

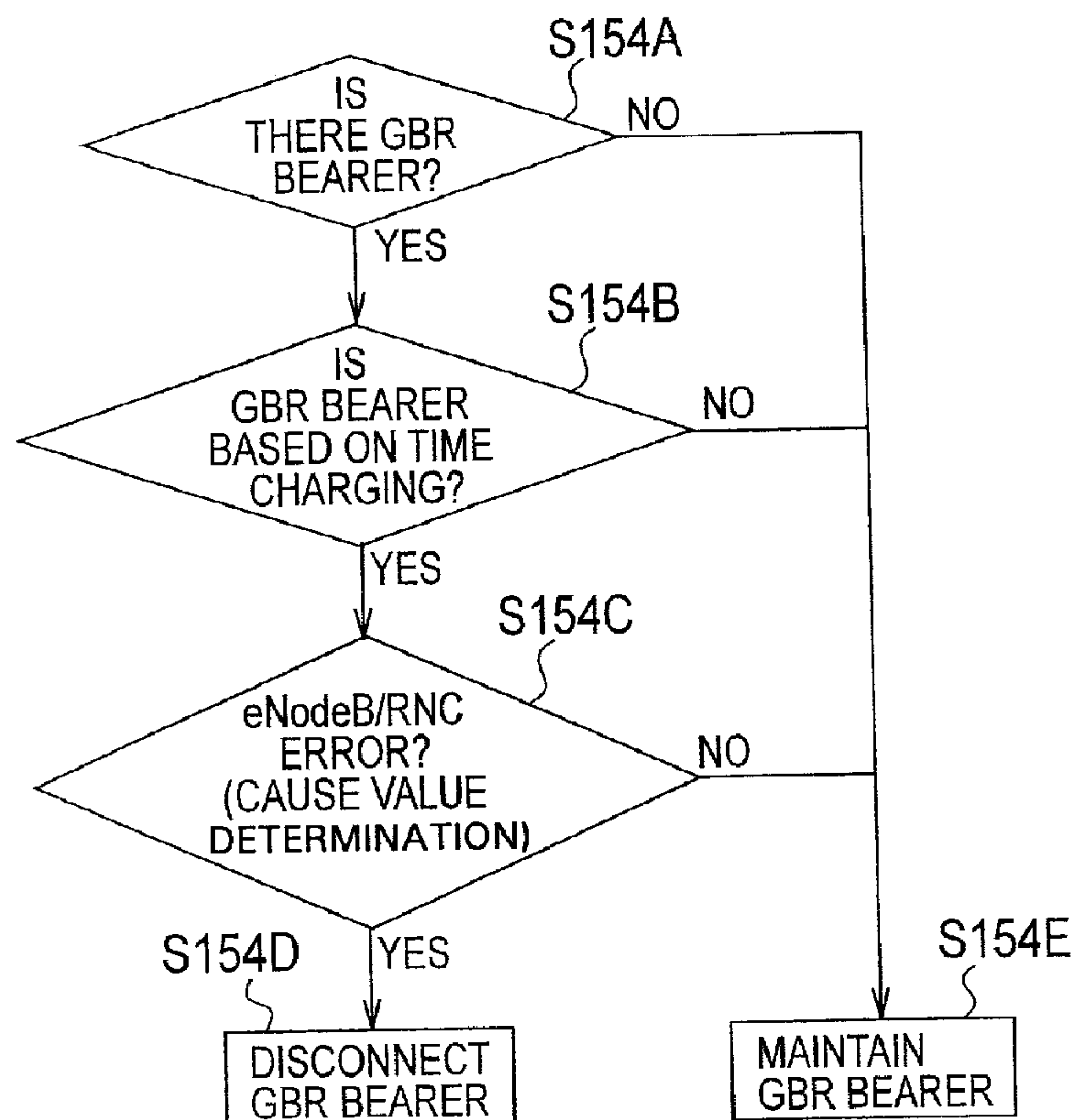


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(54) Titre : PROCÉDE DE COMMUNICATION MOBILE, NOEUD DE GESTION MOBILE ET DISPOSITIF D'ECHANGE DE
PAQUETS

(54) Title: MOBILE COMMUNICATION METHOD, MOBILITY MANAGEMENT NODE, AND PACKET EXCHANGER



(57) Abrégé/Abstract:

A mobile communication method according to the present invention includes a step A of releasing, by a gateway device S-GW, a first GBR bearer for a mobile station UE and transmitting "Downlink Data Notification" to a packet exchanger SGSN if a fault of a



(57) **Abrégé(suite)/Abstract(continued):**

radio network controller RNC is detected in the state in which a second GBR bearer for the mobile station UE is set, a step B of transmitting, by the packet exchanger SGSN, "Paging" to the mobile station UE, and a step C of starting, by the packet exchanger SGSN, a procedure for releasing the second GBR bearer when no response to the "Paging" is received from the mobile station UE in a predetermined period.

ABSTRACT

A mobile communication method according to the present invention includes a step A of releasing, by a gateway device S-GW, a first GBR bearer for a mobile station UE and transmitting “Downlink
5 Data Notification” to a packet exchanger SGSN if a fault of a radio network controller RNC is detected in the state in which a second GBR bearer for the mobile station UE is set, a step B of transmitting, by the packet exchanger SGSN, “Paging” to the mobile station UE, and a step C of starting, by the packet exchanger SGSN, a procedure for releasing
10 the second GBR bearer when no response to the “Paging” is received from the mobile station UE in a predetermined period.

DESCRIPTION

MOBILE COMMUNICATION METHOD, MOBILITY MANAGEMENT NODE, AND PACKET EXCHANGER

5 TECHNICAL FIELD

[0001] The present invention relates to a mobile communication method, a mobility management node, and a packet exchanger.

BACKGROUND ART

10 [0002] With reference to Fig. 15 and Fig. 16, a description will be provided for a control process of a GBR (Guaranteed Bit Rate) bearer when a fault occurs in a radio base station eNodeB in a mobile communication system employing an E-UTRAN (Evolved UTRAN) scheme.

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[0003] Firstly, with reference to Fig. 15, a first example of the control process of the GBR bearer will be described.

[0004] As illustrated in Fig. 15, in step S1000, a GBR bearer setting
20 process is performed, so that a GBR bearer is set between a mobile station UE and a radio base station eNodeB, between the radio base station eNodeB and a gateway device S-GW (Serving Gateway), and between the gateway device S-GW and a gateway device P-GW (PDN Gateway).

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[0005] In step S1001, a fault occurs in the radio base station eNodeB, and a resumption process is performed.

[0006] If a packet addressed to the mobile station UE, which is
30 transferred via the gateway device P-GW and the gateway device S-GW, is received in step S1002, the radio base station eNodeB transmits "Error Indication" to the gateway device S-GW in step S1003.

[0007] The gateway device S-GW releases a GBR bearer resource for
35 the radio base station eNodeB in step S1004, and buffers the packet

addressed to the mobile station UE, which is received from the gateway device P-GW, in step S1005.

5 [0008] In step S1006, the gateway device S-GW transmits “Downlink Data Notification” for notifying the packet, which is being buffered, addressed to the mobile station UE, to a mobility management node MME (Mobility Management Entity).

10 [0009] In step S1007, the mobility management node MME transmits “Paging” addressed to the mobile station UE to the radio base station eNodeB, and activates a paging timer.

15 [0010] In step S1008, even when there is no response to the “Paging” from the mobile station UE until the paging timer expires, the mobility management node MME holds the GBR bearer between the gateway device S-GW and the gateway device P-GW rather than releasing the GBR bearer.

20 [0011] Secondly, with reference to Fig. 16, a second example of the control process of the GBR bearer will be described.

25 [0012] As illustrated in Fig. 16, in step S2000, a GBR bearer setting process is performed, so that a GBR bearer is set between the mobile station UE and the radio base station eNodeB, between the radio base station eNodeB and the gateway device S-GW, and between the gateway device S-GW and the gateway device P-GW.

[0013] In step S2001, a fault occurs in the radio base station eNodeB, and a resumption process is performed.

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[0014] In step S2002, the radio base station eNodeB transmits a RESET signal to the mobility management node MME.

35 [0015] In step S2003, the mobility management node MME transmits “Release Access Bearer Request” to the gateway device S-GW.

[0016] The gateway device S-GW releases a GBR bearer resource for the radio base station eNodeB in step S2004, and transmits "Release Access Bearer Response" to the mobility management node MME in
5 step S2005.

[0017] If a packet addressed to the mobile station UE is received from the gateway device P-GW in step S2006, the gateway device S-GW buffers the packet in step S2007.

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[0018] In step S2008, the gateway device S-GW transmits "Downlink Data Notification" for notifying the packet, which is being buffered, addressed to the mobile station UE, to the mobility management node MME.

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[0019] In step S2009, the mobility management node MME transmits "Paging" addressed to the mobile station UE to the radio base station eNodeB, and activates a paging timer.

20 [0020] In step S2010, even when there is no response to the "Paging" from the mobile station UE until the paging timer expires, the mobility management node MME holds the GBR bearer between the gateway device S-GW and the gateway device P-GW rather than releasing the GBR bearer.

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PRIOR ART DOCUMENT

NON-PATENT DOCUMENT

[0021] Non-Patent Document 1: 3GPP TS23.401
Non-Patent Document 2: 3GPP TS24.301
30 Non-Patent Document 3: 3GPP TS23.007
Non-Patent Document 4: 3GPP TS23.060

SUMMARY OF THE INVENTION

PROBLEMS TO BE SOLVED BY THE INVENTION

35 [0022] However, in the mobile communication system, as illustrated in

