Dionysios Vergakis

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Subject Area	Software and Systems
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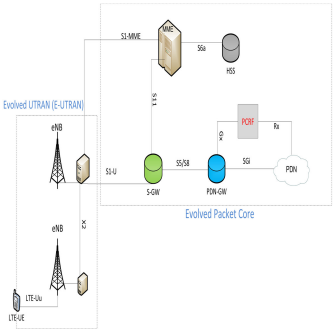
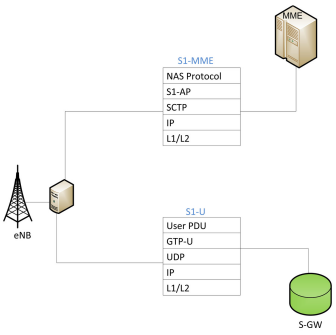
Evolved Packet System analysis and implementation

Protocol analysis and partial implementation oft the S1-AP in ns-3



Evolved Packet System

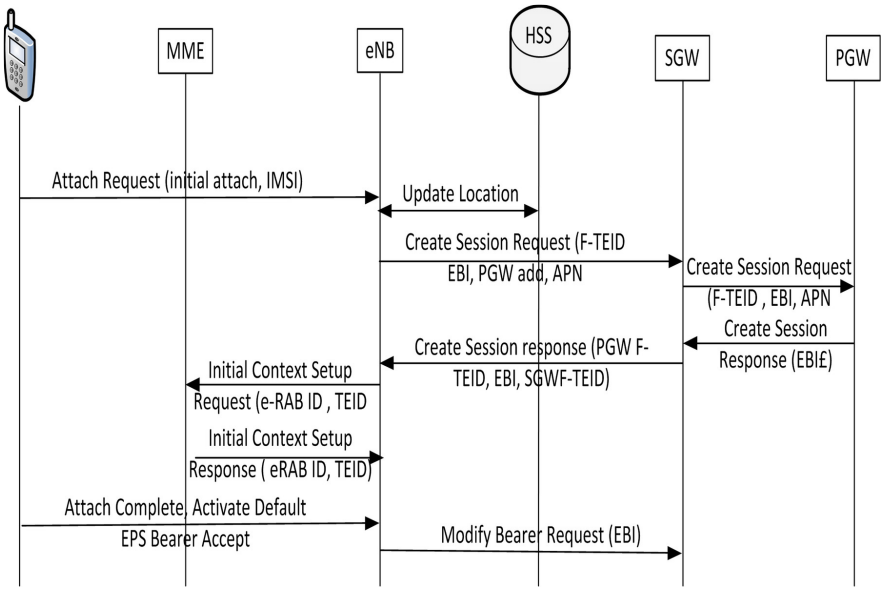


Protocol stack of S1-MME and S1-U

Introduction: The 4th Generation (4G) of telecommunication networks, also called the Evolved Packet System (EPS), will be the successor of the today used telecommunication technologies Global System for Mobile Communications (GSM) and Universal Mobile Telecommunications System (UMTS), the 3rd Generation (3G). This project work is part of the DHPE project where the University of Applied Sciences Darmstadt, Germany, the University of Applied Sciences Rapperswil, Switzerland, and the University of Plymouth, United Kingdom are involved. The DHPE project has the aim to expand the network simulator ns-3 with an EPS module to enable the simulation of 4G network protocols.

Objective: The aim of this project work is to provide a detailed analysis of the ns-3 EPS implementation within the scope of the DHPE project. This is done with a paper submission at the 17. ITG Fachtagung Mobilkommunikation in Osnabrück, Germany. Furthermore, the EPS, especially the handover behaviour and the S1AP is analysed and a partial implementation of the S1AP is done in the network simulator ns-3.

Result: The paper «Simulation Environment for the Evolved Packet System» was submitted and get accepted at the 17. ITG Fachtagung Mobilkommunikation in Osnabrück, Germany. Therefore, the paper could be successfully presented at the Fachtagung. The analysis of the EPS, the handover behaviour, and the S1AP provided the basis to realize the bit-by-bit implementation of the partial implementation of the S1AP.



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