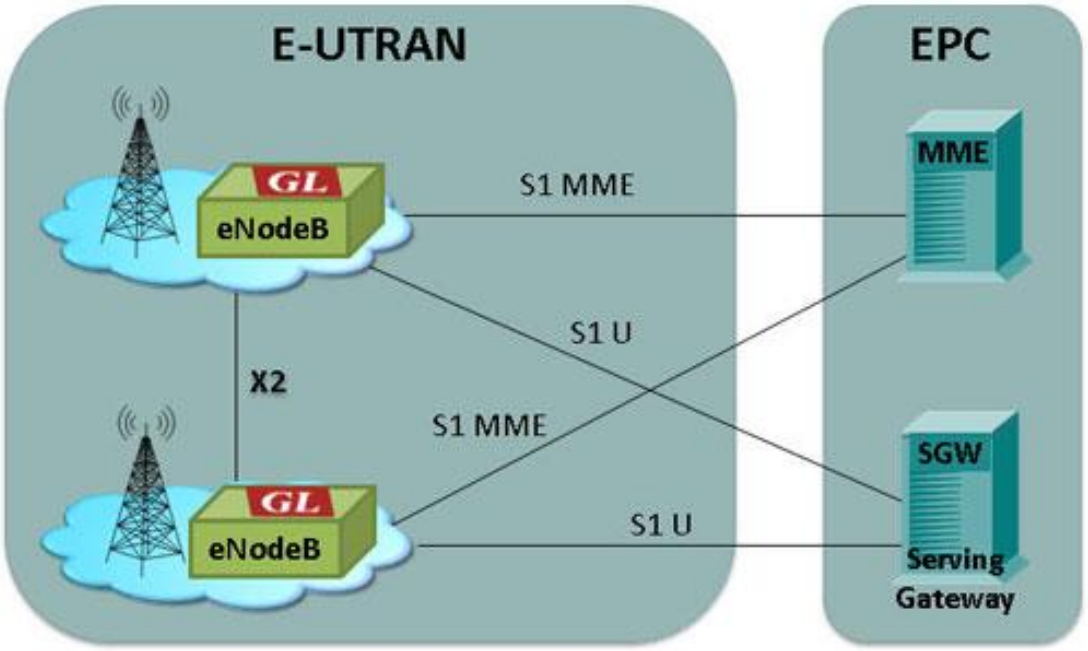
Handover Procedure in LTE Network



GL MAPS™ X2AP in LTE network

GL's MAPS™ designed for X2 Application Protocol (X2-AP) is used to co-ordinate handovers and perform load management between eNodeB (Evolved Node B) network elements - Source eNodeB and Target eNodeB. The MAPS™ X2-AP test tool is designed with specific test cases, as per LTE 3GPP mobile standards.

LTE X2-AP is responsible for the following functions:

- Mobility Management - this enables the serving eNodeB to move the specified UE responsibility to a target eNodeB.
  - Handover Preparation
  - SN Status Transfer
  - UE Context Release
  - Handover Cancel
- Load Management - procedure to report resource status, overload indications and current traffic loading between the eNodeBs
- Reporting of General Error Situations - procedure to report general error situations
- Re-setting /Setting the X2 – procedure to setup or reset X2 interface by exchanging the necessary information between the eNodeBs
- eNodeB Configuration Update - procedure to update the application level data required for the eNodeBs to interoperate in the network.

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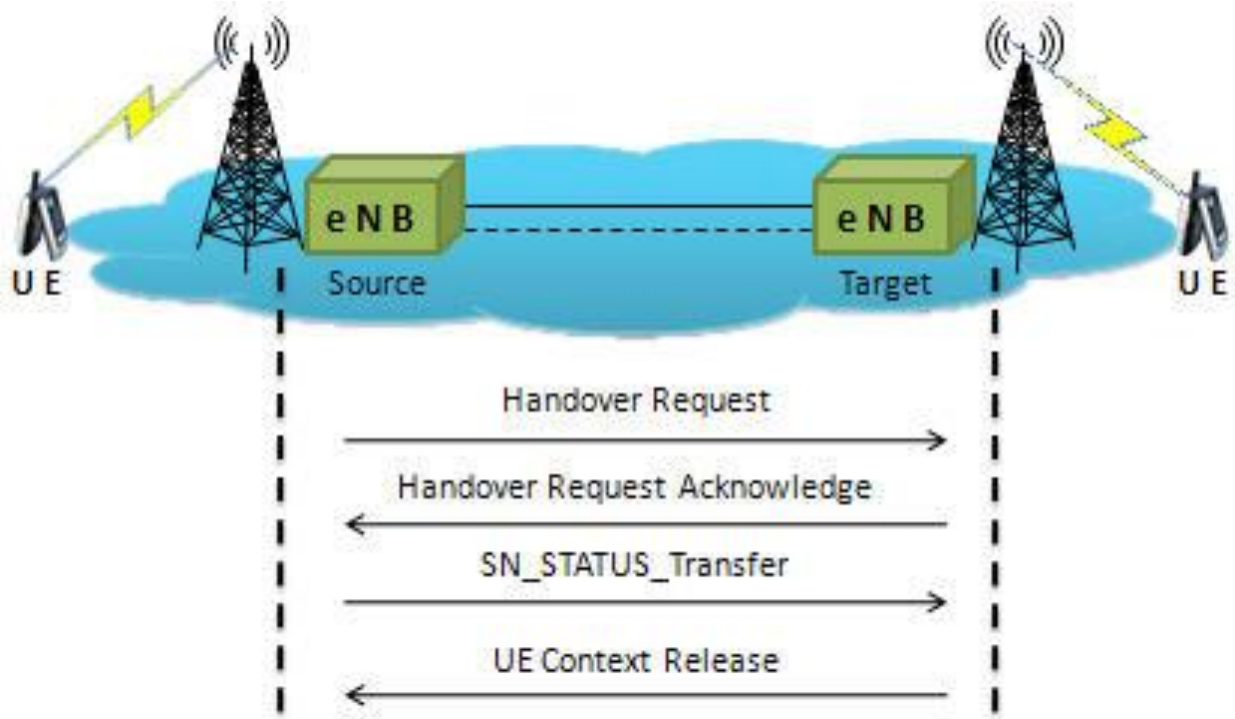
Mobility Management (UE Associated Procedures)

- **Handover Preparation** - This function allows the eNodeB to move the responsibility of a certain UE to another eNB. Forwarding of user plane data, Status Transfer and UE Context Release function are parts of the mobility management. The source eNB initiates the procedure by sending the HANDOVER REQUEST message to the target eNB. The allocation of resources follows the principles described for the E-RAB Setup procedure. The target eNB reserves necessary resources, and send the HANDOVER REQUEST ACKNOWLEDGE message back to the source eNB.
- **SN Status Transfer** - The purpose of the SN Status Transfer procedure is to transfer the uplink Packet Data Convergence Protocol (PDCP) SN and Hyper Frame Number (HFN) receiver status and the downlink PDCP SN and HFN transmitter status from the source to the target eNodeB during an X2 handover.
- **UE Context Release** - The UE Context Release procedure is initiated by the target eNB, which indicates to the source eNB that radio and control plane resources for the handed over UE context can be released.



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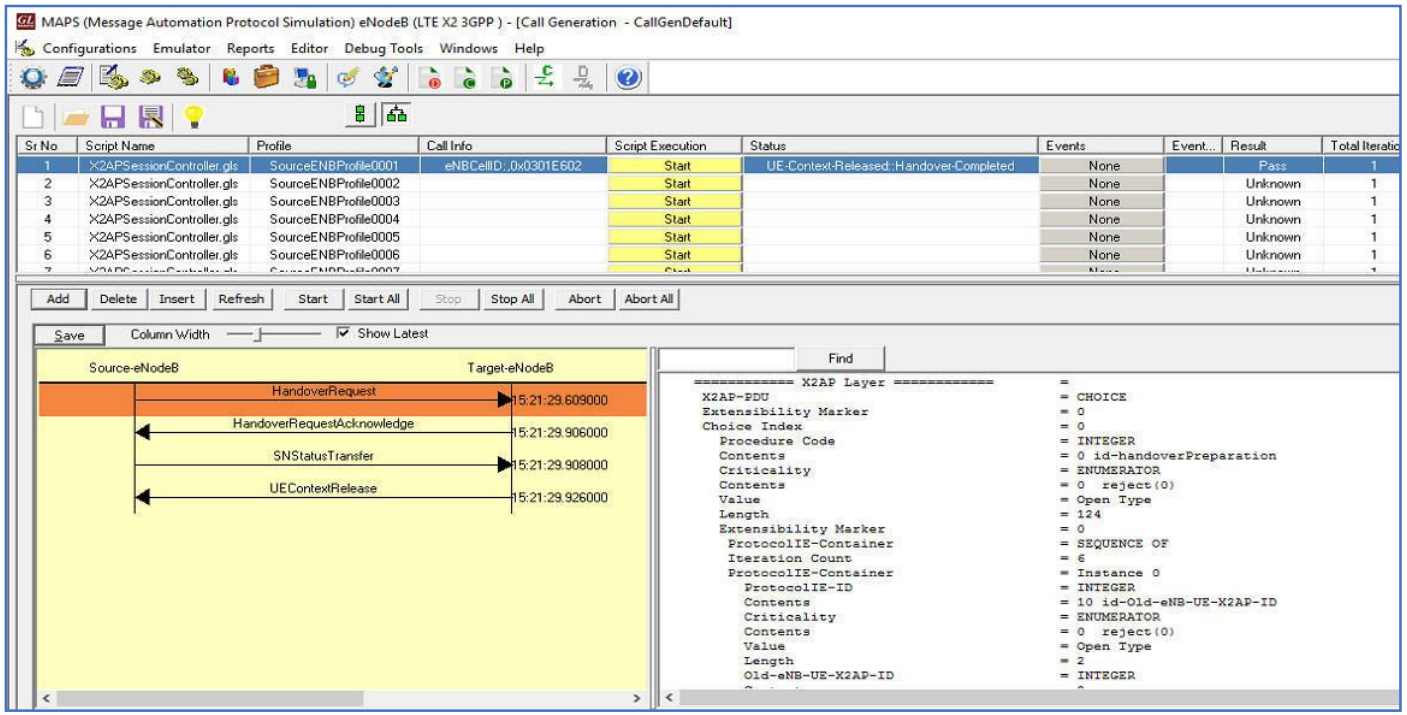
Mobility Management (UE Associated Procedures)



Handover Procedure Generation using MAPS™ X2AP - eNodeB

- MAPS™ X2 can be configured as Source eNodeB or Target eNodeB terminals in the LTE network over X2 interface handling the UE associated procedures (Mobility Management – Handover, Error Indication).
- The test is performed to ensure that the MAPS™ X2 configured as Source eNodeB initiates the procedure by sending the HANDOVER REQUEST message to the Target eNodeB. The Target eNodeB (DUT) shall reserve necessary resources, and send the HANDOVER REQUEST ACKNOWLEDGE message back to the Source eNodeB

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