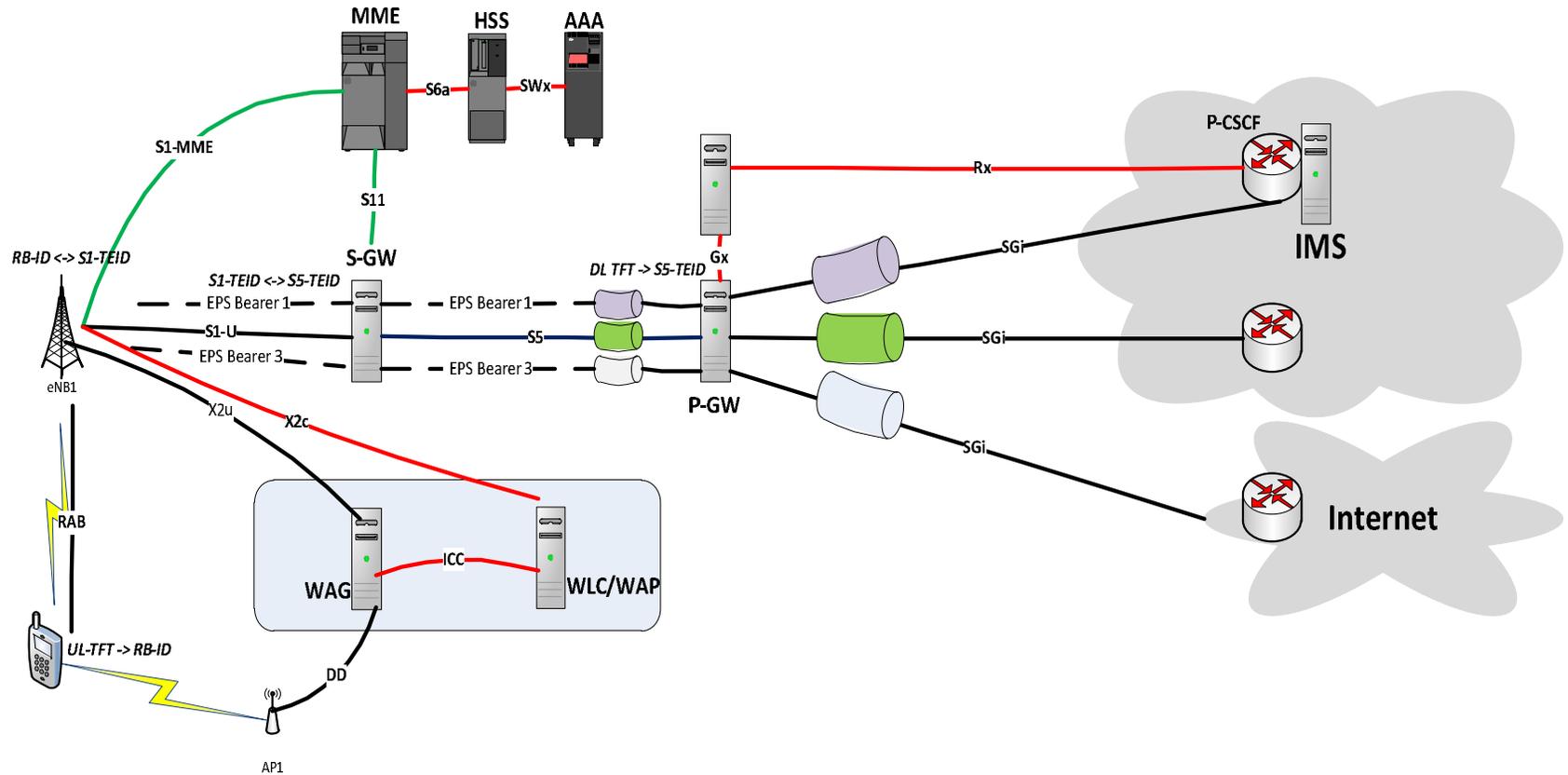




## RP-150753: On the impacts of LTE – WLAN Aggregation on WLAN Nodes and terminals

Broadcom Corporation

# Architecture for LTE-WLAN Aggregation



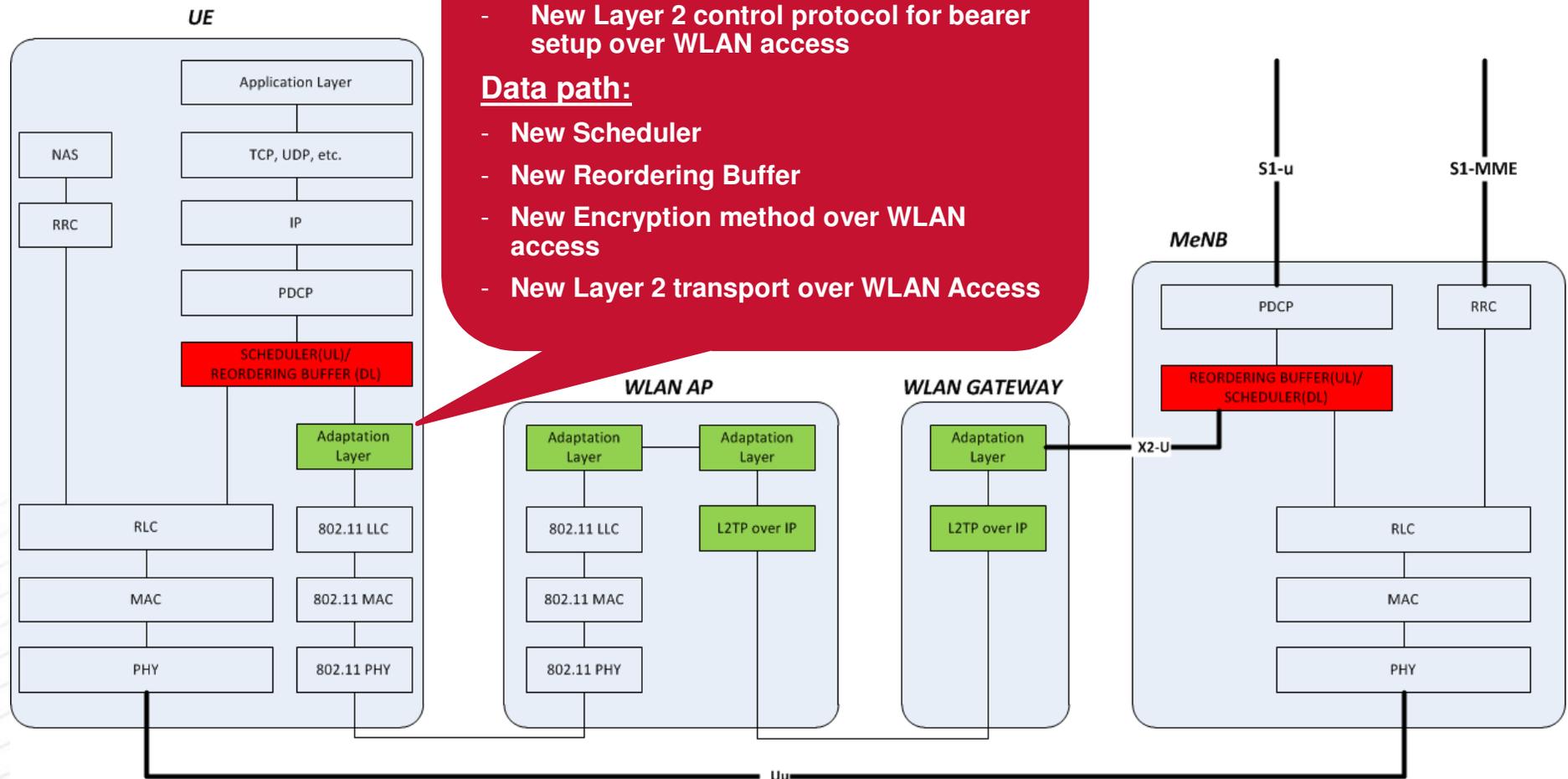
# LTE – WLAN Aggregation based on SCE DC Solution 3C (“Bearer Split”) and Layer 2 transport over WLAN Access

## Control:

- New authentication algorithm
- New Layer 2 control protocol for bearer setup over WLAN access

## Data path:

- New Scheduler
- New Reordering Buffer
- New Encryption method over WLAN access
- New Layer 2 transport over WLAN Access



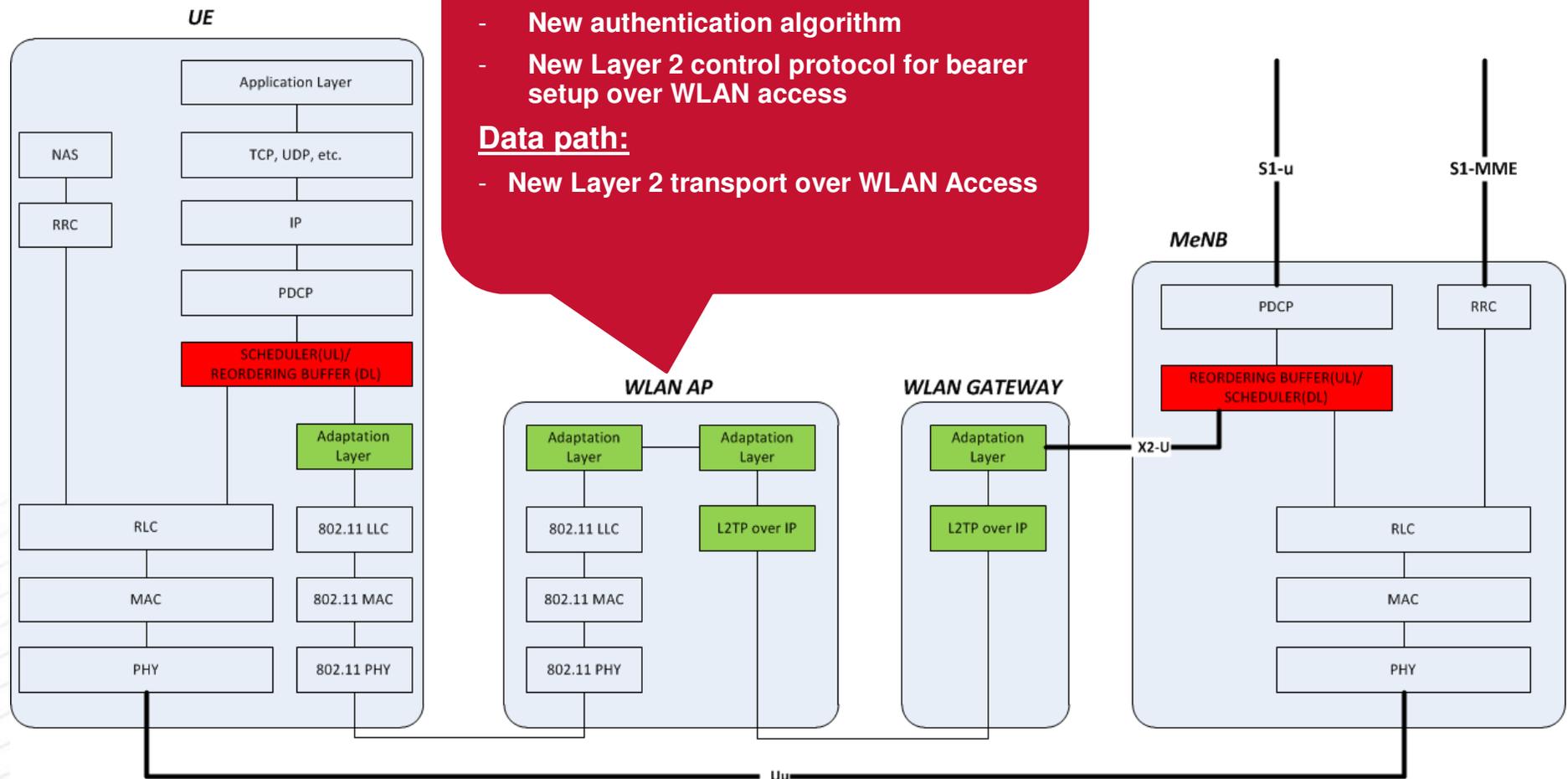
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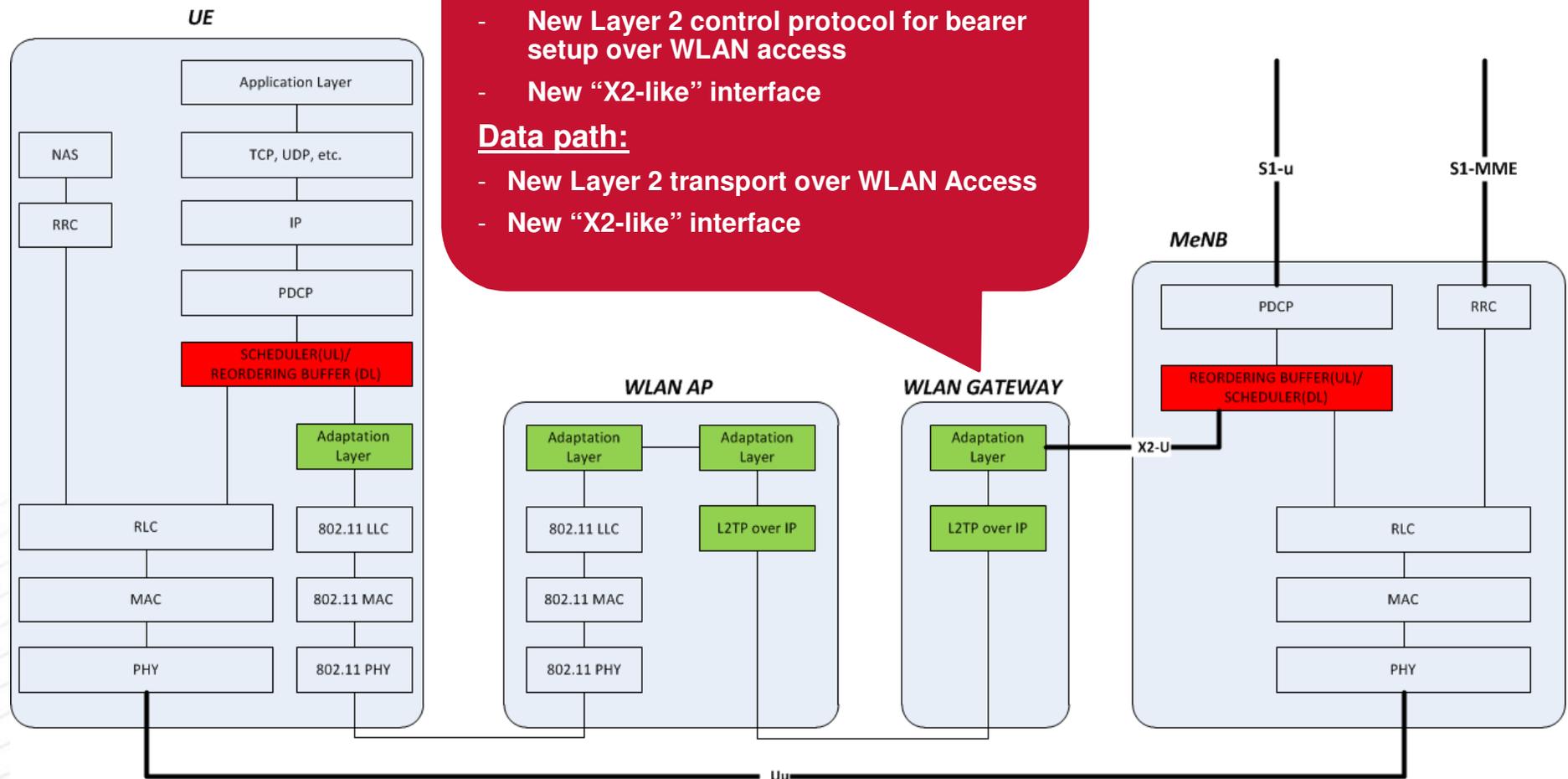
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## Data path:

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- New “X2-like” interface



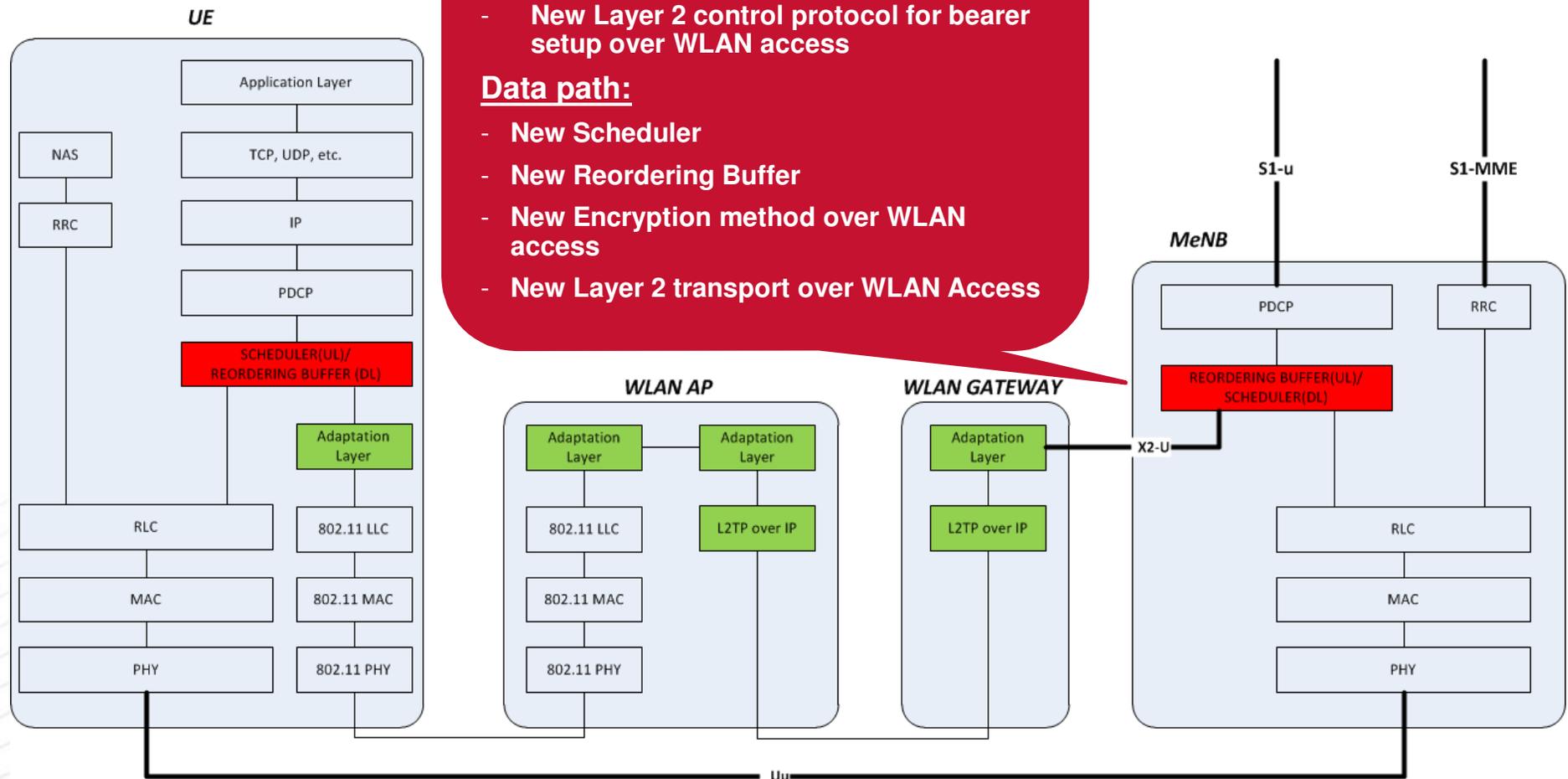
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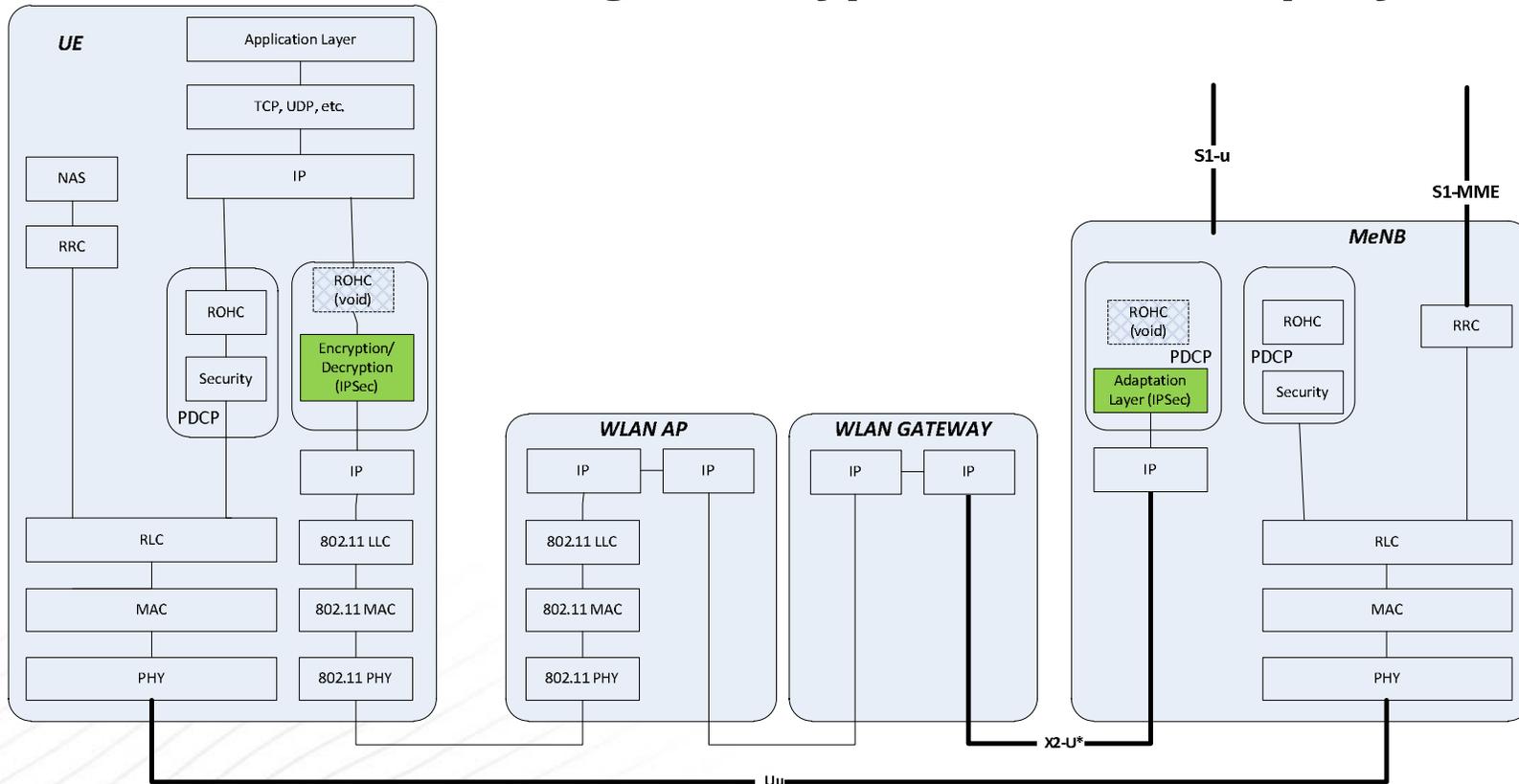
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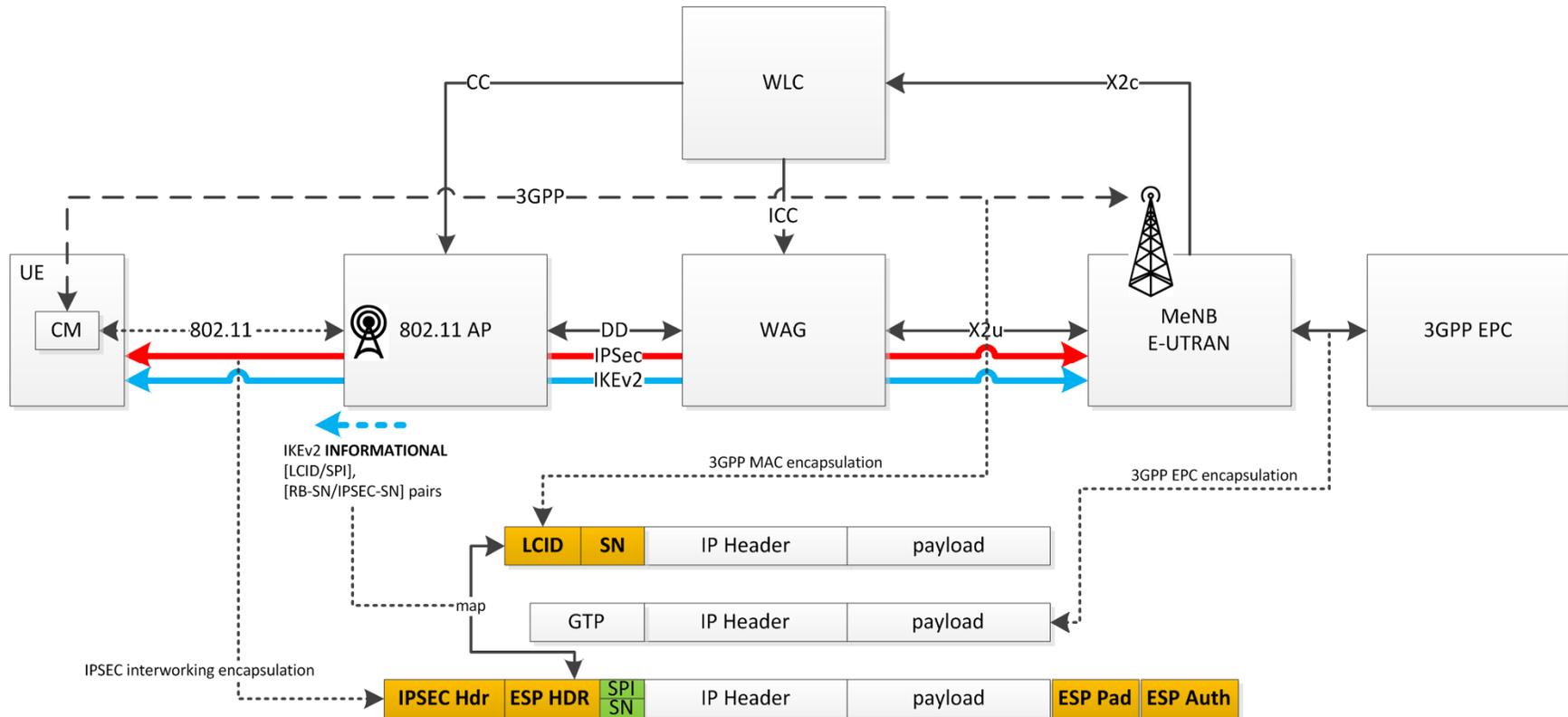
# LTE – WLAN Aggregation based on SCE DC Solution 2C (“Bearer Switch”) using ANY type of WLAN deployment



- 1. User plane architecture based on SCE DuCo Solution 2C**
- 2. New bearer type(WDRB) served only by MeNB using WLAN access.**
- 3. No ROHC required**
- 4. Encryption provided through IPSec**

**No datapath changes on terminal as well as on the WLAN infrastructure nodes!**

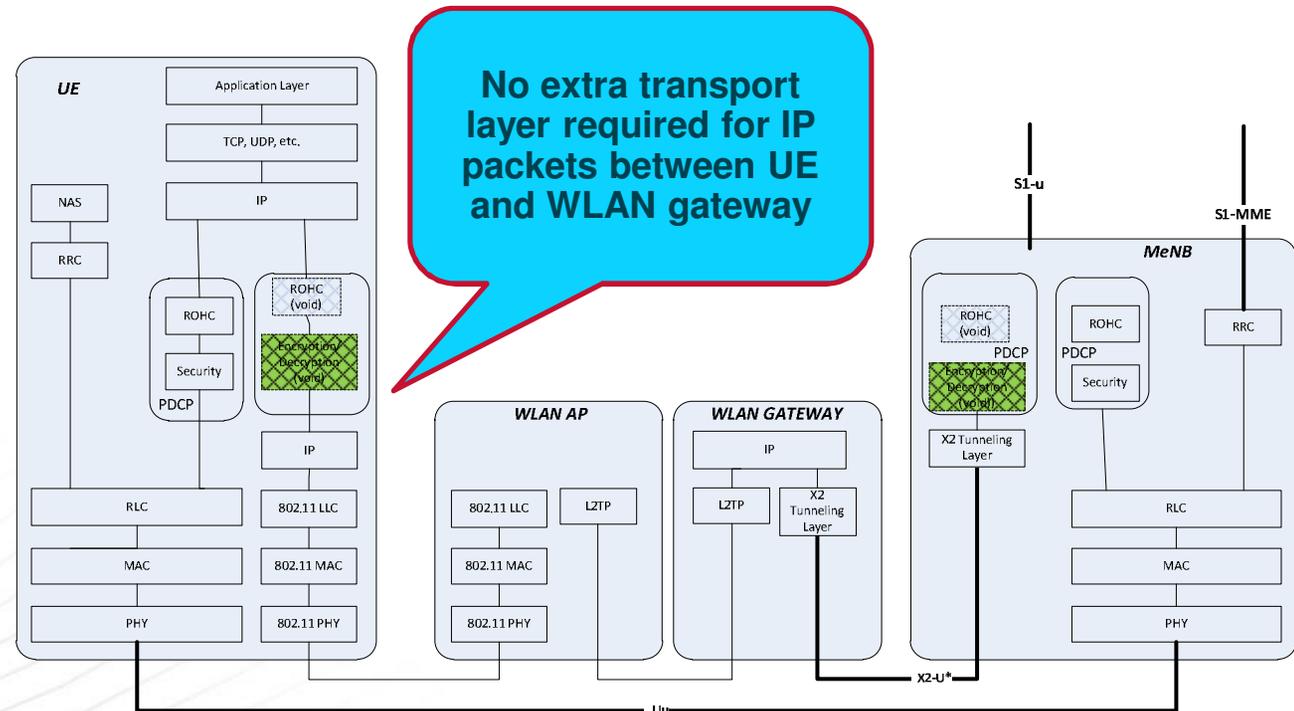
# IPSec as an encryption algorithm between MeNB and UE over WLAN



- 1. IKEv2 may be used for tunnel setup but it is not mandatory;***
- 2. RRC signal may be used for credential exchanges between the MeNB and UE***

# LTE – WLAN Aggregation based on SCE DC Solution 2C (“Bearer Switch”) using Release 12 WLAN deployment

*accommodates trusted and secure WLAN deployment (same requirements on the WLAN nodes as for S2a access – one MAC address at the WAG for each WDRB)*



- 1. User plane architecture based on SCE DuCo Solution 2C**
- 2. New bearer type(WDRB) served only by MeNB using WLAN access.**
- 3. No ROHC required**
- 4. No Encryption Required**
- 5. No PDCP Header Required**

# Summary:

- **There are two solutions anchored on the MeNB based on SCE DuCo which can provide LTE-WLAN aggregation. The solutions are based either on a per packet load balancing scheme, in the case of Solution using on SCE DuCo 3C “bearer split”, or on a per flow based load balancing scheme, in the case of Solution “2C” “bearer switch”.**
- **Both solutions provide:**
  - Improved mobility to/from WLAN while minimizing the core network signalling
  - Improved network control of WLAN offload
  - Improved overall UE throughput by using both cellular and WLAN access
- **The solution based on bearer switch has both minimal terminal impacts (require no hardware changes) as well as simplified MeNB design**
- **Broadcom Corp. recommends the adoption of a solution with minimal impacts on the terminal and WLAN infrastructure as the base for the LTE- WLAN aggregation in Release 13.**

**THE END**

