terminal from missing the MBS and saving energy consumption of the terminal. Correspondingly to the aforementioned embodiments of a method for switching control of a monitoring state~~an application function implementation method~~, the disclosure also provides embodiments of an ~~application function implementation~~ apparatus for switching control of a monitoring state.

[00229] With reference to FIG. 9, FIG. 9 is a block diagram of an apparatus for switching control of a monitoring state according to an embodiment. The apparatus is performed by a network side device, and includes:

[00230] a configuring module 901, configured to configure reception configuration information corresponding to a multicast broadcast service (MBS) for a terminal, in which the reception configuration information is used for the terminal to receive the MBS in a discontinuous reception mode; and

[00231] a sending module 902, configured to send target control information to the terminal, in which the target control information is used to activate or deactivate reception monitoring of the MBS of the terminal.

[00232] With reference to FIG. 10, FIG. 10 is a block diagram of a method for switching control of a monitoring state according to an embodiment. The apparatus is performed by a terminal, and includes:

[00233] a monitoring state switching module 1001, configured to start or stop reception monitoring of a multicast broadcast service (MBS) based on an indication of received target control information and reception configuration information corresponding to the MBS configured by a network side device for the terminal, in which the target control information is used to activate or deactivate the reception monitoring of the MBS of the terminal, and the reception configuration information is used for the terminal to receive the MBS in a discontinuous reception mode.

[00234] For the apparatus embodiments, since they basically correspond to the method embodiments, the relevant contents can be referred to part of the description of method embodiments. The apparatus embodiments described above are only exemplary, where the units described above as separate components may or may not be physically separate, and the components shown as units may or may not be physical units, that is, may be located in one place or may be distributed to multiple network units. Some or all modules can be selected according to actual needs to realize the purpose of the solution of the disclosure. It can be understood and implemented by those skilled in the art without creative effort.

CLAIMS

WHAT IS CLAIMED IS:

1. A method for switching control of a monitoring state, performed by a network device, comprising:

configuring reception configuration information corresponding to a multicast broadcast service (MBS) for a terminal, wherein the reception configuration information is ~~used~~configured for the terminal to receive the MBS in a discontinuous reception mode; and

sending target control information to the terminal, wherein the target control information is ~~used~~configured to activate or deactivate reception monitoring of the MBS of the terminal.

2. The method according to claim 1, wherein the target control information is ~~used~~configured to activate the reception monitoring of the MBS of the terminal, and the target control information comprises ~~any~~ at least one of:

a wake-up signal, target downlink control information (DCI), or a target media access control layer control element (MAC CE);

wherein the target control information is ~~used~~configured to deactivate the reception monitoring of the MBS of the terminal, and the target control information comprises at least~~any~~ one of:

a go-to-sleep signal, the target DCI, or the target MAC CE.

3. The method according to claim 2, wherein the target DCI is ~~DCI~~ identified by a power saving radio network temporary identification (PS-RNTI).

4. The method according to claim 1, wherein the target control information comprises at least one of: indication information of the MBS, or activation state information of the MBS;

wherein, the indication information of the MBS comprises at least one of: an MBS identifier, or an MBS scheduling identifier; wherein the MBS scheduling identifier comprises at least one of: a dynamic scheduling identifier, or a semi-persistent scheduling identifier;

the activation state information of the MBS comprises at least one of: an activated state, or a deactivated state.

5. The method according to any of claims 1 to 4, wherein configuring the reception configuration information corresponding to the MBS for the terminal comprises:

configuring the reception configuration information corresponding to the MBS for the terminal through a radio resource control (RRC) message.

6. The method according to claim 5, wherein the RRC message comprises an initial monitoring state corresponding to the MBS configured for the terminal, the initial monitoring state comprises stopping the reception monitoring of the MBS or starting the reception monitoring of the MBS.

7. The method according to any of claims 1 to 6, wherein a number of MBSs is one or more, and in response to the number of the MBSs is more than one, reception configuration information corresponding to different MBSs are different.

8. The method according to any of claims 1 to 7, wherein the reception configuration information corresponding to the MBS comprises at least one of:

a service monitoring cycle of the MBS;

a first timer ~~used~~configured to indicate a service monitoring duration in each service monitoring cycle;

a service-monitoring start position in each service monitoring cycle;

a second timer ~~used~~configured to indicate that the network device has new data to be scheduled;

a third timer ~~used~~configured to indicate the terminal to perform a hybrid automatic repeat request (HARQ) feedback; or

a fourth timer ~~used~~configured to indicate the terminal to receive data re-transmitted by the network device.

9. A method for switching control of a monitoring state, performed by a terminal, comprising:

starting or stopping reception monitoring of a multicast broadcast service (MBS) based on an indication of received target control information and reception configuration information corresponding to the MBS configured by a network device for the terminal, wherein the target control information is ~~used~~configured to activate or deactivate the reception monitoring of the MBS of the terminal, and the reception configuration information

is ~~used~~configured for the terminal to receive the MBS in a discontinuous reception mode.

10. The method according to claim 9, wherein the target control information comprises at least one of: indication information of the MBS, or activation state information of the MBS;

wherein, the indication information of the MBS comprises at least one of: an MBS identifier, or an MBS scheduling identifier; wherein the MBS scheduling identifier comprises at least one of: a dynamic scheduling identifier, or a semi-persistent scheduling identifier;

the activation state information of the MBS comprises at least one of: an activated state, or a deactivated state.

11. The method according to claim 9 or 10, wherein starting or stopping the reception monitoring of the MBS based on the indication of the received target control information and the reception configuration information corresponding to the MBS configured for the terminal by the network device comprises:

in response to determining that the target control information is ~~used~~configured to activate the reception monitoring of the MBS of the terminal, starting the reception monitoring of the MBS based on the indication of the target control information and the reception configuration information; or

in response to determining that the target control information is ~~used~~configured to deactivate the reception monitoring of the MBS of the terminal, stopping the reception monitoring of the MBS based on the indication of the target control information and the reception configuration information.

12. The method according to any of claims 9 to 11, further comprising ~~any~~ one of:

in response to determining that the terminal is in a state of the reception monitoring of the MBS being stopped, monitoring the target control information ~~used~~configured to activate the reception monitoring of the MBS of the terminal; ~~or~~

in response to determining that the terminal is in a state of the reception monitoring of the MBS being started, monitoring the target control information ~~used~~configured to deactivate the reception monitoring of the MBS of the terminal;

determining an initial monitoring state corresponding to the MBS based on an indication

of a radio resource control (RRC) message sent by the network device; or

determining an initial monitoring state corresponding to the MBS based on a protocol agreement;

wherein the initial monitoring state comprises stopping the reception monitoring of the MBS, or starting the reception monitoring of the MBS.

~~13. The method according to claim 9, further comprising any one of:~~

~~determining an initial monitoring state corresponding to the MBS based on an indication of a radio resource control (RRC) message sent by the network device; or~~

~~determining an initial monitoring state corresponding to the MBS based on a protocol agreement;~~

~~wherein the initial monitoring state comprises stopping the reception monitoring of the MBS, or starting the reception monitoring of the MBS.~~

~~14~~13. The method according to any of claims 9 to 12, further comprising:

monitoring the target control information at a target time domain position ~~used~~configured ~~to~~ for monitoring the target control information.

~~15~~14. The method according to claim ~~14~~13, further comprising ~~any~~ one of:

in response to the target control information being monitored at the target time domain position, and in response to a bit value of the target control information being a first predefined value, determining that the target control information ~~used~~configured to indicate to activate the reception monitoring of the MBS of the terminal is monitored; ~~or~~

in response to the target control information being monitored at the target time domain position, and in response to a bit value of the target control information being a second predefined value, determining that the target control information ~~used~~configured to indicate to deactivate the reception monitoring of the MBS of the terminal is monitored;

in response to the target control information being not monitored at the target time domain position, and in response to determining that the terminal is in a state of the reception monitoring of the MBS being stopped, starting the reception monitoring of the MBS based on the reception configuration information; or,

in response to the target control information being not monitored at the target time domain position, and in response to determining that the terminal is in a state of the reception

monitoring of the MBS being started, stopping the reception monitoring of the MBS based on the reception configuration information.

~~16. The method according to claim 14, further comprising any one of:~~

~~in response to the target control information being not monitored at the target time domain position, and in response to determining that the terminal is in a state of the reception monitoring of the MBS being stopped, starting the reception monitoring of the MBS based on the reception configuration information; or,~~

~~in response to the target control information being not monitored at the target time domain position, and in response to determining that the terminal is in a state of the reception monitoring of the MBS being started, stopping the reception monitoring of the MBS based on the reception configuration information.~~

~~17~~15. The method according to claim ~~14~~13, wherein an offset value of the target time domain position relative to a specified time domain position in each target cycle is a predetermined offset value.

~~18~~16. The method according to claim ~~17~~15, wherein a cycle duration of the target cycle is a positive integer multiple of a service monitoring cycle of the MBS or a positive integer multiple of a duration of a paging cycle, or

wherein the specified time domain position comprises at least one of:

a service-monitoring start position of the MBS, a paging-monitoring start position, or a change-starting indication position of a multicast control channel.

~~19. The method according to claim 17, wherein the specified time domain position comprises at least one of:~~

~~a service-monitoring start position of the MBS, a paging-monitoring start position, or a change-starting indication position of a multicast control channel.~~

~~20~~17. The method according to any of claims 9 to 16, wherein a number of MBSs is one or more, and in response to the number of the MBSs is more than one, reception configuration information corresponding to different MBSs are different.

~~21~~18. The method according to any of claims 9 to ~~20~~17, wherein the reception configuration information corresponding to the MBS comprises at least one of:

a service monitoring cycle of the MBS;

a first timer ~~used~~configured to indicate a service monitoring duration in each service monitoring cycle;

a service-monitoring start position in each service monitoring cycle;

a second timer ~~used~~configured to indicate that the network device has new data to be scheduled;

a third timer ~~used~~configured to indicate the terminal to perform a hybrid automatic repeat request (HARQ) feedback; or

a fourth timer ~~used~~configured to indicate the terminal to receive data re-transmitted by the network device.

~~22~~19. The method according to claim ~~21~~18, wherein starting the reception monitoring of the MBS comprises at least one of:

starting at least one of the first timer, the second timer, the third timer or the fourth timer;

starting monitoring of a control channel corresponding to the MBS; or

starting monitoring of a data channel corresponding to the MBS; or

wherein stopping the reception monitoring of the MBS comprises at least one of:

stopping or not starting at least one of the first timer, the second timer, the third timer or the fourth timer;

stopping monitoring of a control channel corresponding to the MBS; or

stopping monitoring of a data channel corresponding to the MBS.

~~23. The method according to claim 21, wherein stopping the reception monitoring of the MBS comprises at least one of:~~

~~stopping or not starting at least one of the first timer, the second timer, the third timer or the fourth timer;~~

~~stopping monitoring of a control channel corresponding to the MBS; or~~

~~stopping monitoring of a data channel corresponding to the MBS.~~

~~24. An apparatus for switching control of a monitoring state, performed by a network device, comprising:~~

~~a configuring module, configured to configure reception configuration information corresponding to a multicast broadcast service (MBS) for a terminal, wherein the reception~~

~~configuration information is used for the terminal to receive the MBS in a discontinuous reception mode; and~~

~~a sending module, configured to send target control information to the terminal, wherein the target control information is used to activate or deactivate reception monitoring of the MBS of the terminal.~~

~~25. An apparatus for switching control of a monitoring state, performed by a terminal, comprising:~~

~~a monitoring state switching module, configured to start or stop reception monitoring of a multicast broadcast service (MBS) based on an indication of received target control information and reception configuration information corresponding to the MBS configured by a network device for the terminal, wherein the target control information is used to activate or deactivate the reception monitoring of the MBS of the terminal, and the reception configuration information is used for the terminal to receive the MBS in a discontinuous reception mode.~~

~~26. A computer readable storage medium having computer programs stored thereon, wherein the computer programs are configured to perform the method for switching control of a monitoring state according to any of claims 1 to 8.~~

~~27. A computer readable storage medium having computer programs stored thereon, wherein the computer programs are configured to perform the method for switching control of a monitoring state according to any of claims 9 to 23.~~

~~28~~20. A device for switching control of a monitoring state, comprising:

a processor; and

a memory for storing instructions executable by the processor;

wherein the processor is configured to perform the method for switching control of a monitoring state according to any of claims 1 to 8, or perform the method for switching control of a monitoring state according to any of claims 9 to 19.

~~29. A device for switching control of a monitoring state, comprising:~~

~~a processor; and~~

~~a memory for storing instructions executable by the processor;~~

~~wherein the processor is configured to perform the method for switching control of a monitoring state according to any of claims 9 to 23.~~