CLAIMS

1. A radio access network (RAN) central unit (CU) comprising:

at least one memory; and

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

transmit, to a target RAN CU, a first request message indicates a candidate cell associated with layer 1 or layer 2 triggered mobility (LTM), and random access channel (RACH) resource for an early timing advance (TA) acquisition; and

receive, from the target RAN CU, a first response message comprising a first configuration for the candidate cell.

2. The RAN CU of claim 1, wherein the first request message includes a request for random access channel (RACH) resource for an early timing advance (TA) acquisition.

3. The RAN CU of claim 2, the request for random access channel (RACH) resource for an early TA acquisition includes an identity of the RAN CU.

4. The RAN CU of claim 1, wherein the at least one processor is further configured to cause the RAN CU to:

receive, from the target RAN CU, a first cancel indicating the candidate cell is cancelled.

5. The RAN CU of claim 1, wherein the at least one processor is further configured to cause the RAN CU to:

transmit, to the target RAN CU, a second cancel indicating the candidate cell is cancelled.

6. The RAN CU of claim 1, wherein the at least one processor is further configured to cause the RAN CU to:

transmit, to a RAN distributed unit (DU), a message for requesting the RAN DU to determine at least one condition for the candidate cell based on layer 1 measurements; and

receive, from the RAN DU, the at least one condition.

7. A radio access network (RAN) central unit (CU) comprising:

at least one memory; and

at least one processor coupled with the at least one memory and configured to cause a target RAN CU to:

receive, from a source RAN CU, a first request message indicates a candidate cell associated with LTM;

transmit, to a target RAN distributed unit (DU), a second request message indicates an indication of the LTM and the LTM candidate cell;

receive, from the target RAN DU, a second response message comprising a second configuration associated with the LTM candidate cell; and

transmit, to the source RAN CU, a first response message comprising a first configuration for the candidate cell.

8. The RAN CU of claim 7, wherein the first request message indicates condition based layer 1 or layer 2 triggered mobility (LTM) and an LTM candidate cell associated with the condition based LTM, wherein the condition based LTM will be performed based on an evaluation of conditions by a user equipment (UE).

9. The RAN CU of claim 7, wherein the first configuration comprises the second configuration.

10. The RAN CU of claim 7, wherein the second request message further indicates whether at least one subsequent LTM is supported by the condition based LTM.

11. The RAN CU of claim 7, wherein the at least one processor is further configured to cause the RAN CU to:

generate a condition for the LTM candidate cell based on layer 3 measurements,

wherein the condition for the LTM candidate cell based on layer 3 measurements.

12. The RAN CU of claim 7, wherein the second request message further indicates one of:

an estimated probability for arrival toward the LTM candidate cell associated with the condition based LTM, or

whether the estimated probability is applied for at least one subsequent LTM.

13. A target radio access network (RAN) central unit (CU) comprising:

at least one memory; and

at least one processor coupled with the at least one memory and configured to cause the target RAN CU to:

receive, from a RAN CU, a first request message indicates condition based layer 1 or layer 2 triggered mobility (LTM) and an LTM candidate cell associated with the condition based LTM, wherein the condition based LTM will be performed based on an evaluation of conditions by a user equipment (UE);

transmit, to a target RAN distributed unit (DU), a second request message indicates the condition based LTM and the LTM candidate cell;

receive, from the target RAN DU, a second response message comprising a second configuration associated with the LTM candidate cell; and

transmit, to the RAN CU, a first response message comprising a first configuration for the LTM candidate cell, wherein the first configuration at least comprises the second configuration.

14. The RAN CU of claim 13, wherein the first request message includes a request for random access channel (RACH) resource for an early timing advance (TA) acquisition.

15. The RAN CU of claim 14, the request for random access channel (RACH) resource for an early TA acquisition includes an identity of the RAN CU.

16. The RAN CU of claim 14, wherein the at least one processor is further configured to cause the RAN CU to:

receive, from the target RAN CU, a first cancel indicating the candidate cell is cancelled.

17. The RAN CU of claim 14, wherein the at least one processor is further configured to cause the RAN CU to:

transmit, to the target RAN CU, a second cancel indicating the candidate cell is cancelled.

18. The RAN CU of claim 1, wherein the at least one processor is further configured

to cause the RAN CU to:

transmit, to a RAN distributed unit (DU), a message for requesting the RAN DU to determine at least one condition for the LTM candidate cell based on layer 1 measurements; and

receive, from the RAN DU, the at least one condition,

wherein the one or more corresponding conditions comprise the at least one condition for the LTM candidate cell based on layer 1 measurements.