

## Cellular Network Infrastructure - Bug #3042

**in the presence of two BTS, a subscribed phone seems compelled to repeatedly Location Update every ~15 seconds**

03/08/2018 03:24 AM - neels

<b>Status:</b>	Rejected	<b>Start date:</b>	03/08/2018
<b>Priority:</b>	Normal	<b>Due date:</b>	
<b>Assignee:</b>		<b>% Done:</b>	0%
<b>Category:</b>			
<b>Target version:</b>			
<b>Spec Reference:</b>			
<b>Description</b>			
In attached pcap, I start one BTS and attach my phone to it. All seems normal: one LU. After a while, I start a second BTS on a different ARFCN. The phone goes into a cycle of repeated LU every more or less 15 seconds. If I switch off the second BTS again, the LU cycle stops.  (Filter the attached pcap by 'bssap    gsm_abis_oml' to see just the LU cycling and where the second BTS started and stopped. Notice the time that passes before the second BTS starts and after it stops without another LU occurring, while during its operation they repeat often.)			
<b>Related issues:</b>			
Related to OsmoBTS - Feature #3075: do not transmit SI13 when the PCU is not ...		<b>Resolved</b>	<b>03/19/2018</b>

### History

#### #1 - 03/08/2018 03:28 AM - neels

This is with the following software versions:

```
==== osmo-bsc ====
6b3ae4d4120f283776d27d808b247ced45510220
--> current master (f93970b167aba2805cc67e1326591f31fbe93ada) with a few patches on top, notably a hack to disable the conn_loss_counter in
a_reset.c

==== libosmocore ====
ed3afa77701591f4f74a39dc8633e4eec25f804a

==== libosmo-sccp ====
3137be99ef2e75bd5bdd616a6c435513a64125ec

==== libosmo-abis ====
61460fd6431d6ea62752d74ad05425f132d7abbe

==== osmo-msc ====
48d4ec06e180cfb60556ce6c565620078bbea8db

==== libosmo-netif ====
525256a15a581daec7afd9edd65f10b827ff2f51

==== osmo-bts-sysmo ====
0.7.0.38-ef8c (first BTS) and
0.7.0.32-3c96d (second BTS)
```

#### #2 - 03/08/2018 03:33 AM - neels

The Location Updating alternates between the two cells, as wireshark filter 'gsm\_abis\_rsl && (gsm\_a.dtap.msg\_mm\_type == 0x08)' shows

#### #3 - 03/08/2018 07:38 AM - laforge

Hi Neels,

On Thu, Mar 08, 2018 at 03:24:48AM +0000, neels [REDMINE] wrote:

In attached pcap, I start one BTS and attach my phone to it. All seems normal: one LU.  
After a while, I start a second BTS on a different ARFCN. The phone goes into a cycle of repeated LU every more or less 15 seconds.

Could it be that the two BTSs

- are about the same receive signal level?
- are in different location areas?
- your cel reselection hystheresis is low or even 0?

Then the behaviour you describe is exactly what is to be expected.

#### #4 - 03/16/2018 12:55 PM - neels

- Status changed from New to Rejected

laforge wrote:

Could it be that the two BTSs

- are about the same receive signal level?
- are in different location areas?

yes and yes.

- your cel reselection hystheresis is low or even 0?

"cell reselection hysteresis 4"

Does that count as low?

Setting to the maximum of 14 in both BTS, I still see the behavior of repeated "LU hopping".

And found the reason why the phone is doing that: it is looking for usable data service!

The networks are configured for GPRS, but I often just don't run the PCU.

As soon as one of the cells has a PCU running and GPRS service is established, the phone stays in one cell.

Interesting fact learnt: when you see a lot of LU, the GPRS might be down.

And if one cell's data service still works, all subscribers may tend to stick to that cell.

Which is not a problem as long as load balancing handover is working fine ; )

#### #5 - 03/16/2018 04:00 PM - laforge

On Fri, Mar 16, 2018 at 12:55:04PM +0000, neels [REDMINE] wrote:

And found the reason why the phone is doing that: it is looking for usable data service!

The networks are configured for GPRS, but I often just don't run the PCU.

I think we might consider disabling SI13 broadcast (and SI13 presence in SI3/4) if no PCU is connected. Let's create a separate ticket for that.

#### #6 - 03/19/2018 12:17 AM - neels

- Related to Feature #3075: do not transmit SI13 when the PCU is not connected added

### Files

---

lu_cycle.pcapng	3.09 MB	03/08/2018	neels
-----------------	---------	------------	-------