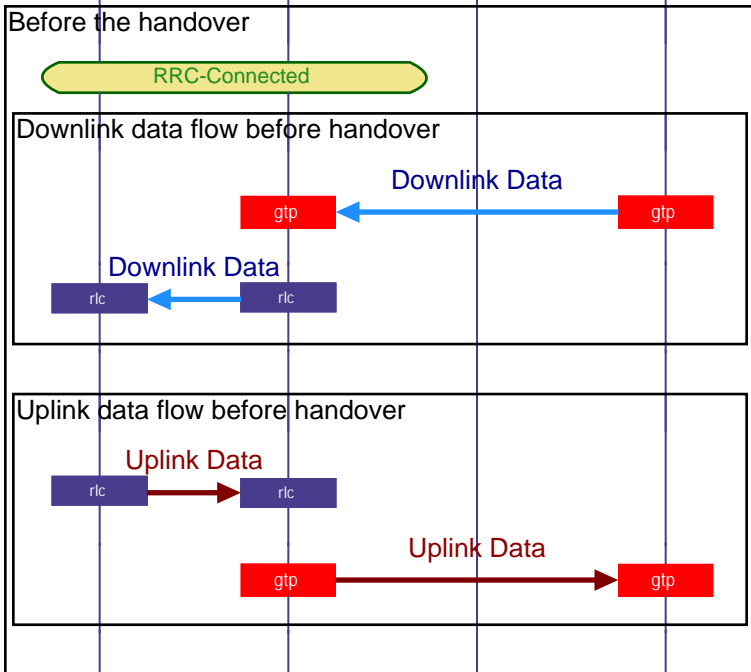


Source eNodeB Interfaces (S1 Handover)				
LTE Mobile	eNodeB Network	Core Network		EventStudio System Designer 6
UE	Source eNodeB	MME	SGW	17-Feb-14 17:24 (Page 1)

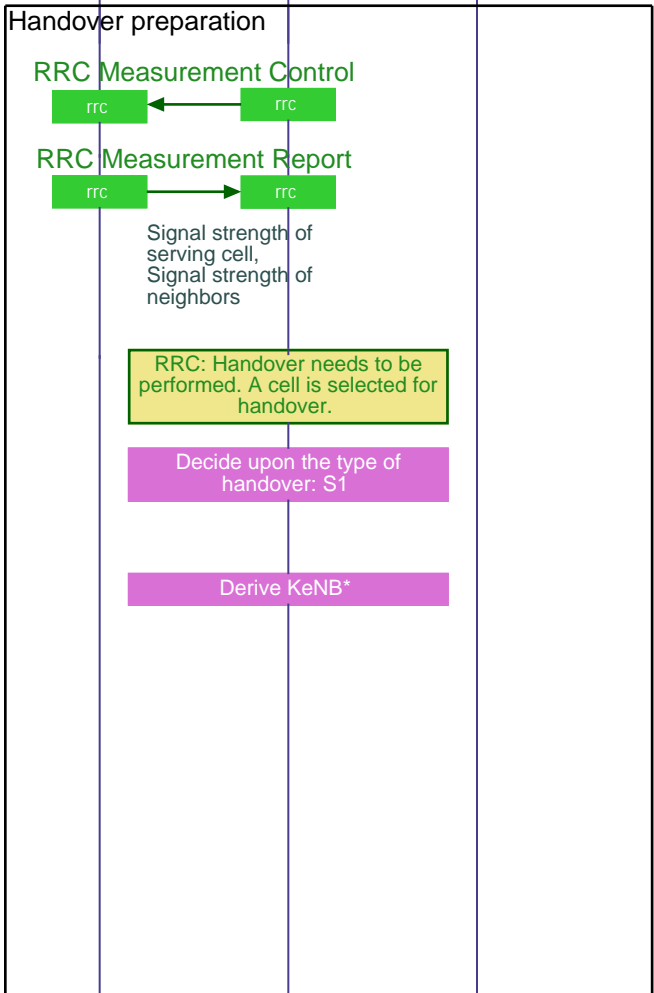
This sequence diagram was generated with EventStudio System Designer - <http://www.EventHelix.com/EventStudio/>

UE is handed over using an S1 handover if the X2 interface is not available between the source and target eNodeB.



The UE and Source eNodeB are in RRC Connected state.

Uplink data is flowing from the UE to the SGW via the Source eNodeB.



The network sets the measurement thresholds for sending measurement reports.

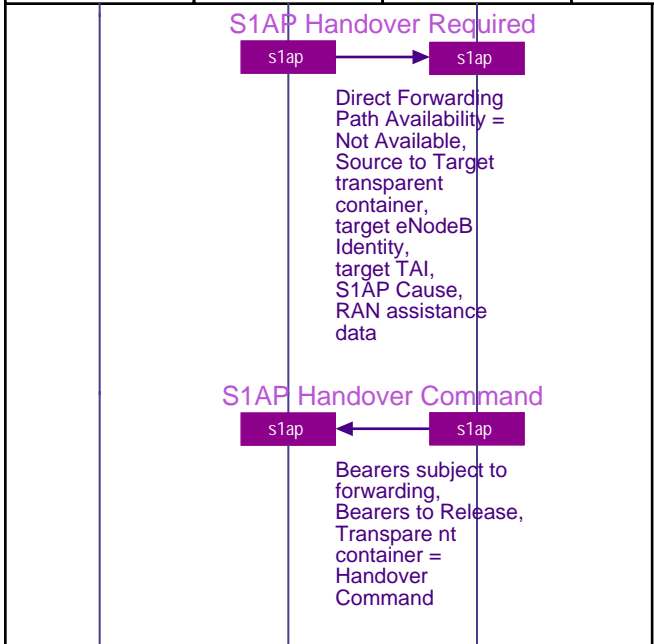
Neighboring cell signal quality is now better than the serving cell.

The RRC uses the latest measurement to decide if a handover is needed to another cell. The target cell is selected. The eNodeB for the target cell is identified.

The source eNodeB decides to initiate an S1-based handover to the target eNodeB as it does not have an X2 interface with the target eNodeB. (The S1 handover can also be triggered if the X2 handover had failed.)

**Source eNodeB Interfaces (S1 Handover)**

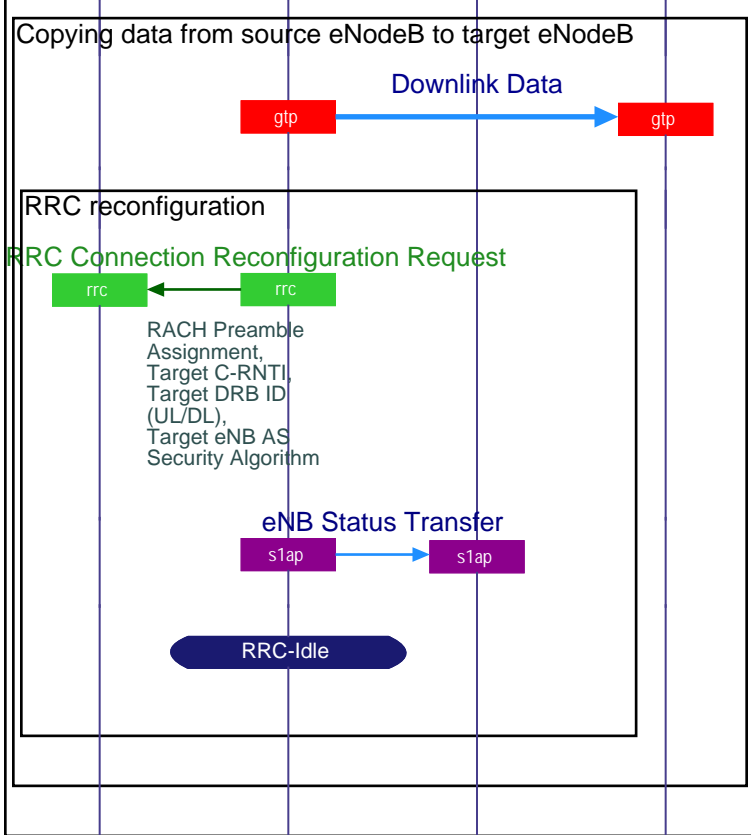
LTE Mobile	eNodeB Network	Core Network		EventStudio System Designer 6
UE	Source eNodeB	MME	SGW	17-Feb-14 17:24 (Page 2)



The source eNodeB sends a "Handover Required" message to the MME. The source eNodeB indicates which bearers are subject to data forwarding. The X2 interface is not available, direct forwarding is not an option. The data will need to be tunneled via the SGW. The target TAI is sent to MME to facilitate the selection of a suitable target MME.

The source MME sends a Handover Command message to the source eNodeB. The Bearers subject to forwarding includes list of addresses and TEIDs allocated for forwarding. The Bearers to Release includes the list of bearers to be released.

**Handover execution**



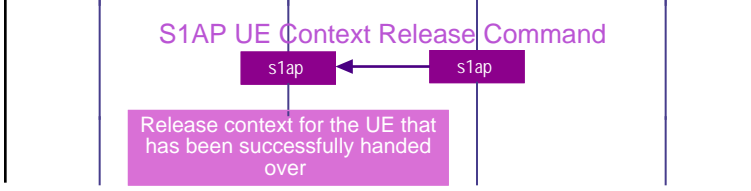
The downlink data is transported from the Source eNodeB to the Target eNodeB via the just established indirect tunnel.

The Source eNodeB sends a handover command to the UE. The message contains a new C-RNTI and new DRB IDs. A RACH preamble is also included for contention free RACH access. Upon reception of this message the UE will remove any EPS bearers for which it did not receive the corresponding EPS radio bearers in the target cell.

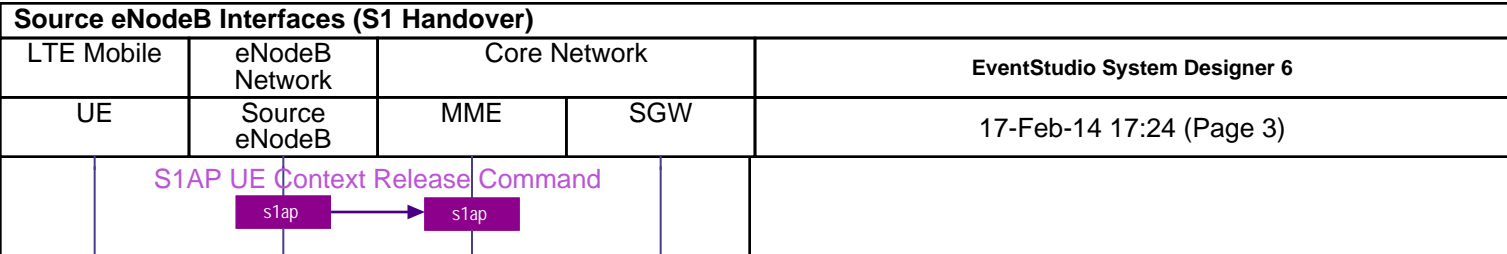
The source eNodeB sends the eNodeB Status Transfer message to the target eNodeB via the MME(s) to convey the PDCP and HFN status of the E-RABs for which PDCP status preservation applies.

At this point, the UE has detached from the source eNodeB but is still not communicating with the target eNodeB. The UE is in the RRC-Idle state.

**Release resources on Source eNodeB**



Initiate resource release on the Source eNodeB.



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