CLAIMS

1. A base station, wherein the base station is a source base station for layer 1/layer 2 (L1/L2)-triggered mobility (LTM), the base station comprising:

at least one memory; and

at least one processor coupled with the at least one memory and configured to cause the base station to:

determine one or more first LTM reference configurations and one or more LTM candidate cell configurations associated with the one or more first LTM reference configurations; and

transmit, to a user equipment (UE), the one or more first LTM reference configurations and the one or more first LTM candidate cell configurations associated with the one or more first LTM reference configurations,

wherein the one or more first LTM candidate cell configurations are provided by a candidate target node for LTM based on the one or more first LTM reference configurations.

2. The base station of claim 1, wherein the at least one processor is further configured to cause the base station to:

transmit, to the candidate target node, a first request message including a first source UE identifier and a first cell identifier for requesting a first LTM candidate cell configuration for a first LTM candidate cell belonging to the candidate target node.

3. The base station of claim 2, wherein the at least one processor is further configured to cause the base station to:

transmit, to the candidate target node, a first message including a first source UE identifier and one or more second LTM reference configurations associated with the first source UE identifier.

4. The base station of claim 2, wherein the first request message further includes one or more second LTM reference configurations associated with the first source UE identifier.

5. The base station of claim 4, wherein the first request message further includes a first indicator to indicate the candidate target node to store the one or more second LTM reference configurations.

6. The base station of claim 4, wherein the one or more second LTM reference configurations are included in a message embedded in the first request message.

7. The base station of claim 2, wherein a first reply message further includes a first selected LTM reference configuration or an index of the first selected LTM reference configuration response to one or more second LTM reference configurations include multiple LTM reference configurations,

wherein the first selected LTM reference configuration is a LTM reference configuration selected from the one or more second LTM reference configurations by the candidate target node for the first LTM candidate cell configuration,

wherein the one or more first LTM reference configurations include the first selected LTM reference configuration.

8. The base station claim 2, wherein the at least one processor is further configured to cause the base station to:

transmit, to the candidate target node, a second request message including the first source UE identifier and a second cell identifier for requesting a second LTM candidate cell configuration for a second LTM candidate cell belonging to the candidate target node; and

receive, from the candidate target node, a second reply messages including the second LTM candidate cell configuration determined based on the one or more second LTM reference configurations associated with the first source UE identifier,

wherein one or more first LTM candidate cell configurations include the second LTM candidate cell configuration.

9. The base station of any of claims 1 to 8, wherein the at least one processor is further configured to cause the base station to:

transmit, to the candidate target node, a third request message including a third source UE identifier and a third cell identifier for requesting a third LTM candidate cell configuration for a third LTM candidate cell belonging to the candidate target node; and

receive, from the candidate target node, a third reply message including the third LTM candidate cell configuration, wherein the third LTM candidate cell configuration is determined by the candidate target node based on an additional LTM reference configuration provided by the candidate target node, and the additional LTM reference configuration is associated to the third source UE identifier,

wherein the one or more first LTM candidate cell configurations include the third LTM candidate cell configuration.

10. The base station of claim 9, wherein the third reply message further includes the additional LTM reference configuration, wherein the one or more first LTM reference configurations include the additional LTM reference configuration.

11. The base station of claim 9, wherein the candidate target node is a candidate base station for LTM, and the first source UE identifier or the third source UE identifier is a source node UE Xn application protocol (XnAP) ID.

12. The base station of claim 9, wherein the base station includes a source central unit (CU) and one or more distributed units (DUs), the processor is a processor of the source CU, the candidate target node is a target DU among the one or more DU, and the first source UE identifier or the third source UE identifier is a CU UE F1 application protocol (F1AP) ID.

13. A network device, wherein the network device is a first network device for layer 1/layer 2 (L1/L2)-triggered mobility (LTM), the network device comprising:

at least one memory; and

at least one processor coupled with the at least one memory and configured to cause the network device to:

receive, from a second network device for LTM, a first request message including a first source user equipment (UE) identifier and a first cell identifier for

requesting a first LTM candidate cell configuration for a first LTM candidate cell belonging to the first network device; and

transmit, via the transceiver and to the second network device, a first reply message including the first LTM candidate cell configuration,

wherein the first LTM candidate cell configuration is determined by the first network device based on a first LTM reference configuration.

14. A user equipment (UE), comprising:

at least one memory; and

at least one processor coupled with the at least one memory and configured to cause the UE to:

receive, via the transceiver and from a source base station for layer 1/layer 2 (L1/L2)-triggered mobility (LTM), one or more LTM reference configurations and one or more LTM candidate cell configurations associated with the one or more LTM reference configurations, and

store the one or more LTM reference configurations and the one or more LTM candidate cell configurations associated with the one or more LTM reference configurations,

wherein the one or more LTM candidate cell configurations are provided by a candidate target node for LTM based on the one or more LTM reference configurations.

15 The UE of claim 14, wherein the one or more LTM reference configurations and the one or more LTM candidate cell configurations associated with the one or more LTM reference configurations are transmitted from the source base station to the UE via a reconfiguration message.

16. The UE of claim 15, wherein the reconfiguration message includes one or more configuration information elements (IEs), each configuration IE include one LTM reference configuration and at least one LTM candidate cell configuration associated with the one LTM reference configuration.

17. The UE of claim 15, wherein the reconfiguration message includes a reference configuration list in which each of the one or more LTM reference configurations is associated with at least one LTM candidate cell identifier (ID).

18. A method performed by a user equipment (UE) for layer 1/layer 2 (L1/L2)-triggered mobility (LTM), the method comprising:

receiving, from a source base station for layer 1/layer 2 (L1/L2)-triggered mobility (LTM), one or more LTM reference configurations and one or more LTM candidate cell configurations associated with the one or more LTM reference configurations, and

storing the one or more LTM reference configurations and the one or more LTM candidate cell configurations associated with the one or more LTM reference configurations,

wherein the one or more LTM candidate cell configurations are provided by a candidate target node for LTM based on the one or more LTM reference configurations.

19. The method of claim 18, wherein the one or more LTM reference configurations and the one or more LTM candidate cell configurations associated with the one or more LTM reference configurations are transmitted from the source base station to the UE via a reconfiguration message.

20. The method of claim 19, wherein the reconfiguration message includes one or more configuration information elements (IEs), each configuration IE include one LTM reference configuration and at least one LTM candidate cell configuration associated with the one LTM reference configuration.