

returns an Activate Secondary PDP Context Accept (TI, QoS Negotiated, Radio Priority, Packet Flow Id) message to the MS. The SGSN is now able to route PDP PDUs between the GGSN and the MS via different GTP tunnels and possibly different LLC links.

[0026] FIG. 3, also provided for exemplary purposes only, illustrates the SGSN-initiated PDP context modification procedure and corresponds to FIG. 68 of the aforementioned Technical Specification. The following discussion of the steps in FIG. 3 is also contained therein.

[0027] An MS or GGSN can request, an SGSN can decide, possibly triggered by the HLR as explained in subclause "Insert Subscriber Data Procedure" or triggered by a RAB Release procedure initiated by an RNC, or an MS and SGSN can decide after an RNC-initiated Iu release, to modify parameters that were negotiated during an activation procedure for one or several PDP contexts. The following parameters can be modified:

[0028] QoS Negotiated;

[0029] Radio Priority;

[0030] Packet Flow Id;

[0031] PDP Address (in case of the GGSN-initiated modification procedure); and

[0032] TFT (in case of MS-initiated modification procedure).

[0033] The SGSN can request the modification of parameters by sending a Modify PDP Context Request message to the MS.

[0034] A GGSN can request the modification of parameters by sending an Update PDP Context Request message to the SGSN.

[0035] An MS can request the modification of parameters by sending a Modify PDP Context Request message to the SGSN.

[0036] An RNC can request an Iu release by sending an Iu Release Request message to the SGSN. After Iu release the MS and SGSN shall modify the PDP contexts according to the rules defined in subclause "RNC-Initiated PDP Context Modification Procedure".

[0037] An RNC can request the release of a radio access bearer. After RAB release the MS and the SGSN shall locally modify the corresponding PDP context according to rules defined in the subclause "RAB Release-Initiated Local PDP Context Modification Procedure".

[0038] A trace may be activated while a PDP context is active. To enable trace activation in a GGSN, the SGSN shall send an Update PDP Context Request message to the GGSN. If PDP context modification is performed only to activate a trace, then the SGSN shall not send a Modify PDP Context Request message to the MS.

[0039] 1) The SGSN may send an Update PDP Context Request (TEID, NSAPI, QoS Negotiated, Trace Reference, Trace Type, Trigger Id, OMC Identity) message to the GGSN. If QoS Negotiated received from the SGSN is incompatible with the PDP context being modified, then the GGSN rejects the Update

PDP Context Request. The compatible QoS profiles are configured by the GGSN operator. The SGSN shall include Trace Reference, Trace Type, Trigger Id, and OMC Identity in the message if GGSN trace is activated while the PDP context is active. The SGSN shall copy Trace Reference, Trace Type, and OMC Identity from the trace information received from the HLR or OMC.

[0040] 2) The GGSN may restrict QoS Negotiated given its capabilities and the current load. The GGSN stores QoS Negotiated and returns an Update PDP Context Response (TEID, QoS Negotiated, Cause) message.

[0041] 3) The SGSN selects Radio Priority and Packet Flow Id based on QoS Negotiated, and may send a Modify PDP Context Request (TI, QoS Negotiated, Radio Priority, Packet Flow Id) message to the MS.

[0042] 4) The MS acknowledges by returning a Modify PDP Context Accept message. If the MS does not accept the new QoS Negotiated it shall instead de-activate the PDP context with the PDP Context Deactivation Initiated by MS procedure.

[0043] 5) In UMTS, radio access bearer modification may be performed by the RAB Assignment procedure.

[0044] 6) If BSS trace is activated while the PDP context is active, then the SGSN shall send an Invoke Trace (Trace Reference, Trace Type, Trigger Id, OMC Identity) message to the BSS or UTRAN. Trace Reference, and Trace Type are copied from the trace information received from the HLR or OMC.

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[0048] 4) The MS acknowledges by returning a Modify PDP Context Accept message. If the MS does not accept the new QoS Negotiated it shall