What is claimed is:

1. An information transmission method, applied to a first node, the method comprising:

sending a first beam control message to a second node, wherein the first beam control message comprises at least beam behavior information and beam activation time information, and the beam behavior information is used for indicating a beam control behavior to be executed by the second node, the beam activation time information is used for indicating an activation time of a beam for which the beam control behavior is to be executed;

wherein the beam behavior information comprises one of: first beam behavior information for indicating execution of a fixed beam dwell mode; second beam behavior information for indicating execution of a beam scanning mode; or third beam behavior information for indicating termination of a beam scanning mode; and

the beam activation time information comprises: an absolute time of beam activation, an absolute time of beam deactivation, a repetition period of beam activation, a repetition period of beam deactivation, a relative time interval of beam activation, and a relative time interval of beam deactivation.

2. The method of claim 1, wherein the beam scanning mode comprises at least one of: a fixed beam scanning mode, a wide-beam autonomous sweeping mode, a narrow-beam autonomous sweeping mode, an adjacent wide-beam autonomous sweeping mode, or an adjacent narrow-beam autonomous sweeping mode.

3. The method of any of claims 1 to 2, wherein the first beam control message further comprises beam information of at least one beam, wherein the beam information is used for determining a beam for which the beam control behavior is to be executed; and

the beam information comprises at least one of: a beam identifier, beam angle information, codebook information, antenna module information, multi-beam information, or anisotropic beam information.

4. The method of any of claims 1 to 2, wherein sending a first beam control message to a second node is performed in any one of the following manners:

broadcasting;

Physical Downlink Control Channel (PDCCH) transmission;

Physical Downlink Shared Channel (PDSCH) transmission;

out-of-band transmission; or

in-band transmission.

5. The method of claim 1, wherein in response to the first beam control message comprising the second beam behavior information, the method further comprises:

receiving, from the second node, a random access message from a third node;

sending a second beam control message to the second node according to the random access message, wherein the second beam control message comprises the third beam behavior information, such that the second node terminates the beam scanning mode;

receiving beam information of a current activated beam sent by the second node; and

sending a random access response message to the second node according to the beam information of the current activated beam, such that the second node transparently forwards the random access response message to the third node.

6. The method of claim 1, wherein in response to the first beam control message comprising the first beam behavior information or the second beam behavior information, the method further comprises:

sending a beam measurement request to the second node, such that the second node transparently forwards the beam measurement request to the third node;

receiving, from the second node, beam quality information from the third node, wherein the beam quality information is obtained by measuring a current activated beam of the second node by the third node;

sending a third beam control message to the second node according to the beam quality information, wherein the third beam control message comprises the first beam behavior information and beam information of a first beam, such that the second node executes the fixed beam dwell mode, and activates the first beam at the second node; and

sending first service data to the second node, such that the second node transparently forwards the first service data to the third node through the first beam.

7. The method of claim 1, further comprising:

receiving, from the second node, a beam failure recovery request from a third node during execution of the beam scanning mode by the second node, wherein the beam failure recovery request comprises beam information of a second beam, and the second beam is a beam which the third node requests to recover;

sending a fourth beam control message to the second node according to the beam failure

recovery request, wherein the fourth beam control message comprises the first beam behavior information and beam information of the second beam, such that the second node executes the fixed beam dwell mode, and activates the second beam at the second node;

receiving a success message fed back by the second node; and

sending a beam failure recovery response to the second node according to the success message, such that the second node transparently forwards the beam failure recovery response to the third node.

8. The method of claim 1, wherein in response to the first beam control message comprising the first beam behavior information and beam information of a third beam, the method further comprises:

sending second service data to the second node, such that the second node transparently forwards the second service data to a third node through the third beam;

sending a fifth beam control message to the second node, wherein the fifth beam control message comprises the first beam behavior information and beam information of a fourth beam, and the fourth beam is a beam to be switched to, such that the second node executes the fixed beam dwell mode, and activates the fourth beam at the second node; and

sending third service data to the second node, such that the second node transparently forwards the third service data to a fourth node through the fourth beam.

9. The method of claim 1, wherein the first beam control message further comprises common channel information, and the common channel information is used for instructing the second node to execute the beam control behavior on a channel corresponding to the common channel information.

10. An information transmission method, applied to a second node, the method comprising:

receiving a first beam control message sent by a first node, wherein the first beam control message comprises at least beam behavior information and beam activation time information, and the beam behavior information is used for indicating a beam control behavior to be executed, the beam activation time information is used for indicating an activation time of a beam for which the beam control behavior is to be executed;

wherein the beam behavior information comprises one of: first beam behavior information for indicating execution of a fixed beam dwell mode; second beam behavior information for indicating execution of a beam scanning mode; or third beam behavior

information for indicating termination of a beam scanning mode; and

the beam activation time information comprises: an absolute time of beam activation, an absolute time of beam deactivation, a repetition period of beam activation, a repetition period of beam deactivation, a relative time interval of beam activation, and a relative time interval of beam deactivation; and

executing beam control according to at least the beam behavior information.

11. The method of claim 10, wherein in response to the first beam control message comprising the second beam behavior information, the method further comprises:

during execution of the beam scanning mode, receiving a random access message sent by a third node and transparently forwarding the random access message to the first node;

receiving a second beam control message sent by the first node according to the random access message, wherein the second beam control message comprises the third beam behavior information;

terminating the beam scanning mode according to the second beam control message;

sending beam information of a current activated beam to the first node; and

receiving a random access response message sent by the first node according to the beam information of the current activated beam, and transparently forwarding the random access response message to the third node.

12. The method of claim 10, wherein in response to the first beam control message comprising the first beam behavior information or the second beam behavior information, the method further comprises:

during execution of the fixed beam dwell mode or the beam scanning mode, receiving a beam measurement request sent by the first node and transparently forwarding the beam measurement request to a third node;

receiving beam quality information sent by the third node according to the beam measurement request, wherein the beam quality information is obtained by measuring a current activated beam of the second node by the third node;

transparently forwarding the beam quality information to the first node;

receiving a third beam control message sent by the first node according to the beam quality information, wherein the third beam control message comprises the first beam behavior information and beam information of a first beam;

executing the fixed beam dwell mode according to the third beam control message to activate the first beam; and

transparently forwarding first service data from the first node to the third node through the first beam.

13. The method of claim 10, further comprising:

during execution of the beam scanning mode, receiving a beam failure recovery request sent by a third node, and transparently forwarding the beam failure recovery request to the first node, wherein the beam failure recovery request comprises beam information of a second beam, and the second beam is a beam which the third node requests to recover;

receiving a fourth beam control message sent by the first node according to the beam failure recovery request, wherein the fourth beam control message comprises the first beam behavior information and the beam information of the second beam;

executing the fixed beam dwell mode according to the fourth beam control message to activate the second beam;

feeding back a success message to the first node; and

receiving a beam failure recovery response sent by the first node according to the success message, and transparently forwarding the beam failure recovery response to the third node.

14. The method of claim 10, wherein in response to the first beam control message comprising the first beam behavior information and beam information of a third beam, the method further comprises:

during execution of the fixed beam dwell mode, transparently forwarding second service data from the first node to a third node through the third beam;

receiving a fifth beam control message sent by the first node, wherein the fifth beam control message comprises the first beam behavior information and beam information of a fourth beam, and the fourth beam is a beam to be switched to;

executing the fixed beam dwell mode according to the fifth beam control message to activate the fourth beam; and

transparently forwarding third service data from the first node to a fourth node through the fourth beam.

15. A first node, comprising:

a processor and a memory,

the memory storing program instructions which, when executed by the processor, cause the processor to carry out the method of any of claims 1 to 9.

16. A second node, comprising:

a processor and a memory,

the memory storing program instructions which, when executed by the processor, cause the processor to perform the method of any of claims 10 to 14.

17. A computer-readable storage medium, storing program instructions which, when executed by a computer, cause the computer to carry out the method of any of claims 1 to 9, or the method of any of claims 10 to 14.