

SYSTEM AND METHOD FOR IAB HANDOVERS

TECHNICAL FIELD

The disclosure relates generally to wireless communications and, more particularly, to systems and methods for handovers (HOs) of relay nodes.

BACKGROUND

A child relay node may become disconnected from a parent relay node during relay node handover due to poor network link conditions or channel crowding.

SUMMARY

The example embodiments disclosed herein are directed to solving the issues relating to one or more of the problems presented in the prior art, as well as providing additional features that will become readily apparent by reference to the following detailed description when taken in conjunction with the accompany drawings. In accordance with various embodiments, example systems, methods, devices and computer program products are disclosed herein. It is understood, however, that these embodiments are presented by way of example and are not limiting, and it will be apparent to those of ordinary skill in the art who read the present disclosure that various modifications to the disclosed embodiments can be made while remaining within the scope of this disclosure.

In a first aspect, the present disclosure provides a method, comprising: sending, by a central unit (CU) to a target distributed unit (DU), a user equipment (UE) context setup request configured to cause the target DU to create a UE context and to set up at least one bearer for a handover preparation procedure, wherein the UE context setup request comprises a radio link control (RLC) to-be-setup list, including a backhaul RLC channel level quality-of-service (QoS) profile, a UE bearer level QoS profile, a QoS flow-level QoS profile for user plane backhaul RLC channel, or a signaling radio bearer (SRB) QoS profile; and receiving, by the CU from the target DU, a UE context setup response responsive to the UE context setup request; and determining, by the CU, whether to modify configurations corresponding to the target DU to support the RLC channel to-be-setup list according to the UE context setup response.

In a second aspect, the present disclosure provides a central unit (CU), comprising: at least

one processor ~~and a transceiver~~ configured to: send, via a transceiver to a target distributed unit (DU), a user equipment (UE) context setup request configured to cause the target DU to create a UE context and to set up at least one bearer for a handover preparation procedure , wherein the UE context setup request comprises a radio link control (RLC) to-be-setup list, including a backhaul RLC channel level quality-of-service (QoS) profile, a UE bearer level QoS profile, a QoS flow-level QoS profile for user plane backhaul RLC channel, or a signaling radio bearer (SRB) QoS profile; ~~and~~ receive, via the transceiver from the target DU, a UE context setup response responsive to the UE context setup request; and determine whether to modify configurations corresponding to the target DU to support the RLC channel to-be-setup list according to the UE context setup response.

In a third aspect, the present disclosure provides a non-transitory computer readable medium storing instructions, which when executed by at least one processor, cause the at least one processor to ~~perform the method according to the first aspect;~~ send, by a central unit (CU) to a target distributed unit (DU), a user equipment (UE) context setup request configured to cause the target DU to create a UE context and to set up at least one bearer for a handover preparation procedure , wherein the UE context setup request comprises a radio link control (RLC) to-be-setup list, including a backhaul RLC channel level quality-of-service (QoS) profile, a UE bearer level QoS profile, a QoS flow-level QoS profile for user plane backhaul RLC channel, or a signaling radio bearer (SRB) QoS profile; receive, by the CU from the target DU, a UE context setup response responsive to the UE context setup request; and determine, by the CU, whether to modify configurations corresponding to the DU to support the RLC channel to-be-setup list according to the UE context setup response.

In some embodiments, a method includes sending, by a CU, a route reconfiguration request to each of downstream IAB nodes of the IAB node responsive to updates to a route table; and receiving, by the CU from each of the downstream IAB nodes, a route reconfiguration response.

In some embodiments, a method includes receiving, by an IAB node, routing information updates, and after the IAB node receiving a radio resource control (RRC)

CLAIMS

1. A method, comprising:

sending, by a central unit (CU) to a target distributed unit (DU), a user equipment (UE) context setup request configured to cause the target DU to create a UE context and to set up at least one bearer for a handover preparation procedure, wherein the UE context setup request comprises a radio link control (RLC) to-be-setup list, including a backhaul RLC channel level quality-of-service (QoS) profile, a UE bearer level QoS profile, a QoS flow-level QoS profile for user plane backhaul RLC channel, or a signaling radio bearer (SRB) QoS profile; and

receiving, by the CU from the target DU, a UE context setup response responsive to the UE context setup request; and

determining, by the CU, whether to modify configurations corresponding to the target DU to support the RLC channel to-be-setup list according to the UE context setup response.

2. The method of claim 1, wherein the UE context setup request comprises a ~~radio-link control (RLC)~~ to-be-setup list information element (IE).

~~3. The method of claim 2, wherein the RLC to-be-setup list comprises at least one of control signaling, user packet indication, a backhaul RLC channel level quality-of-service (QoS) profile, a UE bearer level QoS profile, a QoS flow-level QoS profile for user plane backhaul RLC channel, or a signaling radio bearer (SRB) QoS profile.~~

~~43.~~ The method of claim 1, wherein the UE context setup request comprises a route list information element (IE) ~~based on which the target DU configures~~ for use in configuring a route table.

~~54.~~ The method of claim ~~43~~, wherein the route list IE comprises at least a route identifier and a QoS identification list.

~~65.~~ The method of claim ~~54~~, wherein only data that is in the QoS identification list is transferred via routes corresponding to the route identifier.

~~7. A method, comprising:~~

~~— sending, by a central unit (CU), a route reconfiguration request to each of downstream IAB nodes of the IAB node responsive to updates to a route table; and~~
~~— receiving, by the CU from each of the downstream IAB nodes, a route reconfiguration response.~~

~~8. The method of claim 7, wherein the route table reconfiguration request comprises a route list IE based on which the target DU configures a route table.~~

~~9. The method of claim 7, wherein the IAB node is configured to change a destination address of a source path in an adaptation layer of transmitted data to a destination address of a target path.~~

~~106.~~ A central unit (CU), comprising:

at least one processor ~~and a transceiver~~ configured to:

send, via a transceiver to a target distributed unit (DU), a user equipment (UE) context setup request configured to cause the target DU to create a UE context and to set up at least one bearer for a handover preparation procedure, wherein the UE context setup request comprises a radio link control (RLC) to-be-setup list, including a backhaul RLC channel level quality-of-service (QoS) profile, a UE bearer level QoS profile, a QoS flow-level QoS profile for user plane backhaul RLC channel, or a signaling radio bearer (SRB) QoS profile; and

receive, via the transceiver from the target DU, a UE context setup response responsive to the UE context setup request; and

determine whether to modify configurations corresponding to the target DU to support the RLC channel to-be-setup list according to the UE context setup response.

~~117.~~ The CU of claim ~~106~~, wherein the UE context setup request comprises at least one of: a ~~radio link control (RLC)~~ to-be-setup list information element (IE), or a route list ~~information element (IE)~~ based on which the target DU configures for use in configuring a route table.

~~12. The CU of claim 11, wherein the RLC to-be-setup list comprises at least one of control signaling, user packet indication, a backhaul RLC channel level quality of service (QoS) profile, a UE bearer level QoS profile, a QoS flow level QoS profile for user plane backhaul RLC channel, or a signaling radio bearer (SRB) QoS profile.~~

~~138.~~ The CU of claim ~~447~~, wherein the route list IE comprises at least a route identifier and a QoS identification list.

~~149.~~ The CU of claim ~~138~~, wherein only data that is in the QoS identification list is transferred via routes corresponding to the route identifier.

~~15. A non-transitory computer readable medium storing instructions, which when executed by at least one processor, cause the at least one processor to perform the method of any one of claims 1-9.~~

10. A non-transitory computer readable medium storing instructions, which when executed by at least one processor, cause the at least one processor to:

send, by a central unit (CU) to a target distributed unit (DU), a user equipment (UE) context setup request configured to cause the target DU to create a UE context and to set up at least one bearer for a handover preparation procedure, wherein the UE context setup request comprises a radio link control (RLC) to-be-setup list, including a backhaul RLC channel level quality-of-service (QoS) profile, a UE bearer level QoS profile, a QoS flow-level QoS profile for user plane backhaul RLC channel, or a signaling radio bearer (SRB) QoS profile;

receive, by the CU from the target DU, a UE context setup response responsive to the UE context setup request; and

determine, by the CU, whether to modify configurations corresponding to the DU to support the RLC channel to-be-setup list according to the UE context setup response.

11. The non-transitory computer readable medium of claim 10, wherein the UE context setup request comprises a RLC to-be-setup list information element (IE).

12. The non-transitory computer readable medium of claim 10, wherein the UE context setup request comprises a route list information element (IE) for use in configuring a route table.

13. The non-transitory computer readable medium of claim 12, wherein the route list IE comprises at least a route identifier and a QoS identification list.

14. The non-transitory computer readable medium of claim 13, wherein only data that is in the

QoS identification list is transferred via routes corresponding to the route identifier.