Support for 187 and 188 Information Element Types on S5 and S8 Interfaces

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Feature Summary and Revision History

Summary Data

Applicable Product(s) or Functional Area	P-GW
Applicable Platform(s)	• ASR 5500 • VPC-DI • VPC-SI
Feature Default	Enabled - Always On
Related Changes in This Release	Not Applicable
Related Documentation	*P-GW Administration Guide*

Revision History

Revision Details	Release
Support for inclusion of 187 and 188 Information Element types on S5 and S8 Interfaces.	21.26.17

Feature Description

During detection and handling of late arriving requests, a GTP-C entity initiates a Create Session Request (MME) with the Origination Time Stamp message. This indicates the absolute time at which the request is initiated and the Maximum Wait Time indicating the maximum time to complete the processing of the request. The Maximum Wait Time, together with the Origination Time Stamp, indicates the absolute time at which the request times out at the originating entity. The receiving node utilizes the same time stamp and maximum wait time to identify if it is still a valid message and if it should process it. If the message is processed, the intermediate nodes replicate the time stamp and maximum wait time in messages that are generated by the node toward other peers. Each network element compares the Time Stamp and its own synced Network Time Protocol (NTP) time to ensure that stale messages are not processed.

If any session-related information is created and before the network element responds, the maximum wait time has passed, the network element ensures to clear or release stale session information.

In MME, according to the 3GPP 29.274 version, the Origination Time Stamp (188) and Maximum Wait Time (187) Information Element types (IE) are supported into the messages instead of the 255 IE type. The feature is only supported for s2b, s5, and s8 interfaces. P-GW supports receiving and sending the Origination Time Stamp and Max Wait Time IEs / AVPs in these interfaces such as S5, Gx, and S6b.

GGSN on Gn/Gp interface is not supported.

How it Works

This section describes the call flow procedures that are related to messages and nodes carrying Origination Time Stamp and Maximum Wait Time (MWT):

The IEs obtained from MME send messages toward P-GW, PCRF, and AAA nodes without any modification.

Call Flow

Figure 1: Displays IEs Accross nodes

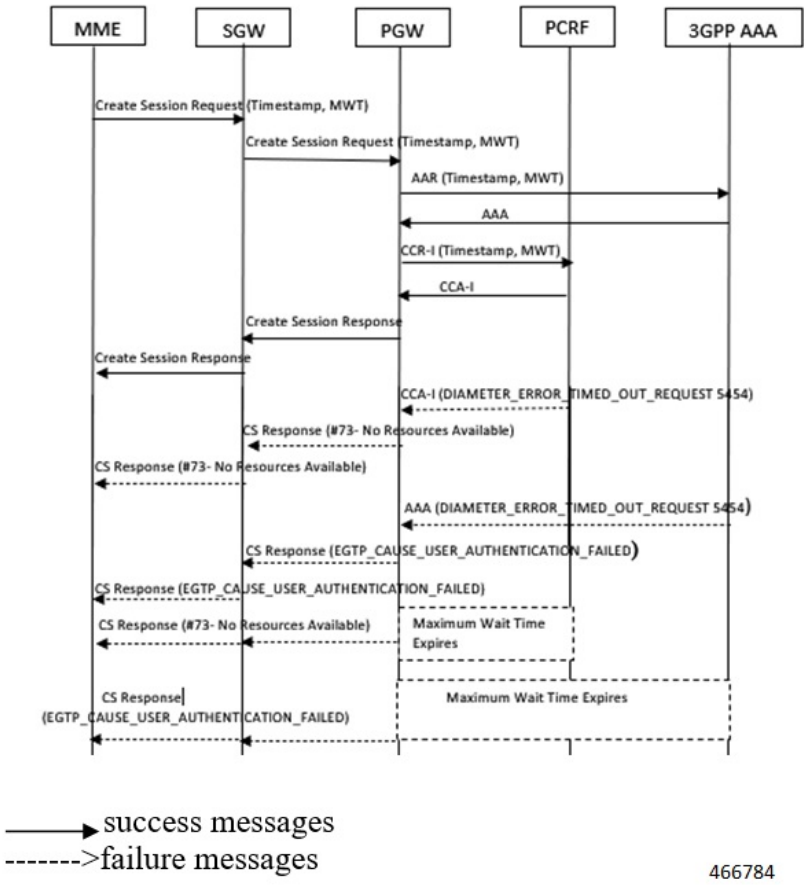

Table 1: Procedure

Step	Message Type	Description
1	Create Session Request	The MME includes Origination Time Stamp and Maximum Wait time on S11 interface. When present, the Origination Time Stamp contain the Universal Time Code (UTC) time when the originating entity initiated the request, and the Maximum Wait Time will contain the duration (number of milliseconds since the Origination Time Stamp) during which the originator of the request waits for a response. If S-GW receives IEs from the MME, then the S-GW includes these IEs on the S5 or S8 interface.
2	Credit Control Request-Initial Request	The IEs received in P-GW sends messages to PCRF through Gx interface. This gets included only in the initial request of CCR.

Step	Message Type	Description
3	Authentication Authorization Request	The IEs received in P-GW sends messages AAA through s6b interface.

Supported RAT Types

The Origination Time Stamp and Maximum Wait Time IEs are supported for E-UTRAN, NB-IOT and LTE-M RAT types. The received IEs in P-GW sends messages on Gx and S6b interfaces.

Handling Handover

Handover (HO) from LTE to Wi-Fi and vice versa is supported to include **Origination Time Stamp and Maximum Wait Time** IEs. During the Handoff from LTE to Wi-Fi or vice versa, the **Origination Time Stamp and Maximum Wait Time** IEs sends messages on S5 and S2b interfaces and not on Gx and S6b interfaces.

In case of LTE to Wi-Fi HO, if a new create session request comes from ePDG, then that request is considered as a new CSR and the handover process is same as the initial attach for new IEs.