3GPP ULI Reporting Support Enhanced

This feature enhancement covers ULI related gaps in P-GW and GGSN as per 3GPP standards.

Feature Change

This feature enhancement covers ULI related gaps in P-GW and GGSN as per 3GPP standards.

S4SGSN reports ULI to the P-GW through S-GW. P-GW determines the changes in the ULI with previously received ULI. If any change is detected and same change has been requested by the PCRF as an event trigger then the ULI is reported to the PCRF.

SGSN reports ULI to the GGSN. GGSN determines the changes in the ULI with previously received ULI. If any change is detected and same change has been requested by the PCRF as an event trigger, then the ULI is reported to the PCRF. Support has also been added to detect the change in RAI received as part of the ULI field at GGSN.

Following table summarizes the Change Reporting Action (CRA) values based on Event Triggers received from the PCRF, which the P-GW communicates with S4 SGSN.

Event Trigger From PCRF	CRA Sent to S4 SGSN
USER_LOCATION_CHANGE (13)	Start Reporting CGI/SAI and RAI (5)
RAI_CHANGE (12)	Start Reporting RAI (2)
USER_LOCATION_CHANGE + RAI_CHANGE	Start Reporting CGI/SAI and RAI (5)

Following table summarizes the MS Info Change Reporting Action values based on Event Triggers received from the PCRF which GGSN communicates to SGSN.

Event Trigger from PCRF	MS Info Change Reporting Actiontowards SGSN
USER_LOCATION_CHANGE (13)	Start Reporting CGI/SAI (1)
RAI_CHANGE (12)	Start Reporting RAI (2)
BOTH (12,13)	Start Reporting CGI/SAI (1)

P-GW/GGSN reports the CRA/MS Info Change Reporting Action immediately on receiving the Event Triggers without waiting for other events like APN/AMBR update or QoS update.

Behavior Change

Previous of Change Reporting Action: Following table illustrates the old and new behavior of Change Reporting Action with respect to the Event Triggers received from PCRF, when the Access Node is S4SGSN.

Event Trigger From PCRF	CRA Sent to S4SGSN	CRA Sent to S4SGSN
ULI_CHANGE(13)	6 (START_REPORTING_TAI_ECGI)	5(START_REPORTING_CGI_RAI)
RAI_CHANGE(12)	No CRA Sent	2 (START_REPORTING_RAI)
BOTH (12,13)	6 (START_REPORTING_TAI_ECGI)	5 (START_REPORTING_CGI_RAI)

Behavior of MS Info Change Reporting Action: Following table illustrates the old and new behavior of MS Info CRA with respect to the Event Triggers received from PCRF, when the Access Node is SGSN.

Event Trigger From PCRF	CRA Sent to SGSN	CRA Sent to SGSN
ULI_CHANGE(13)	1 (START_REPORTING_CGI/SAI)	1 (START_REPORTING_CGI/SAI)
RAI_CHANGE(12)	No CRA Sent	2 (START_REPORTING_RAI)
BOTH (12,13)	1 (START_REPORTING_CGI/SAI)	1 (START_REPORTING_CGI/SAI)

Limitations

1. In GGSN, when a new ULI is received in the Network Request Updated PDP Context (NRUPC) Response, it is not reported to the PCRF.
2. In GGSN, when a dedicated bearer is deleted or call is dropped, ULI change is not detected.