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Rel-15 Further mobility enhancement for EUTRAN

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Motivation - 1

- Potential URLLC requirements (3GPP 38.913) :
 - Target for mobility interruption time should be 0ms
 - Target for user plane reliability is $1-10^5$, which needs same strict reliability of mobility signaling
- LTE can be further enhanced to support the new services with above requirements, e.g. remote control, drone, industrial automation and industrial control, which will enhance the vitality of LTE and protect the network investment of the operators.



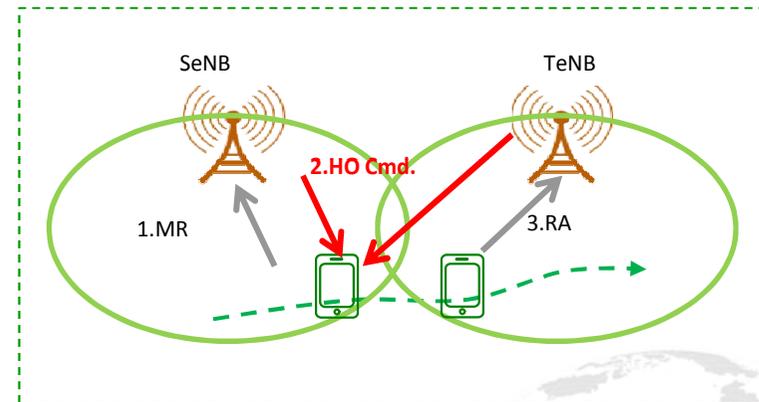
Motivation - 2

- Signalling reliability (Robustness) of mobility has not been enhanced since Rel-8
 - Transmission in one connection causes robustness issue
 - Traditional handover mechanism causes robustness issue in case of bad link in source eNB
- Rel-14 mobility enhancements reduce some HO interrupt time but not enough
 - RACH-Less Handover
 - Make-Before-Break: Keep receiving/transmitting from source eNB until first uplink transmission to target eNB
 - Serial handling during handover cause the interruption time



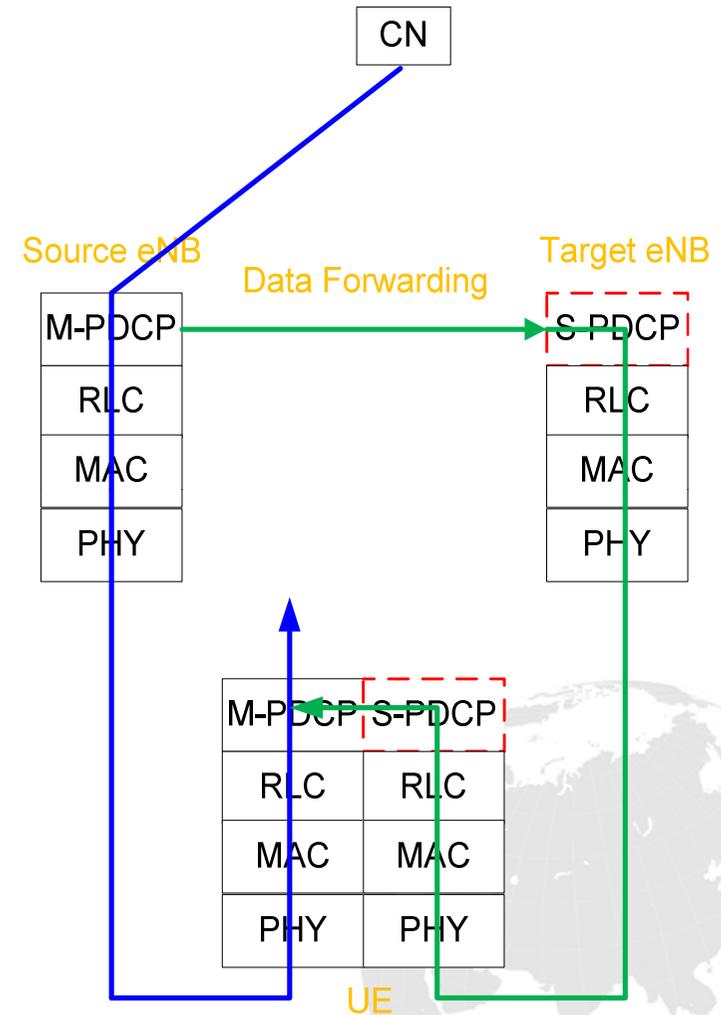
Duplicated RRC transmission

- Based on Dual connectivity or multiple connectivity
 - All the involved eNBs (Cells) have (split) SRBs to transmit RRC messages for a UE
 - Duplicated transmission of RRC message (e.g. measurement report, handover command) can be performed across eNBs (Cells)
- Increase the signaling reliability via several paths transmission



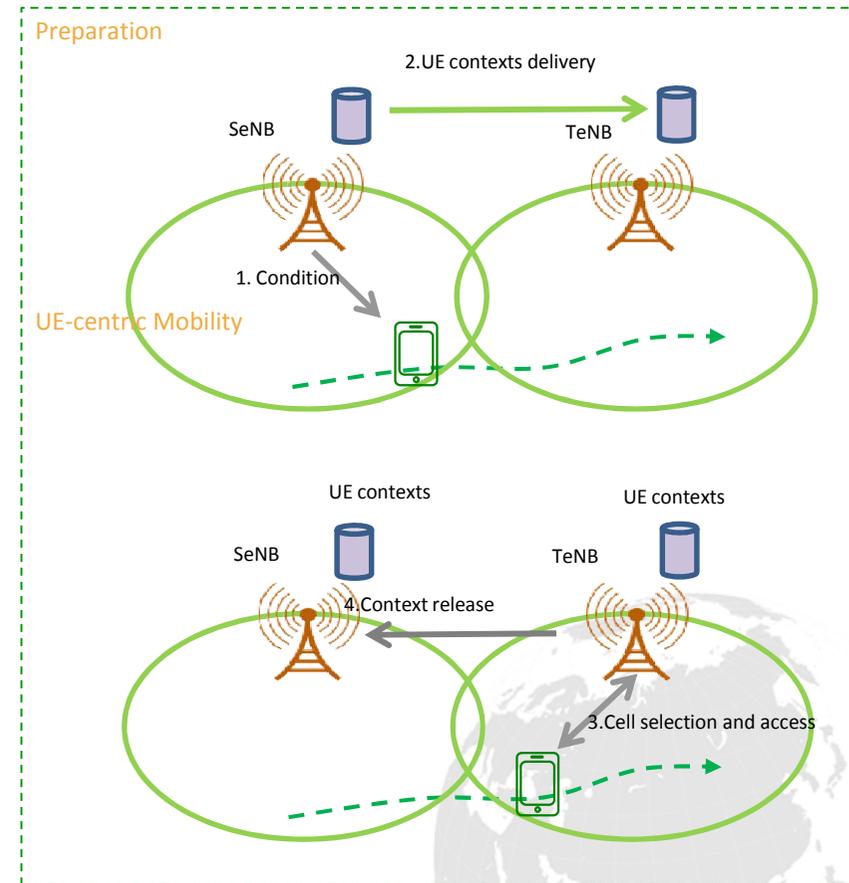
Duplicated data transmission

- Based on Dual connectivity or multiple connectivity
 - Parallel protocol stacks for each radio bearer: (PDCP/RLC/MAC/PHY)
 - Duplicated packet transmission for more reliability
 - Different packet transmission for 0ms interrupt
- Realize smooth handover and 0ms interruption



UE centric mobility enhancement

- Handover condition can be configured to UE before handover
- UE context can be delivered before handover
- UE performs network controlled forward handover based on the configured condition and prepared context
- Increase the mobility robustness



Objective

- Mobility robustness improvement and interruption time reduction
 - Packet duplication
 - Duplicated RRC transmission (e.g. RRC diversity)
 - Duplicated data transmission during handover
 - Extend current dual connectivity(DC) to multiple connectivity(MC)
 - Specify the function split among the protocol layers and procedures to enable packet duplication
 - UE centric mobility with configured condition and prepared context



Thank you !



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