

## OsmoBSC - Feature #4485

### osmo-bsc: We should be announcing NMO I instead of NMO II

04/06/2020 05:20 PM - pespin

<b>Status:</b> Rejected	<b>Start date:</b> 04/06/2020
<b>Priority:</b> Normal	<b>Due date:</b>
<b>Assignee:</b> pespin	<b>% Done:</b> 0%
<b>Category:</b>	
<b>Target version:</b>	
<b>Spec Reference:</b>	
<b>Description</b>	
<pre>&lt;fixeria&gt; pespin: are you aware of BSS_PAGING_COORDINATION? &lt;fixeria&gt; pespin: https://osmocom.org/issues/2406#note-13 &lt;pespin&gt; fixeria, never heard of it, good you find it. Are we using mode II or III? I don't recall which is which now fixeria&gt; pespin: GPRS_NMO_II as far as I can see from the code &lt;fixeria&gt; pespin: DTM: found it in 44.018: "Dual transfer mode" section 3.1.2.7 &lt;pespin&gt; fixeria, osmo-bsc/src/osmo-bsc/system_information.c:1147 -&gt; .nmo = GPRS_NMO_II ' ... LaF0rge&gt; fixeria: pespin: We should be using NMO I! &lt;LaF0rge&gt; pespin: NMO_II requires the MS to monitor the CCCH while in active TBF &lt;LaF0rge&gt; pespin: NMO_I is where CS paging gets delivered over PACCH while in active TBF &lt;LaF0rge&gt; NMO_III would probably also work (as we don't have a PCCCH). &lt;LaF0rge&gt; We would use NMO_II only if we didn't pass CS paging from BTS via the PCU socket into th e PCU &lt;LaF0rge&gt; pespin: NMO_II would mean that the MS has to continuously interrupt packet transfer mode and switch to CCCH to see if there's a CS paging. This will degrade throughput significantly. &lt;LaF0rge&gt; pespin: as we transmit paging both on CCCH and on PACCH (the PCU socket just gets a copy of the paging), NMO_II should work - but it's far suboptimal compared to NMO_I &lt;LaF0rge&gt; pespin: and I think DTM is more or less a theoretical option. I always thought there ar e no such modems, or if they exist, they're very rare. So I never bothered about it &lt;whytek&gt; Wow, really, I looked at all this NMO last week, and checked the SI, noted that we had NM O II and assumed that the pcu and bts should behave accordingly. &lt;whytek&gt; but this is wrong???? &lt;LaF0rge&gt; whytek: well, as I just statead, it should work, too - but is suboptimal to NMO_I &lt;whytek&gt; LaF0rge, yep.. There were some things that i remember reading in the spec (can't remember now, i ran out of threads in my brain) that made me pose questions about mode I or II pespin&gt; osmo-bsc.git 858491821f72af4dcb63d8af66d45b7aa7b231e1 it seems there we moved from III to II</pre>	
<b>Related issues:</b>	
Related to OsmoPCU - Bug #2406: CS-PAGING not implemented	<b>Resolved</b> 07/29/2017
Related to OsmoMSC - Feature #1599: Gs interface (BSSMAP+) between SGSN and M...	<b>New</b> 02/23/2016
Related to OsmoSGSN - Feature #1583: Gs interface (BSSMAP+) between SGSN and ...	<b>New</b> 02/23/2016

## History

### #1 - 04/06/2020 05:22 PM - pespin

- Subject changed from We should be announcing NMO I instead of NMO II to osmo-bsc: We should be announcing NMO I instead of NMO II

### #2 - 04/06/2020 07:39 PM - fixeria

- Related to Bug #2406: CS-PAGING not implemented added

### #3 - 04/06/2020 08:22 PM - fixeria

I am wondering whether NMO I would imply that the MS is allowed to do combined Attach on PS (and thus omit CS Location Update)? Also, wouldn't the lack of PACKET\_SERVING\_CELL\_DATA (see [#2400](#)) on PDCH cause any problems in NMO I?

### #4 - 04/06/2020 08:52 PM - fixeria

I am wondering whether NMO I would imply that the MS is allowed to do combined Attach on PS (and thus omit CS Location Update)?

I did a quick test, and the answer is YES. The phone requested combined GPRS/IMSI Attach. Even when the SGSN responded with Attach Accept (Result of Attach: GPRS only attached), it took the phone a few minutes to realize that and send Location Updating Request on SDCCH.

**#5 - 04/06/2020 09:15 PM - fixeria**

- File *osmo\_nmo3\_combined\_attach\_fail.pcapng* added

it took the phone a few minutes to realize that and send Location Updating Request on SDCCH.

During those few minutes (~5) the CS service was unavailable (a small 'limited-service' icon in the status bar). As it turns out, the phone continuously tries to perform **combined** RA/LA Update procedure, but the SGSN rejects it with GMM cause 'Protocol error, unspecified'. Here is what I see in my terminal (repeated pattern):

```
DLLC NOTICE gprs_llc.c:1056 LLME(ffffffff/d898abeb){UNASSIGNED} LLGM Assign pre (d898abeb => ffffffff)
DLLC NOTICE gprs_llc.c:1102 LLME(00000000/00000000){UNASSIGNED} LLGM Assign post (d898abeb => ffffffff)

DLLC NOTICE gprs_llc.c:535 LLME(ffffffff/d898abeb){UNASSIGNED} LLC RX: unknown TLLI 0xd898abeb, creating LLME
on the fly
DMM NOTICE gprs_gmm.c:1586 MM(---/ffffffff) Update type 2 unsupported in Mode III, is your SI13 corrupt?
DMM NOTICE gprs_gmm.c:1734 MM(---/ffffffff) Rejecting RA Update Request with cause 'Protocol error, unspecifie
d' (111)
DMM NOTICE gprs_gmm.c:1476 <- ROUTING AREA UPDATE REJECT
```

This assumption (NMO III) seems to be hard-coded in SGSN, and needs to be fixed. Even though, I don't think osmo-sgsn is able to handle combined Attach / RA Update requests. Please see the attached capture.

**#6 - 06/21/2020 01:21 PM - laforge**

- Related to Feature #1599: Gs interface (BSSMAP+) between SGSN and MSC/VLR added

**#7 - 06/21/2020 01:21 PM - laforge**

- Related to Feature #1583: Gs interface (BSSMAP+) between SGSN and MSC/VLR added

**#8 - 06/21/2020 01:22 PM - laforge**

- Status changed from New to Rejected

fixeria wrote:

I am wondering whether NMO I would imply that the MS is allowed to do combined Attach on PS (and thus omit CS Location Update)?

I did a quick test, and the answer is YES. The phone requested combined GPRS/IMSI Attach.

Ok, so the result is clear: We must stay in NMO\_II until we implement the Gs interface between MSC and SGSN. As that is discussed in [#1583](#), we can reject this issue as invalid.

**Files**

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osmo_nmo3_combined_attach_fail.pcapng	15.6 KB	04/06/2020	fixeria
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