SCHC for NB-IoT (draft-minaburo-lpwan-nbiot-hc-00)

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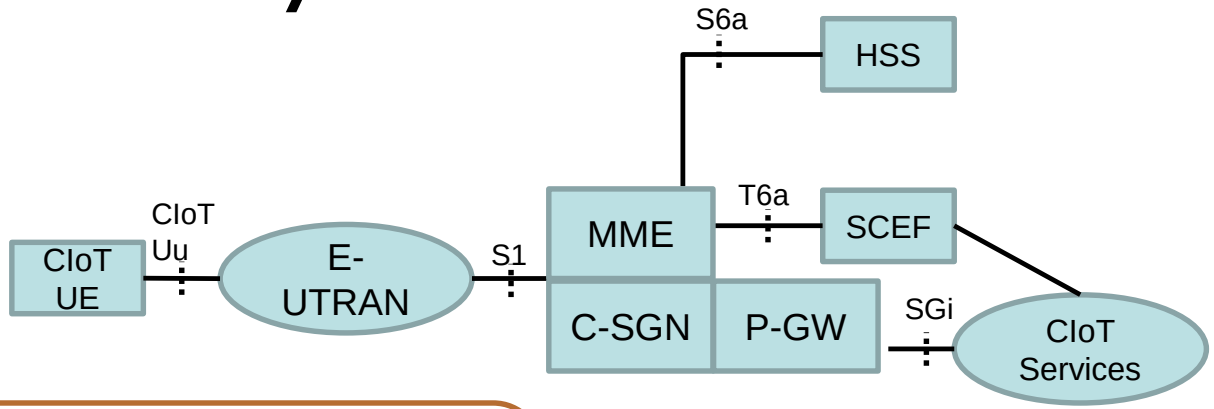
Architectural Issues

Issues	Implications
Different transmission modes	Different requirements
Bearer handling	How to move from one transmission mode to another
Mobility handling	Data flows and mobility procedures impact
LTE-M & 5GNR-MTC	Possibilities to cover additional 3GPP technologies

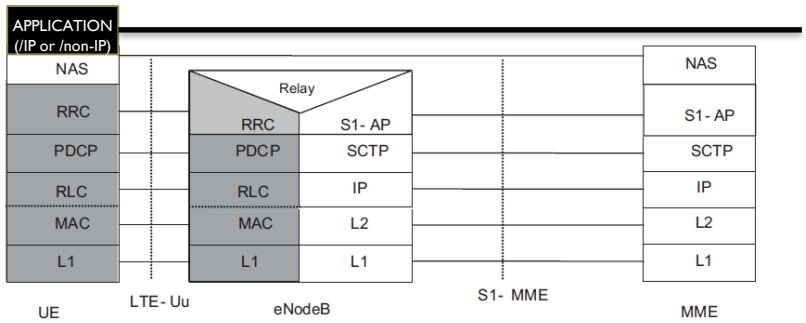
Transmission modes

- Data Over Non-Access-Stratum (DoNAS)
  - Encryption at MME
  - PDCP, RLC Transparent mode (No headers, No segmentation or concatenation)
  - HARQ (Hybrid Automatic Repeat reQuest)
- Connected mode User Plane
  - Encryption at PDCP
  - RLC (Segmentation and Concatenation)
    - Acknowledged mode (Additional Reliability layer)
    - Unacknowledged mode (from Rel 15)
  - HARQ (Hybrid Automatic Repeat reQuest)

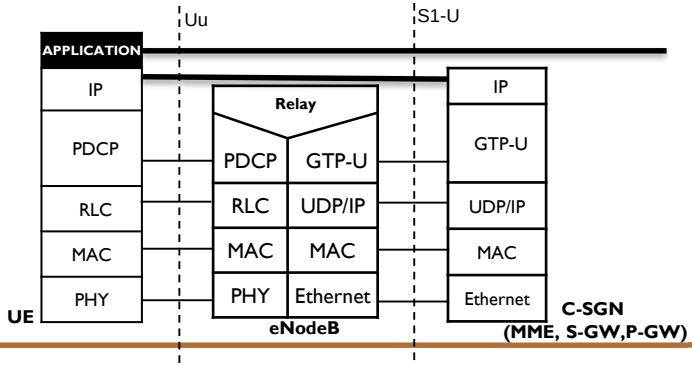
NB-IoT System Architecture



User Plane Stack for DoNAS



User Plane Stack for Connected mode



Operation parameters

- Fragmentation Parameters
  - Rule ID
  - DTag
  - FCN
  - Retransmission Timer
  - Inactivity Timer
  - MAX_ACK_Retries
  - MAX_ATTEMPS
- Padding treatment

- Rule ID
  - In the SCHC C/D context the Rule used to keep the Field Description of the header packet.
  - In SCHC Fragmentation the specific modes and settings.
  - And at least one Rule ID may be reserved to the case where no SCHC C/D nor SCHC fragmentation were possible.

Use cases

- NB-IoT data over NAS example
- NB-IoT example with mobility
- LTE-M considerations (and potentially 5GNR)