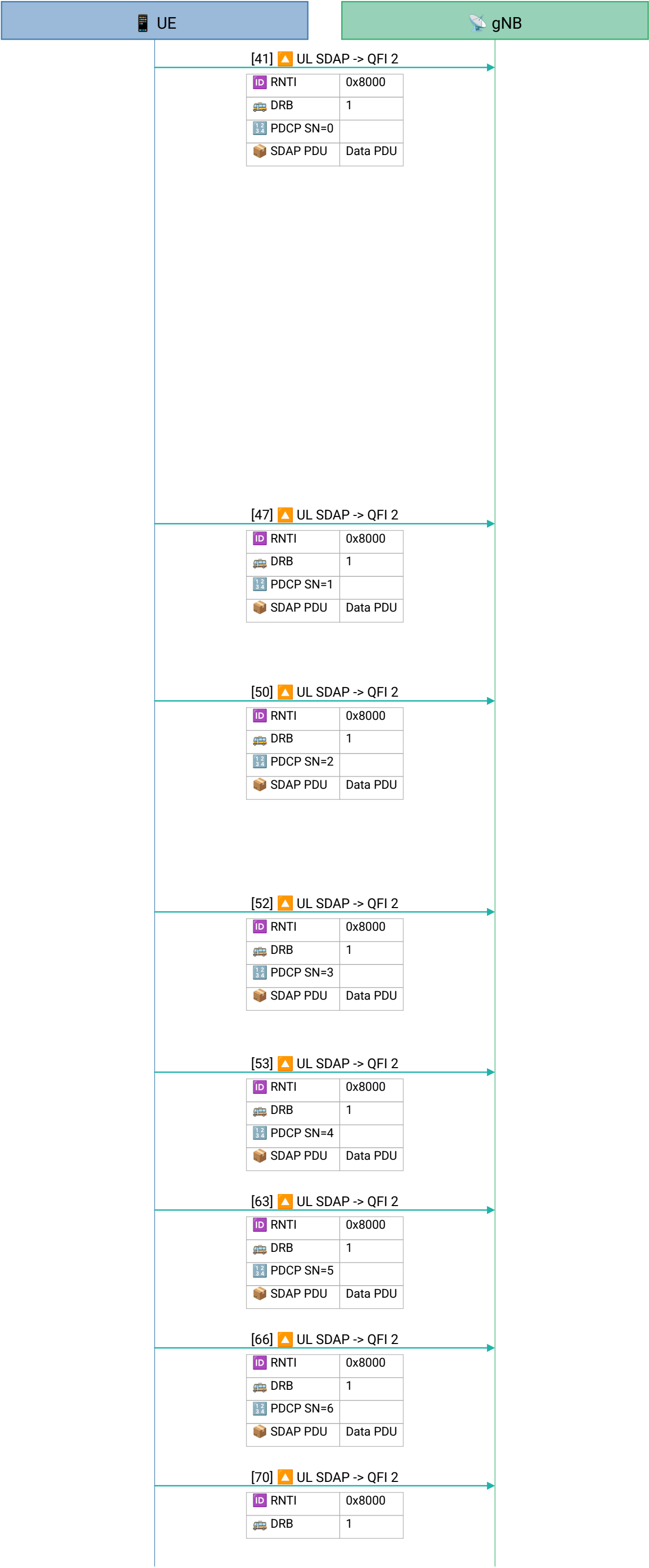




[Frame 41] The first SDAP PDU of the capture, and the whole layer in one byte. The bearer this rides on did not exist until a moment ago. Frame 38's RRC Reconfiguration added drb-Identity: 1 with an sdap-Config reading pdu-Session: 1, sdap-HeaderUL: present (0), sdap-HeaderDL: absent (1), defaultDRB: True, and a mappedQoS-FlowsToAdd: 1 item holding QFI: 2. Everything on this diagram is that configuration being obeyed.

Unwrap this transmission from the bottom and the SDAP header falls out of the bytes. MAC-NR carries a 55-byte SDU on LCID : 4 . RLC-NR reads it as DRB 1, AM, uplink, SN=0 , poll set, 52 bytes of data beginning 800000827dbd4542 . Split that: 80 00 00 is the three-byte PDCP header for an 18-bit sequence number (PDU Type : Data PDU, Seq Num : 0), and the very next byte, 82 , is the entire SDAP header — 1000 0010 , which Wireshark expands as PDU Type : Data PDU, Reserved : 0x0, QFI : 2 . Note where the ciphertext starts. This bearer runs NEA2 (AES), yet the 82 sits in the clear and Wireshark's Deciphered Data for the same PDU begins 60000000000083aff — an IP header, not the SDAP byte. TS 38.323 §5.8 excludes the SDAP header from deciphering precisely so a receiver can classify a packet before it decrypts it. Everything above the SDAP header on this diagram is [Decrypting a 5G NR radio capture](#) 's subject; SDAP stops at the QFI.

[Frame 47] The second PDU, 1219.994 ms later, and the QF has not moved. RLC SN=1, 84 bytes, data 80000182be762cf9 – the same 82 in the same position, one byte past a PDCP header whose sequence number has advanced to 1. One QoS flow was mapped onto this bearer and only one is in use, so the QFI is a constant for the whole session. That is not SDAP being redundant: the header still has to be sent, because once several flows share one DRB the receiver has no other way to tell which flow a packet belongs to.

[Frame 50] Three RLC PDUs in one transport block, and exactly one SDAP PDU. MAC packs a 3-byte status PDU, a whole 64-byte data PDU (SN=2) and the first 539 bytes of SN=3 into one uplink grant. Only SN=2 completes here, so only one PDCP SDU is delivered upward and only one SDAP header is dissected — QFI : 2 , from PDCP SN=2 . Look at the bytes of the other one anyway: SN=3 starts 800003 82 , so its SDAP header is already on the wire in this frame. It is simply not *deliverable* yet. SDAP sees a packet only after RLC has reassembled it and PDCP has deciphered it, which is why this diagram has 18 arrows where RLC's uplink on this bearer has 27 data PDUs.

[Frame 52] Reassembly completes, and the SDAP PDU appears where the last segment landed. The first RLC PDU here is SN=3 at S0=1153, the third and final segment of an SDU that began in frame 50 and continued through frame 51. That completes PDCP SN=3, and its SDAP header reads QFI: 2. The frame's second RLC PDU opens the next SDU — SN=4, 800004 82 — 498 bytes of it. Two different SDUs in flight in one transmission, and the SDAP layer above cannot tell: it is handed whole packets or nothing.

[Frame 53] Sixteen bytes finish the burst. RLC SN=4 at S0=498 contributes its last 16 bytes and sets the poll bit, PDCP SN=4 comes together, and the SDAP header on it is QFI : 2 like every one before it. Four PDUs delivered since frame 47, at 19.999 ms, 6.995 ms and 0.996 ms apart – the uplink is running as fast as the scheduler will grant, and then it stops.

[Frame 63] A new burst, 1222.999 ms after the last one.
RLC SN=5, 64 bytes whole, 800005 82, PDCP SN=5, QF1
2. The gap is the application's cadence, not SDAP's: the
layer has no timers, no keepalives and no state of its own to
maintain. When there is nothing to map, SDAP emits
nothing.

[Frame 66] PDCP SN=6, QFI : 2. A 64-byte RLC SDU, 88.996 ms after the last. Same one-byte header, same flow, same bearer. The monotony is the point – this is what a correctly configured single-flow DRB looks like, and all the interesting variation is in the layers below.

[Frame 70] PDCP SN=7, QFI : 2. Another 64-byte SDU, piggybacked behind an RLC status PDU in the same grant. The status report belongs to RLC's own bookkeeping and never reaches SDAP; only the data PDU carries a QFI.

