

Troubleshoot Cell ID Details Update over Li Server

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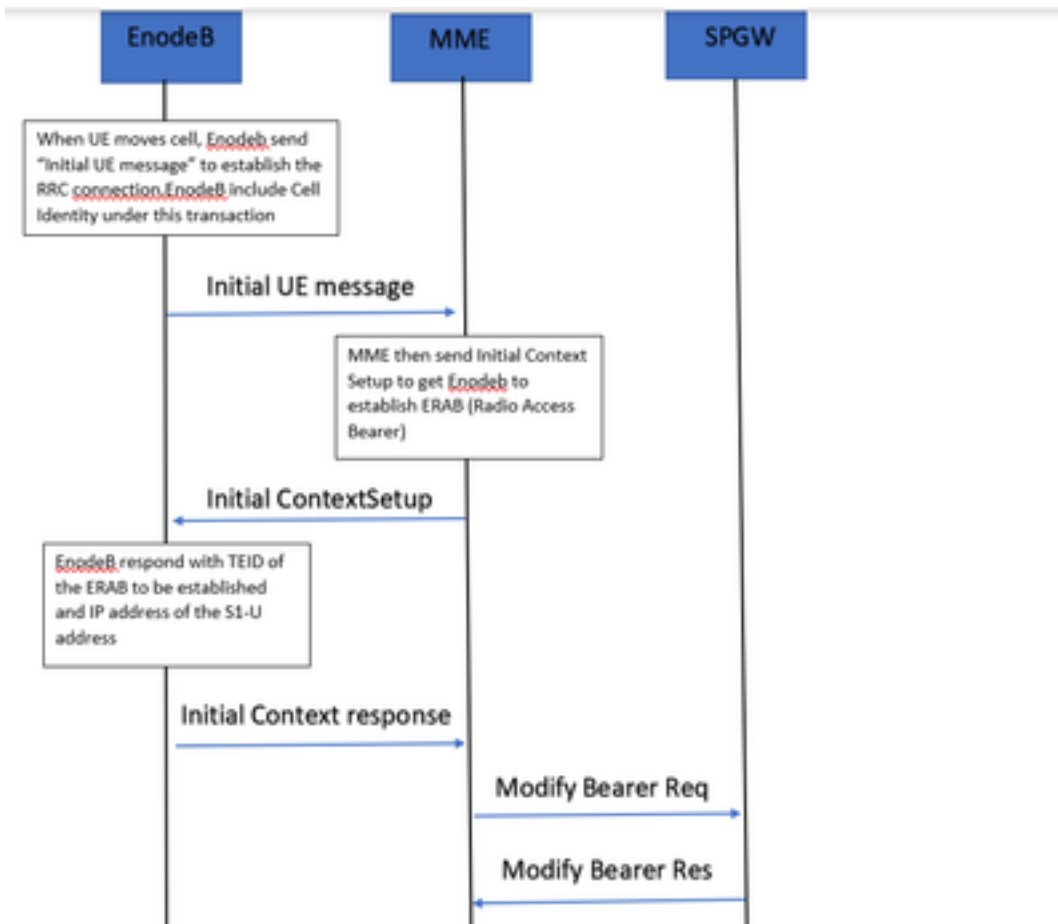
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Introduction

This document describes cell details update over the Lawful intercept (Li) server without Tracking Area Code (TAC) change.

Background Information

1. Cell details are pushed towards Mobility Management Entity (MME) and Serving and Packet Data Network (PDN) Gateway (SPGW) via User Location Information (ULI) information when the user is latched for the first time or when the location is changed.
2. When the location is changed, it can be a routing area change for 2G/3G or can be a tracking area change for 4G where you send its updated ULI information towards MME and further towards SPGW via MBReq.



Troubleshoot Cell ID Details Update over Li Server

1. Normally, MME sends Modify Bearer Request towards SPGW for any update or any change in the ongoing bearer session.
2. When the user moves from one TAC to another TAC, MME sends out a Modify Bearer Request towards SPGW with the updated ULI information. And, since the Li server connects with PGW, it fetches the cell details and TAC from PGW.
3. But, when the user moves from one cell to another cell in the same TAC and is in moving state, it does not send any Modify Bearer Request towards SPGW because Tunnel End Identifier (TEID)/S1-U/Enodeb remains the same and there is nothing to update. So, in such scenarios, the latest cell details are not pushed towards SPGW. So, the Li server does not get the latest cell of the user.

However here, ENodeB sends an Initial UE message with the latest cell, but that is updated only till MME and MME does not send any Modify Bearer Request further towards SPGW just based on this message and without any update.

Solution

1. You can enable ULI triggers from MME towards SPGW, but again that is considered at the TAC level. So, it is not useful for every cell level change. Therefore, in such a scenario when the user is in a moving state and cells are changed within the same TAC, then such cells are not updated at the Li server.

Once the user is refreshed or the user latches again, then the latest cell details are updated over PGW from where the Li server can get the details.

2. As of now, there is no such CLI that can enable triggers based on only cell change even if it's within the same TAC.

3. One of the disadvantages of this implementation of cell-level triggers is that it increases the control signal messages in the network to a very high range.