【CLAIMS】

【Claim 1】

A method performed by a near-Real Time (RT) radio access network (RAN) intelligent controller (RIC) in a wireless communication system, the method comprising:

receiving, from an E2 node, an E2 removal request message for removing a signaling connection between the near-RT RIC and the E2 node through an E2 interface;

transmitting, to the E2 node, an E2 removal response message through the E2 interface; and

releasing at least one resource associated with removing of the signaling connection between the near-RT RIC and the E2 node,

wherein the E2 node comprises an open radio access network (O-RAN) distributed unit (O-DU), an O-RAN central unit-control plane (O-CU-CP), an O-RAN central unit - user plane (O-CU-UP), or a base station that communicates with the near-RT RIC via the E2 interface, and

wherein the E2 interface provided for communication between the near-RT RIC and the E2 node supports an E2 application protocol (E2AP) for communication over the E2 interface.

【Claim 2】

The method of claim 1, further comprising:

deleting information associated with the signaling connection between the near-RT RIC and the E2 node.

【Claim 3】

The method of claim 1,

wherein at least one resource associated with the signaling connection between the near-RT RIC and the E2 node is removed in the E2 node after transmitting the E2 removal response message, and

wherein a data transmission from the E2 node to the near-RT RIC is stopped after transmitting the E2 removal response message.

【Claim 4】

A near-real time (RT) radio access network (RAN) intelligent controller (RIC) in a wireless communication system, the near-RT RIC comprising:

a transceiver;

a processor; and

memory storing instructions that, when executed by the processor, cause the near-RT RIC to:

receive, from an E2 node, an E2 removal request message for removing a signaling connection between the near-RT RIC and the E2 node through an E2 interface,

transmit, to the E2 node, an E2 removal response message through the E2 interface, and

release at least one resource associated with removing of the signaling connection between the near-RT RIC and the E2 node,

wherein the E2 node comprises an open radio access network (O-RAN) distributed unit (O-DU), an O-RAN central unit-control plane (O-CU-CP), an O-RAN central unit - user plane (O-CU-UP), or a base station that communicates with the near-RT RIC via the E2 interface, and

wherein the E2 interface provided for communication between the near-RT RIC and the E2 node supports an E2 application protocol (E2AP) for communication over the E2 interface.

【Claim 5】

The near-RT RIC of claim 4, wherein the memory further comprises the instructions that, when executed by the processor, cause the near-RT RIC to:

delete information associated with the signaling connection between the near-RT RIC and the E2 node.

【Claim 6】

The near-RT RIC of claim 4,

wherein at least one resource associated with the signaling connection between the near-RT RIC and the E2 node is removed in the E2 node after transmitting the E2 removal response message, and

wherein a data transmission from the E2 node to the near-RT RIC is stopped after transmitting the E2 removal response message.

【Claim 7】

A method performed by an E2 node in a wireless communication system, the method comprising:

transmitting, to a near-Real Time (RT) radio access network (RAN) intelligent controller (RIC), an E2 removal request message for removing a signaling connection between the near-RT RIC and the E2 node through an E2 interface;

receiving, from the near-RT RIC, an E2 removal response message through the E2 interface; and

releasing at least one resource associated with removing of the signaling connection between the near-RT RIC and the E2 node,

wherein the E2 node comprises an open radio access network (O-RAN) distributed unit (O-DU), an O-RAN central unit-control plane (O-CU-CP), an O-RAN central unit - user plane (O-CU-UP), or a base station that communicates with the near-RT RIC via the E2 interface, and

wherein the E2 interface provided for communication between the near-RT RIC and the E2 node supports an E2 application protocol (E2AP) for communication over the E2 interface.

【Claim 8】

The method of claim 7, further comprising:

stopping a data transmission to the near-RT RIC.

【Claim 9】

The method of claim 7,

wherein at least one resource associated with the signaling connection between the near-RT RIC and the E2 node is removed in the near-RT RIC after receiving the E2 removal response message, and

wherein information associated with the signaling connection between the near-RT RIC and the E2 node is deleted in the near-RT RIC after receiving the E2 removal response message.

【Claim 10】

An E2 node in a wireless communication system, the E2 node comprising:

a transceiver;

a processor; and

memory storing instructions that, when executed by the processor, cause the E2 node to:

transmit, to a near-Real Time (RT) radio access network (RAN) intelligent controller (RIC), an E2 removal request message for removing a signaling connection between the near-RT RIC and the E2 node through an E2 interface,

receive, from the near-RT RIC, an E2 removal response message through the E2 interface, and

release at least one resource associated with removing of the signaling connection between the near-RT RIC and the E2 node,

wherein the E2 node comprises an open radio access network (O-RAN) distributed unit (O-DU), an O-RAN central unit-control plane (O-CU-CP), an O-RAN central unit - user plane (O-CU-UP), or a base station that communicates with the near-RT RIC via the E2 interface, and

wherein the E2 interface provided for communication between the near-RT RIC and the E2 node supports an E2 application protocol (E2AP) for communication over the E2 interface.

【Claim 11】

The E2 node of claim 10, wherein the memory further comprises the instructions that, when executed by the processor, cause the E2 node to:

stop a data transmission to the near-RT RIC.

【Claim 12】

The E2 node of claim 10,

wherein at least one resource associated with the signaling connection between the near-RT RIC and the E2 node is removed in the near-RT RIC after receiving the E2 removal response message, and

wherein information associated with the signaling connection between the near-RT RIC and the E2 node is deleted in the near-RT RIC after receiving the E2 removal response message.