

Mobility Support in E-UTRA (R2-052894)

3GPP TSG-RAN WG2 Meeting #49

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Agenda 17.3.3

Mobility Support

- Active State
 - Network controlled UE assisted handovers are performed
 - Various DRX/DTX cycles are supported
- Idle State
 - Cell reselections are performed
 - DRX

Handover Types and UE neighbour cell measurements to support handovers

- Intra-frequency handovers
 - In a system with frequency reuse = 1 intra-frequency handovers are the most important and common handovers
 - Good intra-frequency measurements are needed in order to ensure good mobility support and easy network deployment
- Inter-frequency handovers
 - It is proposed that UE performs inter-frequency neighbor cell measurements during DL/UL idle periods that provided by network through suitable DRX/DTX period or packet scheduler if necessary
- Inter-RAT handovers from EUTRAN
 - It is proposed that UE performs inter-RAT neighbor cell measurements during DL/UL idle periods that provided by network through suitable DRX/DTX period or packet scheduler if necessary
- Handovers to EUTRAN
 - From UTRAN, it is proposed that a UE performs EUTRAN measurements by using idle periods created by compressed mode (CELL_DCH)
 - From GERAN, EUTRAN measurements are proposed to be performed in the same way as WCDMA measurements for GERAN to UTRAN handovers
 - EUTRAN measurements are performed in GSM idle frames in time multiplexed manner
 - However, it should be discussed with GERAN how to ensure that inter-RAT measurements do not take too much measurement time and at the same time the requested 3GPP inter-RAT measurements can be performed well enough
 - Design constraints of 3GPP inter-RAT measurements should be considered when L1 details of the LTE concept are defined

Active state handovers

- Network controlled UE assisted handovers are performed in active state
 - UE performs neighbour cell measurements based on measurement control and neighbour cell information from the network
 - Network signals reporting criteria: Event-triggered and periodical reporting are proposed
- DRX/DTX may be used for power saving purposes and inter-frequency and inter-RAT measurements
 - Network controls DRX/DTX cycle
- In order to ensure accurate intra-frequency measurements and evaluation of reporting criteria with different DRX/DTX cycles and if no DRX/DTX is used, reporting criteria should be matched with the used DRX/DTX cycle
 - If DRX/DTX cycle is short or not used at all, the UE performs rather continuous intra-frequency measurements while during longer DRX/DTX cycles non-continuous intra-frequency measurements are performed.

Adjustments of intra-frequency event-triggered criteria for various DRX/DTX cycles

- DL Control signal overhead should be minimised as much as possible
 - E.g. Constantly changing reporting criteria could generate unnecessary dedicated measurement control
- In order to ensure high quality intra-frequency measurement, it would be desirable that the UE would be able to autonomously adjust parameters used for reporting events to the network
 - This could be achieved by defining suitable parameter settings for different DRX cycles and the UE would autonomously follow these setting when DRX/DTX cycle is changed.
 - Below we present an example, how the UE could adjust the value of a time domain hysteresis Time to Trigger (which is considered to be a similar parameter as in WCDMA)
 - Time to Trigger (No DRX/DTX) = X ms, X is given in the measurement control
 - Time to Trigger (DRX/DTX cycle_n) = a * DRX cycle_n ms, a is given in the measurement control
 - As DRX cycle and different parameters for event reporting would be in the control of the network
 - Network would have a full control over of UE behaviour
- Most of this type of measurement control information could be broadcast in system information
 - No need to repeat the same information through dedicated measurement control

Conclusions

- It is proposed that network controlled UE assisted handovers are performed in active state
 - Reporting criteria especially for intra-frequency measurements should be matched with the used DRX/DTX cycle
 - Inter-frequency and inter-RAT measurements in E-UTRA are proposed to be performed in DL/UL idle periods provided by network through DRX/DTX period or packet scheduler if necessary
 - E-UTRA Inter-RAT measurements in GSM and WCDMA should be performed in a similar manner as other inter-RAT measurements in these systems
 - Compressed mode in WCDMA
 - Idle periods in GSM
 - Discussion with GERAN should be initiated
- Cell reselections are proposed for idle mode