

Claims

What is claimed is:

1. A method comprising:
in a communication system, in response to a radio link failure between given user
5 equipment and a source access node of the communication system during a data transfer
operation over a control plane;
recovering the radio link for the given user equipment through a target access node of
the communication system, wherein the radio link recovery is enabled via a mobility
management node of the communication system using a non-access stratum security context
10 previously established between the given user equipment and the mobility management node;
wherein the mobility management node comprises a processor and memory configured
to enable the radio link recovery.
2. The method of claim 1, wherein recovering the radio link further comprises
15 receiving, at the mobility management node, a first non-access stratum message from the given
user equipment.
3. The method of claim 2, wherein the first non-access stratum message indicates that
the given user equipment has experienced the radio link failure with the source access node,
20 and is protected using a cryptographic key created from the non-access stratum security context
between the given user equipment and the mobility management node.
4. The method of claim 3, wherein recovering the radio link further comprises:
verifying, at the mobility management node, the given user equipment using the
25 cryptographic key;
initiating, at the mobility management node, set up of a signaling interface with the
target access node;
sending, from the mobility management node, a second non-access stratum message to
the given user equipment through the target access node; and

retrieving, by the mobility management node, buffered data associated with the data transfer from the source access node.

- 5 5. The method of claim 1, wherein the communication system comprises a Narrow Band Internet of Things (NB-IoT) network, and further wherein the given user equipment comprises cellular IoT (CIoT) user equipment.

- 10 6. An article of manufacture comprising a non-transitory computer-readable storage medium having embodied therein executable program code that when executed by a processor causes the processor to perform the method of claim 1.

7. An apparatus comprising:

15 in a communication system, in response to a radio link failure between given user equipment and a source access node of the communication system during a data transfer operation over a control plane;

20 a network node in the communication system configured to function as a mobility management entity, and further configured to enable recovering the radio link for the given user equipment through a target access node of the communication system, wherein the radio link recovery is enabled via the mobility management entity using a non-access stratum security context previously established between the given user equipment and the mobility management entity.

8. A method comprising:

25 in a communication system, in response to a radio link failure between given user equipment and a source access node of the communication system during a data transfer operation over a control plane;

recovering the radio link for the given user equipment through a target access node of the communication system, wherein the radio link recovery is initiated by the given user equipment by sending a message to a mobility management node of the communication system

through the target access node using a non-access stratum security context previously established between the given user equipment and the mobility management node;

wherein the given user equipment comprises a processor and memory configured to initiate the radio link recovery.

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9. An article of manufacture comprising a non-transitory computer-readable storage medium having embodied therein executable program code that when executed by a processor causes the processor to perform the method of claim 8.

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10. An apparatus comprising:

in a communication system, in response to a radio link failure between given user equipment and a source access node of the communication system during a data transfer operation over a control plane;

the given user equipment configured to enable recovery of the radio link for the given user equipment through a target access node of the communication system, wherein the radio link recovery is initiated by the given user equipment by sending a message to a mobility management node of the communication system through the target access node using a non-access stratum security context previously established between the given user equipment and the mobility management node.

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