

OsmoGSMTester - Bug #3740

Figure out best fix for iperf3m4.py where some MS fails to register

12/20/2018 05:50 PM - pespin

Status:	New	Start date:	12/20/2018
Priority:	Normal	Due date:	
Assignee:	pespin	% Done:	0%
Category:			
Target version:			
Spec Reference:			

Description

By looking at osmo-gsm-tester_run_prod history of "gprs" testsuite when used with "sysmobts" in all its variant, it can be seen that test "iperf3m4" fails sporadically with at least 1 MS being unable to register to the network:

```
"osmo_gsm_tester.log.Error: Failed to find Network Operator {attempts=4, mcc_mnc=('901', '70')}"
```

Attached all required information to showcase what's going on: pcap file, osmo-gsm-tester log, etc.

These are the MS being used and their IMSIs:

```
gobi_1 901700000010978
gobi_2 901700000023847
gobi_3 901700000023848
gobi_4 901700000023849
```

Events as seen from pcap:

1- Some MS try to register with TMSI instead of IMSI and their are Identity Requested but they don't answer and close the channel. We don't care about this right now.

1- gobi_1 LU accepted (fine)

2- gobi_3 LU accepted (but the MS doesn't send back on the uplink a "TMSI Reallocation Complete" message, so channel is left open for 5 second, .45 to .50)

3- gobi_2 LU accepted (fine)

4- gobi_3 LU rejected (cause=congestion, a reject is sent at .50, frame-nr 1353, probably due to 5 seconds timeout without "TMSI Reallocation Complete")

5- gobi_4 accepted

6- gobi_3 tries LU again (probably after congestion period), but it's too late (test is already finishing) and never gets a response.

Why "TMSI Reallocation Complete" is never sent MS->BTS for gobi_3 modem:

According to timestamps in osmo-gsm-tester and pcap file, this is what happens:

1- ogt: 03:26:43.328617 - 03:26:44.403392: during this period of time, gobi_3 modem is set "Online", which means (found experimentally) it can start scanning and/or registering to any network starting from this point

2- pcap: 03:26:45.014113: RACH request from gobi_3 is received on Um (GSMTAP), then channel is allocated

3- pcap: 03:26:45.319336: LU Request from gobi_3 is received on Um (GSMTAP)

4- ogt: 03:26:45.414694: gobi_3 is set by ofono (by osmo-gsm-tester) to start scanning, which means it will start jumping arfcn.

5- pcap: 03:26:45.319336: LU Accept is sent to gobi_3 on Um (GSMTAP, fr-nr 1216). MS probably never receives it or doesn't send a TMSI Reallocation Update because it's already in scan mode.

6- pcap: 03:26:50.336382: After 5 seconds, MSC decides to LU Reject and tears down the channel

Interestingly, after start scanning, /gobi_3 is unable to find the network but all others modems can find it at roughly the same time (before and after):

```
03:27:00.935287 tst /gobi_3: DBG: scanned operators: [('/gobi_3/operator/26201', {'Status': 'forbidden', 'Technologies': ['gsm', 'umts', 'lte'], 'Name': 'TDG', 'MobileNetworkCode': '01', 'MobileCountryCode': '262'}), ('/gobi_3/operator/26202', {'Status': 'forbidden', 'Technologies': ['gsm', 'umts', 'lte'], 'Name': 'Vodafone.de', 'MobileNetworkCode': '02', 'MobileCountryCode': '262'})] [trial-1698↔gprs:sysmo↔/gobi_3] [modem.py:512]
```

```
03:27:08.901940 tst /gobi_3: DBG: scanned operators: [('/gobi_3/operator
/26201', {'Status': 'forbidden', 'Technologies': ['gsm', 'umts', 'lte'], 'Name': 'TDG', 'MobileNet
workCode': '01', 'MobileCountryCode': '262'}), ('/gobi_3/operator/26202', {'Status': 'forbidden',
'Technologies': ['gsm', 'umts', 'lte'], 'Name': 'Vodafone.de', 'MobileNetworkCode': '02', 'MobileC
ountryCode': '262'})] [trial-1698↔gprs:sysmo↔/gobi_3] [modem.py:512]
03:27:17.157086 tst /gobi_3: DBG: scanned operators: [('/gobi_3/operator
/26201', {'Status': 'forbidden', 'Technologies': ['gsm', 'umts', 'lte'], 'Name': 'TDG', 'MobileNet
workCode': '01', 'MobileCountryCode': '262'}), ('/gobi_3/operator/26202', {'Status': 'forbidden',
'Technologies': ['gsm', 'umts', 'lte'], 'Name': 'Vodafone.de', 'MobileNetworkCode': '02', 'MobileC
ountryCode': '262'})] [trial-1698↔gprs:sysmo↔/gobi_3] [modem.py:512]
03:27:25.285414 tst /gobi_3: DBG: scanned operators: [('/gobi_3/operator
/26201', {'Status': 'forbidden', 'Technologies': ['gsm', 'umts', 'lte'], 'Name': 'TDG', 'MobileNet
workCode': '01', 'MobileCountryCode': '262'}), ('/gobi_3/operator/26202', {'Status': 'forbidden',
'Technologies': ['gsm', 'umts', 'lte'], 'Name': 'Vodafone.de', 'MobileNetworkCode': '02', 'MobileC
ountryCode': '262'})] [trial-1698↔gprs:sysmo↔/gobi_3] [modem.py:512]
```

However, it finally finds the network afterwards, at 03:27:27.537501 it sends a RACH req and at 03:27:27.688234000 it sends an LU Request (IMSI can be checked here).

So, after whole explanation, some questions regarding what's the best way to improve this:

- 1- Is behavior of the network correct? sending a Reject after an Accept if TMSI Reallocation Complete is not received.
- 2- As finally the MS seems to be able to find the network ,probably increasing the amount of scan+register attempts in modem.py should be enough to have the MS finally registering to the network (see NETREG_MAX_REGISTER_ATTEMPTS = 3 there).

Files

merged.pcap	231 KB	12/20/2018	pespin
ogt.log.txt	130 KB	12/20/2018	pespin