

CLAIMS

What is claimed is:

1. A file transmission method, comprising steps of:

5 establishing at least two connections to a receive end, each connection comprising at least one send window;

dividing a to-be-sent file into at least two data blocks, filling a corresponding data block in a send window of each connection, and sending the data block to the receive end by using the send window;

10 acquiring acknowledgement information returned, after the receive end receives the data block, by the receive end, the acknowledgement information comprising data block information of the data block received this time and data block information of a data block that the receive end expects to receive; and

15 clearing, according to the acknowledgement information, a send window corresponding to the data block information received this time, filling, in the cleared send window, a data block that the receive end expects to receive, and sending the data block to the receive end by using the send window.

2. The file transmission method according to claim 1, after the step of dividing a to-be-sent file into at least two data blocks, further comprising the following step:

20 separately acquiring a current transmission speed and an average transmission speed of each connection, and increasing, if the current transmission speed is not less than the average transmission speed, a size of a data block that is currently sent by using the connection.

3. The file transmission method according to claim 2, wherein

25 decreasing, if the current transmission speed is less than the average transmission speed and a decreasing proportion is greater than a fluctuation coefficient preset by a system, the size of the data block that is currently sent by using the connection.

4. The file transmission method according to claim 1, wherein the step of dividing a to-be-sent file into at least two data blocks comprises:

dividing the to-be-sent file into at least two data units, wherein each data block comprises several consecutive data units, wherein

30 when each connection is used the first time to send a data block, each data block comprises at

least two data units if a size of the to-be-sent file is less than a preset value; otherwise, each data block comprises one data unit.

5 5. The file transmission method according to claim 1, after the step of clearing a send window corresponding to the data block information received this time, further comprising the following step:

10 marking a data block that is sent previously as a timeout data block if the acknowledgement information is not received within a specified time or acknowledgement information for the data block that is sent previously is not received and acknowledgement information for a preset number of data blocks that are sent subsequently is received, filling the timeout data block in the cleared send window, and sending the timeout data block to the receive end by using the send window.

6. A file transmission system, comprising:

a connection module, configured to establish at least two connections to a receive end, each connection comprising at least one send window;

15 a dividing and sending module, configured to divide a to-be-sent file into at least two data blocks, fill a corresponding data block in a send window of each connection, and send the data block to the receive end by using the send window;

20 an acknowledgement acquiring module, configured to acquire acknowledgement information returned, after the receive end receives the data block, by the receive end, the acknowledgement information comprising data block information of the data block received this time and data block information of a data block that the receive end expects to receive; and

a sending module, configured to clear, according to the acknowledgement information, a send window corresponding to the data block information received this time, fill, in the cleared send window, a data block that the receive end expects to receive, and send the data block to the receive end by using the send window.

25 7. The file transmission system according to claim 6, further comprising:

a first dividing module, configured to separately acquire a current transmission speed and an average transmission speed of each connection, and increase, if the current transmission speed is not less than the average transmission speed, a size of a data block that is currently sent by using the connection.

30 8. The file transmission system according to claim 7, further comprising:

a second dividing module, configured to decrease, if the current transmission speed is less than

an average speed of previous two data blocks and a decreasing proportion is greater than a fluctuation coefficient preset by a system, the size of the data block that is currently sent by using the connection.

9. The file transmission system according to claim 6, further comprising:

- 5 a combination module, configured to divide the to-be-sent file into at least two data units, wherein each data block comprises several consecutive data units, wherein when each connection is used the first time to send a data block, each data block comprises at least two data units if a size of the to-be-sent file is less than a preset value; otherwise, each data block comprises one data unit.

10. The file transmission system according to claim 6, further comprising:

- 10 a timeout sending module, configured to mark a data block that is sent previously as a timeout data block if the acknowledgement information is not received within a specified time or acknowledgement information for the data block that is sent previously is not received and acknowledgement information for a preset number of data blocks that are sent subsequently is received, fill the timeout data block in the cleared send window, and send the timeout data block to
15 the receive end by using the send window.