flow control on each NodeB according to a specific load usage condition of each NodeB.

[0007] In one aspect, a method for load control on a wireless communications network is provided, including:

receiving, by a radio network controller RNC, a radio resource control RRC connection request sent by a base station, and acquiring, by the RNC, a flow control level of the base station; and

choosing, by the RNC according to the flow control level of the base station, to reject or process the RRC connection request.

[0008] In another aspect, a method for load control on a wireless communications network is provided, including:

receiving, by a base station, a load status request sent by a radio network controller RNC; and

sending, by the base station, a load status report to the RNC, where the load status report carries load information of the base station, so as to enable the RNC to determine a flow control level of the base station according to the load information of the base station.

[0009] In another aspect, an apparatus for load control on a wireless communications network is provided, where the apparatus is arranged on a radio network controller RNC, and the apparatus specifically includes:

a ~~base station~~ flow control level acquiring module, configured to receive a radio resource control RRC connection request sent by a base station and acquire a flow control level of the base station; and

a control processing module, configured to choose, according to the flow control level of the base station acquired by the base station flow control level acquiring module, to reject or process the RRC connection request.

[0010] In another aspect, an apparatus for load control on a wireless communications network is provided, where the apparatus is arranged on a base station, and the apparatus specifically includes:

a load status request receiving module, configured to receive a load status request sent by a radio network controller RNC; and

a load status report sending module, configured to send a load status report to the RNC, where the load status report carries load information of the base station, so as to enable the RNC to determine a flow control level of the base station according to the load information of the base station.

[0011] As can be seen from the technical solutions provided in the embodiments of the

[0021] 12. The RNC chooses, according to the flow control level of the NodeB, to reject or process the RRC connection request.

[0022] For example, the RNC compares the flow control level of the NodeB with a threshold and chooses, according to a comparison result, to reject or process the RRC connection request.

[0023] Further, the RNC may convert the flow control level of the NodeB into a flow control probability factor, where the flow control probability factor is proportional to the flow control level, and the flow control probability factor is an integer.

[0024] The RNC may generate a random number, where the random number is an integer; and reject the RRC connection request when the flow control probability factor is greater than the random number ~~flow control probability factor~~; otherwise, process the RRC connection request.

[0025] As can be seen from the technical solution provided in the embodiment, in this embodiment, an RNC chooses, according to a flow control level of a NodeB, to reject or process the RRC connection request. In this way, the RNC can distinctively process an RRC connection request of each NodeB and distinctively perform flow control on each NodeB according to a specific load usage condition of each NodeB.

Embodiment 2

[0026] A processing procedure of a method for load control on a wireless communications network according to this embodiment is as shown in FIG. 2, including:

[0027] 21. A load status request and a load status report may be transmitted through a lub interface between an RNC and a NodeB in this embodiment of the present invention, where the load status request is used by the RNC to instruct the NodeB to report load status information, and the load status report is used by the NodeB to report the load status information to the RNC.

[0028] When the RNC needs to know the load status information of the NodeB, the RNC may send a load status request to the NodeB and start a load status statistics timer.

[0029] 22. After receiving the load status request, the NodeB sends a load status report to the RNC, where the load status report carries load information of the NodeB.

[0030] For example, after receiving the load status request, the NodeB determines, according to a set time interval, whether its load exceeds a preset threshold; if yes, sends a load status report that carries overload indication information to the RNC; otherwise, sends a load status report that carries normal load indication information to the RNC.

[0031] Further, the NodeB may determine, according to a set time interval (five seconds

for example), whether power resources used by the NodeB exceed a preset power resource congestion threshold and whether signaling resources used by the NodeB exceed a preset signaling resource congestion threshold.

[0032] When determining that the power resources used by the NodeB exceed the power resource congestion threshold and/or the signaling resources used by the NodeB exceed the signaling resource congestion threshold, the NodeB sends a load status report that carries the overload indication information to the RNC; otherwise, sends a load status report that carries the normal load indication information to the RNC.

[0033] 23. In a timing duration of the load status statistics timer, the RNC receives the load status report sent by the NodeB and determines a flow control level of the NodeB according to the load information of the NodeB carried in the load status report.

[0034] For example, the RNC may determine the flow control level of the NodeB according to the amount of the overload indication information and the normal load indication information that are received in a set time period. Specifically, in the timing duration of the load status statistics timer, the RNC adds a set value to a saved value of the flow control level of the NodeB when the load status report carries the overload indication information and reduces the saved value of the flow control level of the NodeB by the set value when the load status report carries the normal load indication information.

[0035] Exemplarily, a value range of the value of the flow control level of the NodeB may be 0–10 that indicate ~~10~~ 11 flow control levels of the NodeB. The set value may be 1.

[0036] 24. The RNC may compare the flow control level of the NodeB with a threshold and choose, according to a comparison result, to reject or process the RRC connection request.

[0037] Further, the RNC may convert the flow control level of the NodeB into a flow control probability factor, where the flow control probability factor is proportional to the flow control level, and the flow control probability factor is an integer, for example, it may be an integer between 0 and 100.

[0038] A random number is used as the threshold in this embodiment of the present invention because an RRC connection request that is received by the NodeB and sent by a mobile terminal is random. The RNC generates a random number, where the random number is an integer, for example, it may be an integer between 0 and 100. When the flow control probability factor is greater than the random number, the RRC connection request is rejected; otherwise, the RRC connection request is processed, and the NodeB is instructed to accept an access request of the mobile terminal.

RRC connection request.

[0057] Further, the comparison processing module 421 is further configured to convert the flow control level of the NodeB into a flow control probability factor, where the flow control probability factor is proportional to the flow control level, and the flow control probability factor is an integer between 0 and 100.

[0058] The choosing processing module 422 is further configured to generate a random number, where the random number is an integer between 0 and 100; reject the RRC connection request when the flow control probability factor acquired by the ~~conversion~~ comparison processing module is greater than the random number; otherwise, process the RRC connection request.

[0059] This embodiment further provides another apparatus for load control on a wireless communications network, where the apparatus may be arranged on a NodeB, a specific structure of the apparatus is as shown in FIG. 5, and the apparatus specifically includes:

a load status request receiving module 51, configured to receive a load status request sent by an RNC; and

a load status report sending module 52, configured to send a load status report to the RNC, where the load status report carries load information of the NodeB, so as to enable the RNC to determine a flow control level of the NodeB according to the load information of the NodeB.

[0060] Specifically, the load status report sending module 52 is further configured to, after the load status request is received, determine, according to a set time interval, whether load of the NodeB exceeds a preset threshold; if yes, send a load status report that carries overload indication information to the RNC; otherwise, send a load status report that carries normal load indication information to the RNC.

[0061] Further, the load status report sending module 52 may determine, according to a set time interval (five seconds for example) after the load status request is received, whether power resources used by the base station exceed a preset power resource congestion threshold and whether signaling resources used by the base station exceed a preset signaling resource congestion threshold, where the signaling resources may be signaling board CPUs.

[0062] When determining that the power resources used by the base station exceed the power resource congestion threshold and/or the signaling resources used by the base station exceed the signaling resource congestion threshold, the load status report sending module 52 sends a load status report that carries the overload indication information to the RNC; otherwise, sends a load status report that carries the normal load indication information to the