TSG-RAN Working Group 2 (Radio layer 2 and Radio layer 3)   **TSGR#2(99)181**
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Agenda Item: 7.10

Source: Fujitsu

Title: Proposal for Cell / URA Update procedure

Document for   Decision

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Abstract
There exists further study items in Cell / URA update procedure. This contribution will propose the solution for one of them.

1. Introduction
 Cell / URA update procedures are described In S2.31, and it is quoted to ANNEX 1.
 One of the purpose of these procedures is surely to allocate a new RNTI to UE. And further study item is, in these procedures, the necessity of an explicit Cell / URA UPDATE COMPLETE message to be sent from the UE to the UTRAN on layer 3. There are two assumptions exist.
 One is that there is an explicit layer 2 peer-to-peer signalling to establish the signalling link, making an explicit Cell / URA UPDATE COMPLETE message on layer 3 unnecessary.
 The other is that there is an explicit Cell / URA UPDATE COMPLETE message that UE confirms whether UTRAN receives Cell / URA UPDATE CONFIRM message.
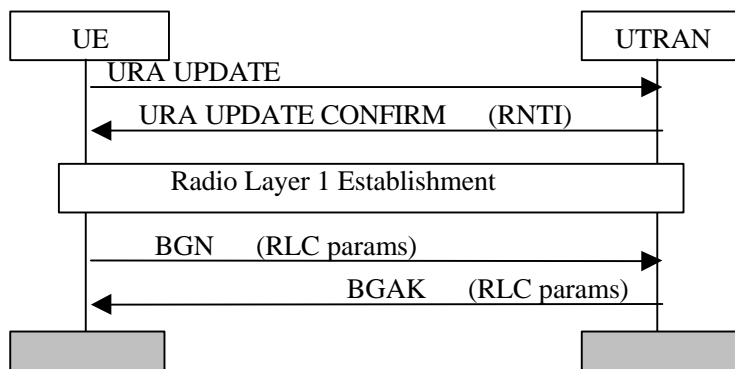
2. Discussion
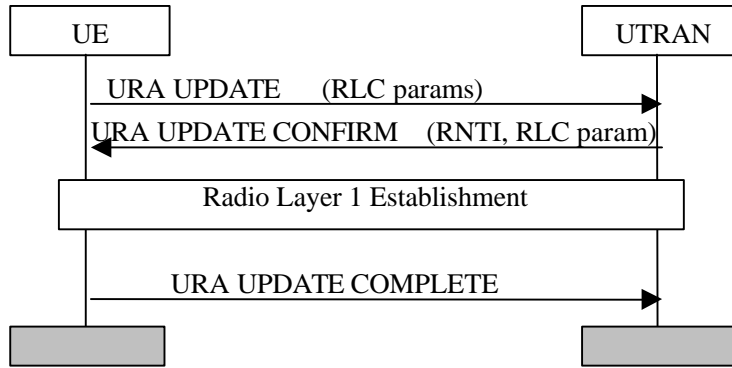 Cell / URA UPDATE procedure makes RNC change. Therefore these procedures include the following functions:
 1) Initialisation of RLC variables in each side,
 2) allocation of the new initial credit (RLC parameter) for the acknowledged mode data transfer,
 3) allocation of the new RNTI.
 In order to realise these, next two schemes are considerable.

 Case 1)

 Case 2)

In both cases, new RNTI is delivered by Cell / URA UPDATE CONFIRM message. It is already agreed, I believe.
After sending/ receiving Cell / URA UPDATE CONFIRM message, radio layer 1 will be established on DCCH. And the new RLC connection between UTRAN and UE should be established. Case 1 indicates that the explicit layer 2 establishment procedure is performed and case 2 indicates the implicit procedure.
Regarding case 1, UTRAN can recognise that UE gets the new RNTI and can get RLC parameter when it receives BGN PDU. With sending/ receiving BGN PDU as a trigger, each node can initialise RLC variables.
Regarding case 2, Cell / URA UPDATE message conveys RLC parameter. UTRAN can recognise that UE gets the new RNTI when it receives Cell / URA UPDATE COMPLETE message. With recognising radio layer 1 establishment as a trigger, each node can initialise RLC parameters/ variables independently.
From above investigation, case 1 is more redundant than case 2. And, case 1 will cause more implementation complexity and delay.

3. Proposal
To summarise, it is possible that implicit RLC establishment procedure is desirable for Cell / URA update procedure. Therefore Cell / URA update procedures need an explicit Cell / URA UPDATE COMPLETE message on layer 3. ANNEX 2 is the proposed description in S2.31.
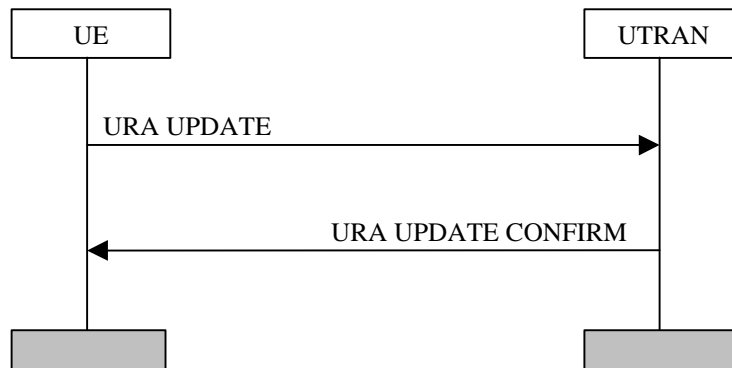
ANNEX 1

8.3.5.7 URA update

Figure 1) URA update procedure.

The URA update procedure is used by the UE to inform the UTRAN that the UE has switched to a new URA. Normally the procedure is triggered after change of cell and after the UE have read information broadcasted by UTRAN indicating change of URA.

The UE establishes a radio link to a cell in the new URA. After that the UE sends a URA UPDATE message to the UTRAN. Upon reception of the message the UTRAN registers the change of URA, and sends a URA UPDATE CONFIRM message to the UE. The URA UPDATE CONFIRM message may include a new RNTI.

[Note1: Whether it should be possible for the UTRAN to trigger a URA update request from the UE is FFS.]

[Note 2: The need for a completing message, sent from the UE to finalize the procedure, is FFS.]
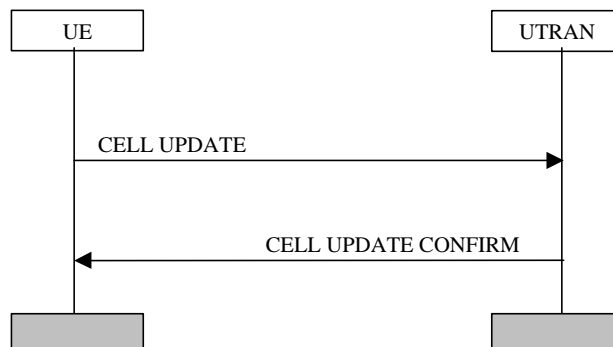
8.3.5.8 Cell update

Figure 2) Cell update procedure.

The cell update procedure is used by the UE to inform the UTRAN that the UE has switched to a new cell. The procedure is a forward handover procedure. Normally the procedure is triggered after change of cell and after the UE has read information broadcasted by UTRAN.

The UE abandons the radio link to the old cell and establishes a radio link to the new cell. After that the UE sends a CELL UPDATE REQUEST message to the UTRAN. Upon reception of the message the UTRAN registers the change of cell, and sends a CELL UPDATE CONFIRM message to the UE. The CELL UPDATE CONFIRM message may include a new RNTI.

The cell update procedure can also include the updating of which FAUSCH channel should be used in the new cell.

[Note1: Whether it should be possible for the UTRAN to trigger a cell update request from the UE is FFS.]

[Note 2: The need for a completing message, sent from the UE to finalize the procedure, is FFS.]

ANNEX 2
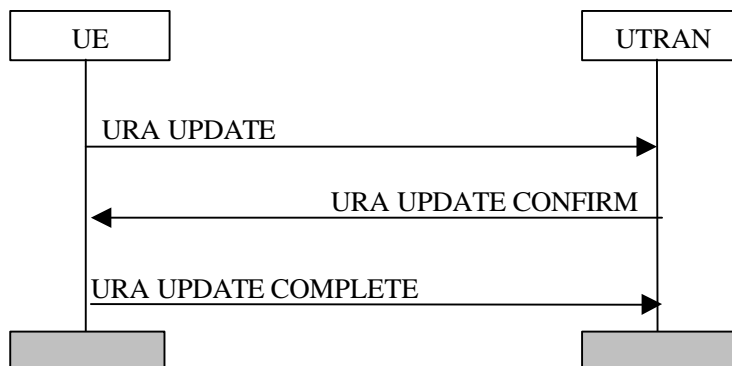
8.3.5.7 URA update

Figure 3) URA update procedure.

The URA update procedure is used by the UE to inform the UTRAN that the UE has switched to a new URA. Normally the procedure is triggered after change of cell and after the UE have read information broadcasted by UTRAN indicating change of URA.

The UE establishes a radio link to a cell in the new URA. After that the UE sends a URA UPDATE message to the UTRAN. Upon reception of the message the UTRAN registers the change of URA, and sends a URA UPDATE CONFIRM message to the UE. The URA UPDATE CONFIRM message may include a new RNTI. When UE gets the new RNTI, UE sends the URA UPDATE COMPLETE message to UTRAN.

Credit for acknowledged transfer mode should be on URA UPDATE message and URA UPDATE CONFIRM message.

[Note1: Whether it should be possible for the UTRAN to trigger a URA update request from the UE is FFS.]

[Note 2: The need for a completing message, sent from the UE to finalize the procedure, is FFS.]
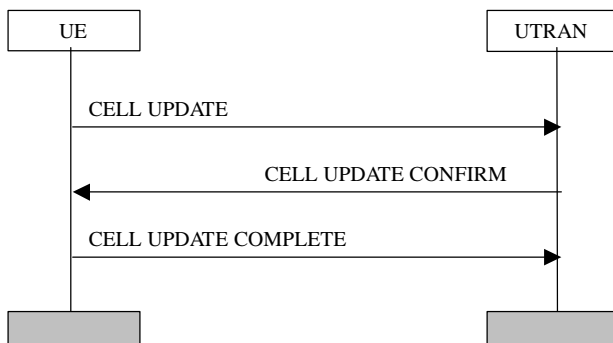
8.3.5.8 Cell update

Figure 4) Cell update procedure.

The cell update procedure is used by the UE to inform the UTRAN that the UE has switched to a new cell. The procedure is a forward handover procedure. Normally the procedure is triggered after change of cell and after the UE has read information broadcasted by UTRAN.

The UE abandons the radio link to the old cell and establishes a radio link to the new cell. After that the UE sends a CELL UPDATE REQUEST message to the UTRAN. Upon reception of the message the UTRAN registers the change of cell, and sends a CELL UPDATE CONFIRM message to the UE. The CELL UPDATE CONFIRM message may include a new RNTI. When UE gets the new RNTI, UE sends the Cell UPDATE COMPLETE message to UTRAN.

Credit for acknowledged transfer mode should be on Cell UPDATE message and Cell UPDATE CONFIRM message.

The cell update procedure can also include the updating of which FAUSCH channel should be used in the new cell.

[Note1: Whether it should be possible for the UTRAN to trigger a cell update request from the UE is FFS.]

[Note 2: The need for a completing message, sent from the UE to finalize the procedure, is FFS.]