

the fourth preset value is greater than or equal to a second threshold, and the j^{th} field is used to indicate that the links of the first link pair have the buffer sharing capability, where

$0 \leq j \leq k-1$, and the fourth link identifier is link j .

[0091] With reference to the third aspect, in some implementations of the third aspect, the per-station profile sub-element may further include a buffer delay indication, and the buffer delay indication is used to indicate whether a buffer delay indication bitmap appears in the station information STA Info.

[0092] With reference to the third aspect, in some implementations of the third aspect, the first indication information may include a buffer sharing capability indication bitmap. The buffer sharing capability indication bitmap may include N fields. The N fields are in a one-to-one correspondence with the N links. Each field includes one bit. A link corresponding to a field whose value is 0 has the buffer sharing capability with a link corresponding to another field whose value is 0. A link corresponding to a field whose value is 1 does not have the buffer sharing capability with any other link; or

a link corresponding to a field whose value is 0 does not have the buffer sharing capability with any other link, and a link corresponding to a field whose value is 1 has the buffer sharing capability with another field whose value is 1.

[0093] With reference to the third aspect, in some implementations of the third aspect, the first indication information may include a buffer sharing capability indication bitmap, the buffer sharing capability indication bitmap includes N fields, each of the N fields includes at least two bits, and the N fields are in a one-to-one correspondence with the N links; and

a link corresponding to a field whose value is a third value does not have the buffer sharing capability with any other link, and a link corresponding to a field whose value is not the third value has the buffer sharing capability with a link corresponding to a field having a same value.

[0094] According to a fourth aspect, a communication apparatus is provided. The apparatus may include a transceiver unit and a processing unit. ~~An information transmission method is applied to a multi-link device MLD.~~ An MLD includes N access points APs. The MLD includes N links, and N is a positive integer greater than or equal to 2. The N APs are in a one-to-one correspondence with the N links. The method may include:

A first AP receives first indication information on a first link, where the first indication information indicates whether links of the MLD have a buffer sharing capability, the buffer sharing capability is used to determine a link on which a first STA sends buffer data, and the first link is one of the N links.

[0095] In the method, whether links of an MLD in which the first STA is located have the

the first indication information indicates that the links of the first MLD have the buffer sharing capability, and the third link is one of the links having the buffer sharing capability.

[00103] It should be understood that when the links of the MLD have the buffer sharing capability, selection of the third link may be affected by another factor. For example, a link cannot be selected if it is temporarily closed.

[00104] In this solution, a path for transmitting information by the first MLD is determined based on the indication of the buffer sharing capability or based on the indication of the buffer sharing capability and buffer status report information. In this way, a problem that a scheduled link cannot share a buffer is avoided, a link that can completely send service information is further determined based on the buffer status, and furthermore, resources can be properly allocated, further improving information transmission flexibility.

[00105] With reference to the fourth aspect, in some implementations of the fourth aspect, the first indication information may include a third field; and

when a value of the third field is a first value, it may indicate that any two of the N links have the buffer sharing capability, and when the value of the third field is a second value, it may indicate that any two of the N links do not have the buffer sharing capability; or

when the value of the third field is the first value, it may indicate that any two of the N links do not have the buffer sharing capability, and when the value of the third field is the second value, it may indicate that any two of the N links have the buffer sharing capability.

[00106] With reference to the fourth aspect, in some implementations of the fourth aspect, the third field may include one bit.

[00107] It should be understood that the first value may be 1, and the second value may be 0; or the first value may be 0, and the second value may be 1.

[00108] With reference to the fourth aspect, in some implementations of the fourth aspect, the first indication information may be located in a multi-link device capability MLD capability field.

[00109] With reference to the fourth aspect, in some implementations of the fourth aspect, the first indication information includes a buffer sharing delay field, and the buffer sharing delay field is used to indicate a delay between a time for receiving the TF by the transceiver unitfirst MLD and a time for sending the buffer data.

[00110] With reference to the fourth aspect, in some implementations of the fourth aspect, a value of the buffer sharing delay field may be a first preset value, the first preset value is less than a first threshold, and the buffer sharing delay field may be used to indicate that any two of the N links have the buffer sharing capability; or

a value of the buffer sharing delay field may be a second preset value, the second preset value is greater than or equal to the first threshold, and the buffer sharing delay field may be used

~~fourth~~ ~~third~~ aspect. Details are not described herein again.

[00122] According to a fifth aspect, a communication device is provided. The communication device may be a terminal device or a chip in a terminal device. The communication device may include a processing unit and a transceiver unit. When the communication device is a terminal device, the processing unit may be a processor, and the transceiver unit may be a transceiver. The terminal device may further include a storage unit, and the storage unit may be a memory. The storage unit is configured to store instructions, and the processing unit executes the instructions stored in the storage unit, so that the terminal device performs the method performed by the terminal device in the foregoing aspects. When the device is a chip in a terminal device, the processing unit may be a processor, and the transceiver unit may be an input/output interface, a pin, a circuit, or the like. The processing unit executes the instructions stored in the storage unit, so that the terminal device performs the method performed by the terminal device in the foregoing aspects. The storage unit may be a storage unit (for example, a register or a cache) in the chip, or may be a storage unit (for example, a read-only memory or a random access memory) located outside the chip in the terminal device.

[00123] Optionally, the processor may be a general-purpose processor, and may be implemented by using hardware or software. When the processor is implemented by using hardware, the processor may be a logic circuit, an integrated circuit, or the like. When the processor is implemented by using software, the processor may be a general-purpose processor, and is implemented by reading software code stored in the memory. The memory may be integrated into the processor, or may be located outside the processor and exist independently.

[00124] When a program is executed, the processor performs the method in any one of the first aspect or the possible implementations of the first aspect by using the transceiver.

[00125] According to a sixth aspect, a communication device is provided. The communication device may be a network device or a chip in a network device. The communication device may include a processing unit and a transceiver unit. When the communication device is a network device, the processing unit may be a processor, and the transceiver unit may be a transceiver. The network device may further include a storage unit, and the storage unit may be a memory. The storage unit is configured to store instructions, and the processing unit executes the instructions stored in the storage unit, so that the network device performs the method performed by the network device in the foregoing aspects. When the device is a chip in a network device, the processing unit may be a processor, and the transceiver unit may be an input/output interface, a pin, a circuit, or the like. The processing unit executes the instructions stored in the storage unit, so that the network device performs the method performed by the network device in the foregoing aspects. The storage unit may be a storage unit (for example, a register or a cache) in the chip, or

have a same buffer sharing capability, and all links can share the buffer, or all links cannot share the buffer. For example, this implementation is applicable to MLDs of the level 0 and level 3. In an actual application scenario, the buffer sharing capabilities of the links may be different.

[00198] In a possible implementation, as shown in FIG. 6, a buffer sharing indication bitmap (Buffer Sharing Indication Bitmap) may be added to an STA information (the STA Info) field of a per-station profile sub-element, to indicate whether a pair of links have the buffer sharing capability. An i^{th} bit in the buffer sharing indication bitmap in the per-station profile sub-element is used to indicate a buffer sharing capability between the link corresponding to the per-station profile sub-element and a link whose link identifier is i .

[00199] Optionally, a buffer sharing indication (Buffer Sharing Indication) field may further be added to an STA control (STA Control) field of a per-station profile sub-element (Per-STA Profile subelement) of a basic variant multi-link element (Basic variant Multi-link element), to indicate whether a buffer sharing indication bitmap (Buffer Sharing Indication Bitmap) appears in an STA information (STA Info) field of the per-station profile sub-element.

[00200] Specifically, when the buffer sharing indication bitmap appears, and it is assumed that a length thereof is m bits, a bit i ($0 \leq i \leq m-1$) indicates whether a link corresponding to a link identifier link i included in the STA control field and a link corresponding to a link identifier in the per-station profile sub-element can share a buffer.

[00201] For example, a bit 6 indicates whether a link 6 and a link corresponding to the per-station profile sub-element can share a buffer. When a value of the bit 6 is 1, the links can share the buffer; and when the value of the bit 6 is 0, the links cannot share the buffer. Alternatively, when the value of the bit 6 is 1, the links cannot share the buffer; and when the value of the bit 6 is 0, the links can share the buffer.

[00202] It should be understood that two links with symmetric sharing capabilities can be indicated for a single time, and two links with asymmetric sharing capabilities need to be indicated with sharing capabilities in different directions, and signaling overheads need to be doubled. For example, the sharing capability between the link 6 and the link corresponding to the per-station profile sub-element needs to be indicated, the sharing capability between the link corresponding to the per-station profile sub-element and the link 6 also needs to be indicated.

[00203] In another possible implementation, as shown in FIG. 7, because a maximum of 16 links can be supported in the 11be standard, a total of 16 bits may be used to indicate the buffer sharing capability of links. Each link is indicated by using one bit.

[00204] For example, when a value of a bit corresponding to an i^{th} link is 0, it indicates that the link i cannot share its buffer data with another link; or when a value of a bit corresponding to an i^{th} link is 1, it indicates that the link i can share its buffer data with another link. In other words, a

CLAIMS

What is claimed is:

1. An information transmission method, applied to a first multi-link device MLD, wherein the first MLD comprises N stations STAs, the N STAs relate to N links, N is a positive integer, and
5 the method comprises:

sending, by the first MLD, first indication information on a first link, wherein the first indication information indicates whether links of the first MLD have a buffer sharing capability, the buffer sharing capability is used to determine a link corresponding to to-be-sent buffer data in the first MLD, and the first link is one of the N links.

10 2. The method according to claim 1, further comprising:

sending, by the first MLD, second indication information on a second link, wherein the second link is one of the N links, the second indication information indicates a buffer status, the second link corresponds to a first STA, and the to-be-sent buffer data is buffer data of the first STA.

15 3. The method according to claim 2, wherein the second indication information comprises a first field, and the first field is used to indicate a buffer size of a buffer; and

if the first indication information indicates that the links of the first MLD have the buffer sharing capability, the first field is used to indicate a buffer size of a buffer of the first MLD; or

if the first indication information indicates that the links of the first MLD do not have the buffer sharing capability, the first field is used to indicate a buffer size of a buffer of the first STA.

20 4. The method according to claim 2 or 3, wherein the second indication information comprises a second field, and the second field is used to indicate that the buffer status is a buffer status of the first STA or a buffer status of the first MLD.

5. The method according to any one of claims 2 to 4, further comprising:

25 receiving, by the first MLD, a trigger frame TF on a third link, wherein the third link is determined based on the first indication information or based on the first indication information and the second indication information; and

sending, by the first MLD, the buffer data of the first STA on the third link.

30 6. The method according to claim 5, wherein that the third link is determined based on the first indication information or based on the first indication information and the second indication information comprises:

the first indication information indicates that the links of the first MLD do not have the buffer sharing capability, and the third link is the second link; or

the first indication information indicates that the links of the first MLD have the buffer sharing capability, and the third link is one of the links having the buffer sharing capability.

7. The method according to any one of claims 1 to 6, wherein the first indication information comprises a third field; and

when a value of the third field is a first value, it indicates that any two of the N links have the buffer sharing capability, and when the value of the third field is a second value, it indicates that any two of the N links do not have the buffer sharing capability; or

when the value of the third field is the first value, it indicates that any two of the N links do not have the buffer sharing capability, and when the value of the third field is the second value, it indicates that any two of the N links have the buffer sharing capability.

8. The method according to claim 7, wherein the first indication information is located in a multi-link device capability MLD Capability field.

9. The method according to any one of claims 1 to 6, wherein the first indication information comprises a buffer sharing delay field, and the buffer sharing delay field is used to indicate a delay between a time for receiving the TF by the first MLD and a time for sending the to-be-sent buffer data.

10. The method according to claim 9, wherein when a value of the buffer sharing delay field is a first preset value, it indicates that any two of the N links do not have the buffer sharing capability.

11. The method according to claim 9 or 10, wherein the buffer sharing delay field is located in a multi-link device capability MLD capability field.

12. The method according to any one of claims 1 to 6, wherein the first indication information comprises a buffer sharing indication field, the buffer sharing indication field comprises a buffer sharing indication bitmap, the buffer sharing indication bitmap comprises m bits, a value of an i^{th} bit is used to indicate whether links comprised in a first link pair have the buffer sharing capability, the links comprised in the first link pair are a link indicated by a first link identifier and a link with a link identifier i ($0 \leq i \leq m-1$), the first link identifier is a link identifier comprised in a station control information field in a per-station profile sub-element, and the buffer sharing indication bitmap is located in station information STA Info in the per-station profile sub-element.

13. The method according to claim 12, wherein when the value of the i^{th} bit in the buffer sharing indication bitmap is 1, it indicates that the links comprised in the first link pair have the buffer sharing capability, and when the value of the i^{th} bit in the buffer sharing indication bitmap is 0, it indicates that the links comprised in the first link pair do not have the buffer sharing capability; or

when the value of the i^{th} bit in the buffer sharing indication bitmap is 1, it indicates that the links comprised in the first link pair do not have the buffer sharing capability, and when the value of the i^{th} bit in the buffer sharing indication bitmap is 0, it indicates that the links comprised in the

first link pair have the buffer sharing capability.

14. The method according to claim 12 or 13, wherein the per-station profile sub-element further comprises a buffer sharing indication, and the buffer sharing indication indicates whether the buffer sharing indication bitmap appears in the STA Info.

15. The method according to any one of claims 1 to 6, wherein the first indication information comprises a buffer sharing capability indication bitmap, the buffer sharing capability indication bitmap comprises N fields, the N fields are in a one-to-one correspondence with the N links, and each field comprises one bit; and

a link corresponding to a field whose value is 0 has the buffer sharing capability with a link corresponding to another field whose value is 0, and a link corresponding to a field whose value is 1 does not have the buffer sharing capability with any other link; or

a link corresponding to a field whose value is 0 does not have the buffer sharing capability with any other link, and a link corresponding to a field whose value is 1 has the buffer sharing capability with another field whose value is 1.

16. The method according to any one of claims 1 to 6, wherein the first indication information comprises a buffer sharing capability indication bitmap, the buffer sharing capability indication bitmap comprises N fields, each of the N fields comprises at least two bits, and the N fields are in a one-to-one correspondence with the N links; and

a link corresponding to a field whose value is a third value does not have the buffer sharing capability with any other link, and a link corresponding to a field whose value is not the third value has the buffer sharing capability with a link corresponding to a field having a same value.

17. An information transmission method, applied to a second multi-link device MLD, wherein the second MLD comprises N access points APs, the N APs relate to N links, N is a positive integer, and the method comprises:

receiving, by the second MLD, first indication information on a first link, wherein the first indication information indicates whether links of a first MLD have a buffer sharing capability, the buffer sharing capability is used by the second MLD to determine a link corresponding to to-be-received buffer data, and the first link is one of the N links.

18. The method according to claim 17, further comprising:

receiving, by the second MLD, second indication information on a second link, wherein the second link is one of the N links, the second indication information indicates a buffer status, the second link corresponds to a first STA, and the to-be-received buffer data is buffer data of the first STA.

19. The method according to claim 18, wherein the second indication information comprises a first field, and the first field is used to indicate a buffer size of a buffer; and

if the first indication information indicates that the links of the ~~first second~~-MLD have the buffer sharing capability, the first field is used to indicate a buffer size of a buffer of the first MLD;
or

if the first indication information indicates that the links of the second MLD do not have the buffer sharing capability, the first field is used to indicate a buffer size of a buffer of the first STA.

20. The method according to claim 18 or 19, wherein the second indication information comprises a second field, and the second field is used to indicate that the buffer status is a buffer status of the first STA or a buffer status of the first MLD.

21. The method according to any one of claims 18 to 20, further comprising:

sending, by the second MLD, a trigger frame TF on a third link, wherein the third link is determined based on the first indication information or based on the first indication information and the second indication information; and

receiving, by the second MLD, the buffer data of the first STA on the third link.

22. The method according to claim 21, wherein that the third link is determined based on the first indication information or based on the first indication information and the second indication information comprises:

the first indication information indicates that the links of the second MLD do not have the buffer sharing capability, and the third link is the second link; or

the first indication information indicates that the links of the second MLD have the buffer sharing capability, and the third link is one of the links having the buffer sharing capability.

23. The method according to any one of claims 17 to 22, wherein the first indication information comprises a third field; and

when a value of the third field is a first value, it indicates that any two of the N links have the buffer sharing capability, and when the value of the third field is a second value, it indicates that any two of the N links do not have the buffer sharing capability; or

when the value of the third field is the first value, it indicates that any two of the N links do not have the buffer sharing capability, and when the value of the third field is the second value, it indicates that any two of the N links have the buffer sharing capability.

24. The method according to claim 23, wherein the first indication information is located in a multi-link device capability MLD capability field.

25. The method according to any one of claims 17 to 22, wherein the first indication information comprises a buffer sharing delay field, and the buffer sharing delay field is used to indicate a delay between a time for receiving the TF by the first MLD and a time for sending the buffer data of the first STA.

26. The method according to claim 25, wherein when a value of the buffer sharing delay field

is a first preset value, it indicates that any two of the N links do not have the buffer sharing capability.

27. The method according to claim 25 or 26, wherein the buffer sharing delay field is located in a multi-link device capability MLD capability field.

5 28. The method according to any one of claims 17 to 22, wherein the first indication information comprises a buffer sharing indication field, the buffer sharing indication field comprises a buffer sharing indication bitmap, the buffer sharing indication bitmap comprises m bits, a value of an i^{th} bit is used to indicate whether links comprised in a first link pair have the buffer sharing capability, the links comprised in the first link pair are a link indicated by a first link
10 identifier and a link with a link identifier i ($0 \leq i \leq m-1$), the first link identifier is a link identifier comprised in a station control information field in a per-station profile sub-element, and the buffer sharing indication bitmap is located in station information STA Info in the per-station profile sub-element.

15 29. The method according to claim 28, wherein when the value of the i^{th} bit in the buffer sharing indication bitmap is 1, it indicates that the links comprised in the first link pair have the buffer sharing capability, and when the value of the i^{th} bit in the buffer sharing indication bitmap is 0, it indicates that the links comprised in the first link pair do not have the buffer sharing capability; or

20 when the value of the i^{th} bit in the buffer sharing indication bitmap is 1, it indicates that the links comprised in the first link pair do not have the buffer sharing capability, and when the value of the i^{th} bit in the buffer sharing indication bitmap is 0, it indicates that the links comprised in the first link pair have the buffer sharing capability.

25 30. The method according to claim 28 or 29, wherein the per-station profile sub-element further comprises a buffer sharing indication, and the buffer sharing indication indicates whether the buffer sharing indication bitmap appears in the STA Info.

30 31. The method according to any one of claims 17 to 22, wherein the first indication information comprises a buffer sharing capability indication bitmap, the buffer sharing capability indication bitmap comprises N fields, the N fields are in a one-to-one correspondence with the N links, and each field comprises one bit; and

30 a link corresponding to a field whose value is 0 has the buffer sharing capability with a link corresponding to another field whose value is 0, and a link corresponding to a field whose value is 1 does not have the buffer sharing capability with any other link; or

35 a link corresponding to a field whose value is 0 does not have the buffer sharing capability with any other link, and a link corresponding to a field whose value is 1 has the buffer sharing capability with another field whose value is 1.

32. The method according to any one of claims 17 to 22, wherein the first indication information comprises a buffer sharing capability indication bitmap, the buffer sharing capability indication bitmap comprises N fields, each of the N fields comprises at least two bits, and the N fields are in a one-to-one correspondence with the N links; and

5 a link corresponding to a field whose value is a third value does not have the buffer sharing capability with any other link, and a link corresponding to a field whose value is not the third value has the buffer sharing capability with a link corresponding to a field having a same value.

33. A communication apparatus, wherein the communication apparatus is configured to perform the method according to any one of claims 1 to 16 and/or 17 to 32.

10 34. A computer program product, comprising a computer program, wherein when the computer program is run on a computer, the computer is enabled to perform the method according to any one of claims 1 to 16 and/or 17 to 32.

15 35. A computer-readable storage medium, comprising a computer program, wherein when the computer program is run on a communication device, the communication device is enabled to perform the method according to any one of claims 1 to 16 and/or 17 to 32.