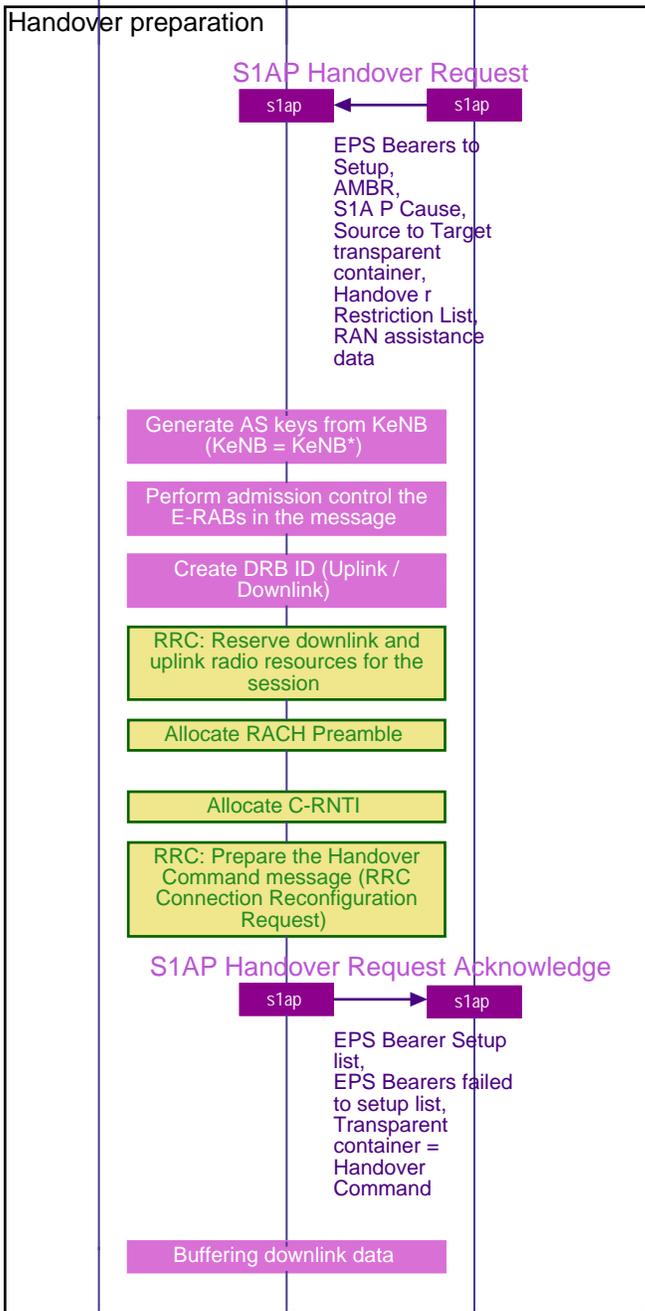


Target eNodeB Interfaces (S1 Handover)				
LTE Mobile	eNodeB Network	Core Network		EventStudio System Designer 6
UE	Target eNodeB	MME	SGW	17-Feb-14 17:24 (Page 1)

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 MME sends Handover Request message to the target eNodeB. This message creates the UE context in the target eNodeB, including information about the bearers, and the security context. For each EPS Bearer, the "Bearers to Setup" includes Serving GW address and uplink TEID for user plane, and EPS Bearer QoS. If the direct forwarding flag indicates unavailability of direct forwarding and the MME knows that there is no indirect data forwarding connectivity between source and target, the Bearers to Setup shall include "Data forwarding not possible" indication for each EPS bearer. Handover Restriction List is sent if available in the MME.

Check if resources are available at the target eNodeB to accept this session.

Assign Dedicated Radio Bearer ids for Uplink and Downlink.

The Target eNodeB allocates radio resources for the UE that will be handed in.

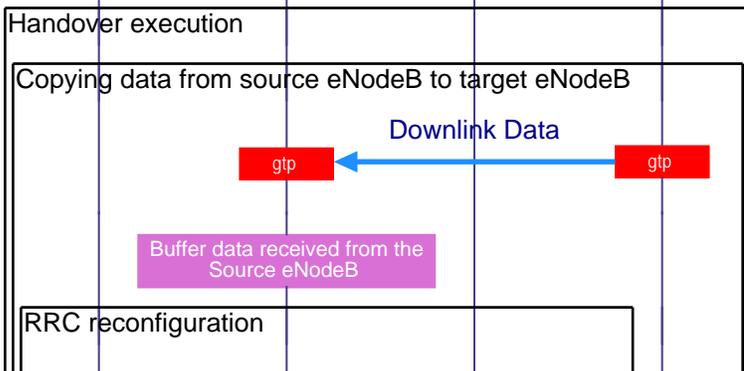
The Target eNodeB allocates a RACH preamble to the UE. The UE will use this preamble to send a contention free RACH.

A new C-RNTI is assigned to the UE.

This message includes the RACH preamble that needs to be sent to the terminal. This message includes information about the assigned radio resources.

The Target eNodeB responds back to the MME with a Handover Request Acknowledge message. This message carries the Handover Command message (RRC Connection Reconfiguration Request) in a transparent container. The "EPS Bearer Setup list" includes a list of addresses and TEIDs allocated at the target eNodeB for downlink traffic on S1 U reference point (one TEID per bearer) and addresses and TEIDs for receiving forwarded data if necessary.

At this point, the target eNodeB is ready to buffer downlink data that will be received during the handover.

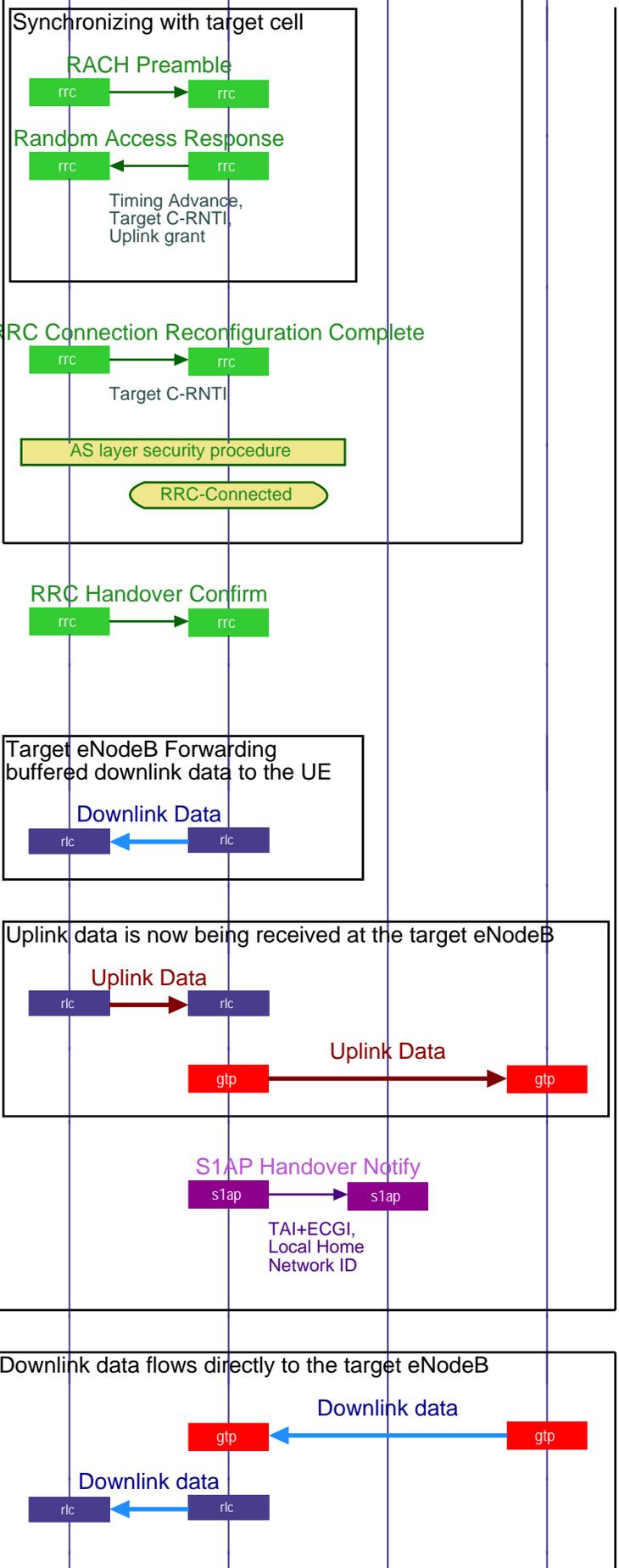


The downlink data is transported from the Source eNodeB to the Target eNodeB via the just established indirect tunnel.

The data cannot be sent to the target until the RRC reconfiguration is completed.

Target eNodeB Interfaces (S1 Handover)

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



UE uses the preamble assigned in the handover command to send a RACH to the target eNodeB.

The target eNodeB accepts the request and responds back with a timing adjustment and an uplink resource grant.

The UE uses the assigned resources to transmit the Handover Confirm message (RRC Connection Reconfiguration Complete).

The UE is not connected to the Target eNodeB. Thus it transitions to the RRC-Connected state.

After the UE has successfully synchronized to the target cell, it sends a Handover Confirm message to the target eNodeB. Downlink packets forwarded from the source eNodeB can be sent to the UE. Also, uplink packets can be sent from the UE, which are forwarded to the target Serving GW and on to the PDN GW.

The buffered downlink data is sent to the terminal.

Uplink data is now being received from the terminal.

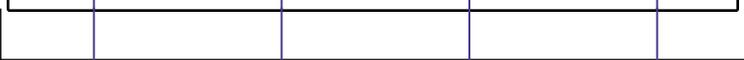
The uplink data is now flowing directly from the Target eNodeB to the SGW.

The target eNodeB sends a Handover Notify message to the target MME.

SGW has switched the path to the Target eNodeB, so the downlink data is directly delivered to the target eNodeB.

Target eNodeB Interfaces (S1 Handover)

LTE Mobile	eNodeB Network	Core Network		EventStudio System Designer 6
UE	Target eNodeB	MME	SGW	17-Feb-14 17:24 (Page 3)



Release resources on Source eNodeB

Tracking Area Update (Click to Tracking Area Update Sequence Diagram)

The UE may perform a tracing area update due to cell change.

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

Learn more about LTE at: <http://www.eventhelix.com/lte/>

