine whether there is the untransmitted first MAC PDU in the target HARQ process in various modes. For example, the MAC layer may determine that there is the untransmitted first MAC PDU in the target HARQ process by interacting with the physical layer, for example, the first condition may include receiving indication information sent by the physical layer at the
5 MAC layer, wherein the indication information indicates that the first MAC PDU in the target HARQ process is not transmitted.

For another example, the MAC layer may also determine that there is the untransmitted first MAC PDU in the target HARQ process by a preset rule. For example, if the first resource of the first MAC PDU conflicts with the second resource of the second MAC PDU, and the
10 preset rule indicates that only MAC PDU that the time domain is on the latter is sent, then the MAC layer may determine that the first MAC PDU that the time domain is on former exists in the target HARQ process and has not been transmitted. For another example, if the first resource of the first MAC PDU conflicts with the second resource of the second MAC PDU, the MAC layer determines the MAC PDU not to be sent according to a grant attribute. For
15 another example, if the first resource of the first MAC PDU conflicts with the second resource of the second MAC PDU, the MAC determines which grant to be sent and further determines the unsent MAC PDU. For another example, the MAC layer may determine which one of the first MAC PDU and the second MAC PDU to be sent, that is, the MAC layer determines to send the second MAC PDU instead of the first MAC PDU, then the MAC layer may determine
20 that there is the first MAC PDU that has not been transmitted in the target HARQ process, but the embodiments of the present application are not limited thereto.

Similar to determining that there is the untransmitted first MAC PDU in the target HARQ process, the first condition may also include determining that the first resource corresponding to the first MAC PDU existing in the target HARQ process is not transmitted, and/or, the first
25 condition may also include that the first TB in the target HARQ process is not transmitted.

For a case that the first condition includes that the first resource overlaps with the second resource, that is, the first resource is a conflicted or overlapped resource; or, it may also be described as: the first TB overlaps or conflicts with the second TB, that is, the first TB is conflicted or overlapped, wherein the first TB corresponds to the first MAC PDU and the

second TB corresponds to the second MAC PDU, that is, the first TB occupies the first resource and the second TB occupies the second resource; or, it may also be described as: the transmission of the first TB conflicts or overlaps with the transmission of the second TB, that is, the transmission of the first TB is conflicted or overlapped, but the embodiments of the present application are not limited thereto.

For a case that the first condition includes that the configured grant timer corresponding to the target HARQ process is running, generally, if the first resource is a configuration grant resource and/or the third resource is a configuration grant resource, the configured grant timer corresponding to the target HARQ process may be running; or, in a case that the first resource or the third resource is a dynamic scheduling resource, the configured grant timer corresponding to the target HARQ process may also be running. Specifically, if the configured grant timer corresponding to the target HARQ process is running, combined with another condition in the first condition, for example, for a case that there is the first MAC PDU untransmitted in the target HARQ process, or there is an assembled first MAC PDU in the target HARQ process, while the first resource corresponding to the first MAC PDU is not transmitted, then the MAC layer may still send the third resource and related information of the target HARQ to the HARQ entity, such that the HARQ entity sends the third MAC PDU to the physical layer, such that the physical layer sends the third MAC PDU through the third resource.

For a case that the first condition includes that the priority of the third resource is higher than that of the first resource, for example, the third resource may be a preemption resource.

For a case that the first condition includes that the second resource is transmitted prior to the first resource, for example, the priority of the second resource may be higher than that of the first resource. Because the first resource conflicts with the second resource, and the second resource is transmitted preferentially, the first resource is not transmitted, resulting in that there is an untransmitted first MAC PDU in the target HARQ process.

For a case that the first condition includes that the HARQ process number corresponding to the first resource and the HARQ process number corresponding to the third resource are same, it may be determined to use the third resource to transmit the third MAC PDU which

What is claimed is:

1. A method for transmitting data, comprising:

5 sending a third Media Access Control (MAC) Protocol Data Unit (PDU) to a physical layer at an MAC layer, if there is a first MAC PDU not being transmitted in a target Hybrid Automatic Repeat reQuest (HARQ) process,

wherein, a first resource corresponding to the first MAC PDU overlaps with another resource, the third MAC PDU comprises data in the first MAC PDU, and the physical layer is used for transmitting the third MAC PDU through a third resource;

wherein that the third MAC PDU comprises data in the first MAC PDU comprises:

10 the third MAC PDU is the first MAC PDU;

wherein sending the third MAC PDU to the physical layer at the MAC layer comprises:

sending the third MAC PDU to the physical layer at the MAC layer, if a second condition is met, wherein the second condition comprises at least one of following conditions:

a size of the third resource matches a size of the first MAC PDU;

15 according to a first TB in the target HARQ process, it is determined that a NDI corresponding to the target HARQ process is flipped, wherein the first TB corresponds to the first resource;

it is determined that there is the first MAC PDU not being transmitted in the target HARQ process;

20 the first resource and/or the third resource are configured grant resources;

the second resource is transmitted prior to the first resource; or

a HARQ process number corresponding to the first resource and a HARQ process number corresponding to the third resource are the same.

2. The method of claim 1, further comprising:

25 generating the first MAC PDU and the second MAC PDU at the MAC layer; and

sending the second MAC PDU to the physical layer at the MAC layer, wherein the physical layer is used for transmitting the second MAC PDU through the second resource.

3. The method of claim 1 or 2, further comprising:
sending the first MAC PDU to the physical layer at the MAC layer.
4. The method of any one of claims 1 to 3, wherein the data in the first MAC PDU comprises an MAC Service Data Unit (SDU) in the first MAC PDU.
- 5 5. The method of claim 4, further comprising:
obtaining the third MAC PDU after the MAC layer reassembles the first MAC PDU.
6. The method of claim 5, wherein obtaining the third MAC PDU after the MAC layer reassembles the first MAC PDU, comprises:
obtaining the third MAC PDU after the MAC layer reassembles the first MAC PDU
10 through an MAC multiplexing assembly entity.
7. The method of claim 6, wherein the third MAC PDU comprises at least one MAC subPDU, wherein the at least one MAC subPDU comprises the MAC SDU in the first MAC PDU.
8. The method of any one of claims 5 to 7, wherein obtaining the third MAC PDU after the
15 MAC layer reassembles the first MAC PDU, comprises:
obtaining the third MAC PDU after the MAC layer reassembles the first MAC PDU, if a first condition is met;
wherein, the first condition comprises at least one of following conditions:
a size of the third resource does not match a size of the first MAC PDU;
20 according to a first Transport Block (TB) in the target HARQ process, it is determined that a New Data Indication (NDI) corresponding to the target HARQ process is flipped, wherein the first TB corresponds to the first resource;
it is determined that there is the first MAC PDU not being transmitted in the target HARQ process;
25 the first resource corresponding to the first MAC PDU which exists in the target HARQ process is not transmitted;
it is determined that the first resource overlaps with the second resource;

- the NDI corresponding to the target HARQ process is flipped;
 - the first TB in the target HARQ process is not transmitted;
 - indication information sent by the physical layer is received at the MAC layer, wherein the indication information indicates that the first MAC PDU in the target HARQ process is not transmitted;
 - the first resource and/or the third resource are configured grant resources;
 - a configured grant timer corresponding to the target HARQ process is running;
 - a priority of the third resource is higher than a priority of the first resource;
 - the third resource is a preemption resource;
 - a priority of the second resource is higher than the priority of the first resource;
 - the second resource is transmitted prior to the first resource; or
 - a HARQ process number corresponding to the first resource and a HARQ process number corresponding to the third resource are same.
9. The method of any one of claims 1 to 8, wherein the third resource is a configured grant resource.
10. A terminal device, comprising:
- a transceiving unit, configured to send a third Media Access Control (MAC) Protocol Data Unit (PDU) to a physical layer at an MAC layer, if there is a first MAC PDU not being transmitted in a target Hybrid Automatic Repeat reQuest (HARQ) process,
 - wherein, a first resource corresponding to the first MAC PDU overlaps with another resource, the third MAC PDU comprises data in the first MAC PDU, and the physical layer is used for transmitting the third MAC PDU through a third resource;
 - wherein that the third MAC PDU comprises data in the first MAC PDU comprises:
 - the third MAC PDU is the first MAC PDU;
 - wherein the transceiving unit is further configured to:
 - send the third MAC PDU to the physical layer at the MAC layer if a second condition is met, wherein the second condition comprises at least one of following conditions:

- a size of the third resource matches a size of the first MAC PDU;
- according to a first TB in the target HARQ process, it is determined that a NDI corresponding to the target HARQ process is flipped, wherein the first TB corresponds to the first resource;
- 5 it is determined that there is the first MAC PDU not being transmitted in the target HARQ process;
- the first resource and/or the third resource are configured grant resources;
- the second resource is transmitted prior to the first resource; or
- a HARQ process number corresponding to the first resource and a HARQ process number
- 10 corresponding to the third resource are the same.
11. The terminal device of claim 10, further comprising:
- a processing unit, configured to generate the first MAC PDU and the second MAC PDU at the MAC layer; and
- the transceiving unit is further configured to send the second MAC PDU to the physical
- 15 layer at the MAC layer, wherein the physical layer is used for transmitting the second MAC PDU through the second resource.
12. The terminal device of claim 10 or 11, wherein the transceiving unit is further configured to:
- send the first MAC PDU to the physical layer at the MAC layer.
- 20 13. The terminal device of any one of claims 10 to 12, wherein the data in the first MAC PDU comprises an MAC Service Data Unit (SDU) in the first MAC PDU.
14. The terminal device of claim 13, further comprising:
- a processing unit, configured to obtain the third MAC PDU after the MAC layer reassembles the first MAC PDU.
- 25 15. The terminal device of claim 14, wherein the processing unit is further configured to:
- obtain the third MAC PDU after the MAC layer reassembles the first MAC PDU through an MAC multiplexing assembly entity.