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R2-060594/R3-060211

HSPA and LTE / SAE

One way to integrate HSPA with LTE / SAE

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Introduction

- HSPA will evolve towards a packet optimized network (R3-060138, R3-060139)
  - CS will be phased out
  - DCH will be phased out

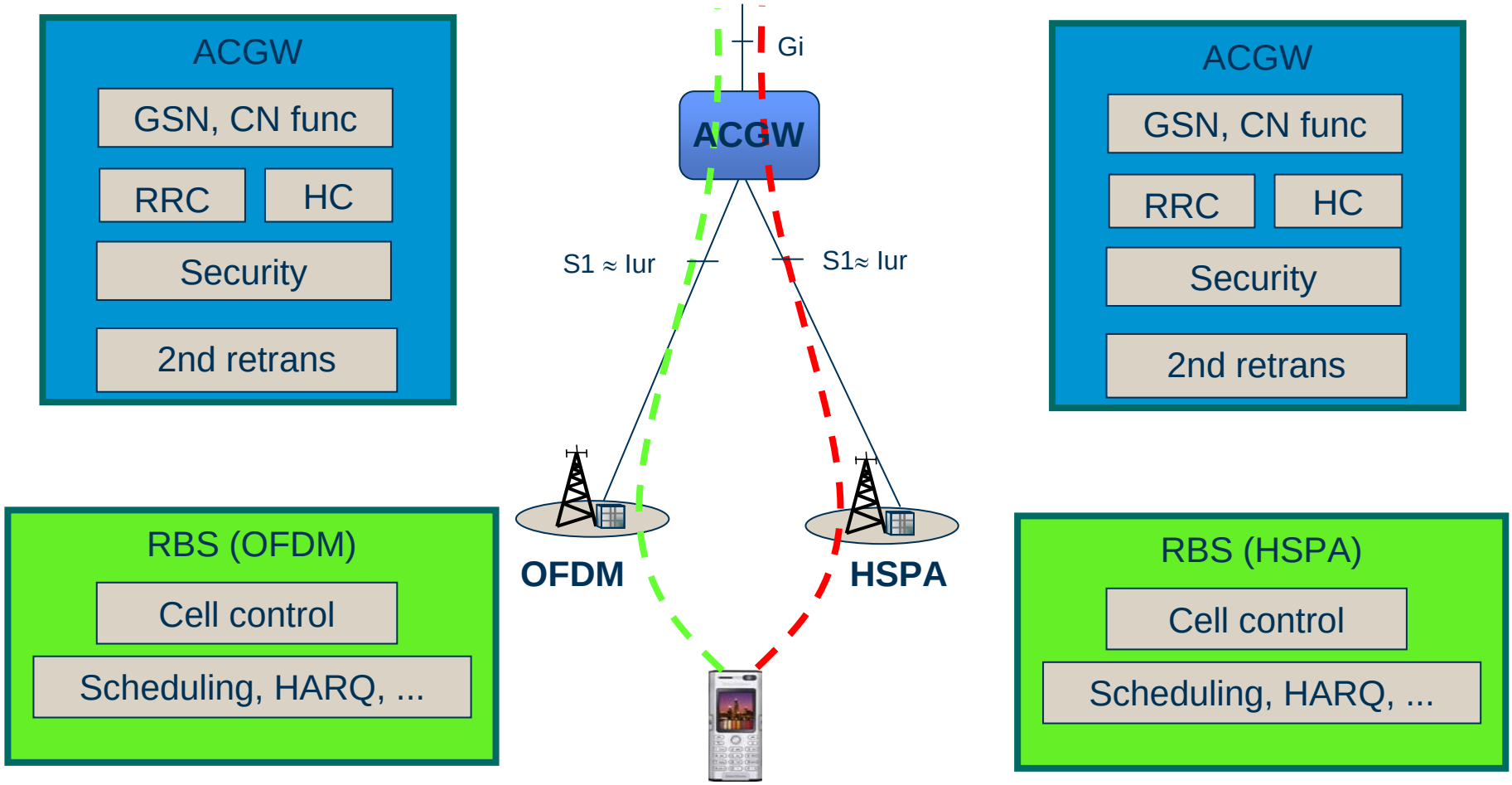
⇒ Optimizations of the radio interface protocols will be possible
  - Similar requirements as LTE => similar protocols feasible

- HSPA will be the main fallback radio interface for LTE
  - HSPA evolution provides similar performance as LTE on 5 MHz (R3-060232)

⇒ Supperior handover performance between LTE and HSPA needed

Proposed HSPA and LTE /SAE integration

Maximizing commonalities while minimizing changes to HSPA Node Bs



Proposed Radio Interface Protocol Stack

Integrated LTE and HSPA

Common optimized SAE SM/MM (control plane only)

Common Optimized LTE/HSPA RRC (control plane only)

Common optimized LTE/HSPA PDCP (user plane only)

Common optimized LTE/HSPA RLC

LTE MAC

HSPA MAC

LTE PHY

HSPA PHY

Key features of proposed integration alternative

- Enables connection of HSPA and LTE radio interfaces with minimal impact on existing HSPA architecture
- Performance of LTE shown to meat the requirements with the proposed architecture (R3-060209, R2-060019)
- Performance of LTE and HSPA handovers better than with Gn integration (R3-060208)
- The architecture allows for the use of UL macro diversity in HSPA, and the possibility to add it later for LTE

Conclusion

- Mobility control in the ACGW
  - Keep the principles from HSPA that the node B do not decide about mobility
- Outer ARQ in the ACGW
  - Keep the principles from HSPA that the Node B do not do packet forwarding and context transfer

$\Rightarrow$

- Fullfils the requirements of LTE and HSPA Evolution
- Enables tight interworking between LTE and HSPA
- Enables smooth migration from HSPA Rel6

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