If we wanted to interconnect multiple osmo-stp (or even with other signalling gateways), we would need a way to use the ASP-side implementation of libosmo-sigtran from the VTY of OsmoSTP. This is currently not possible, but all related code should be there.

Related issues:
Related to libosmo-sccp + libosmo-sigtran - Bug #2351: unify sccp instance co... Closed 07/06/2017

Associated revisions
Revision eb5b5cfa - 10/29/2019 09:07 PM - laforge
Allow ASP role to be configured

So far, we had a static role model:
- SCTP servers (listening, such as OsmoSTP) are role SGW
- SCTP clients (connecting, such as OsmoMSC) are role ASP

While this is customary, it is not actually required by the specification. The SGW can establish the SCTP connection to an ASP but still remain "SG" role.

Let's make things more flexible by having the role configurable.

Related: OS#2005
Change-Id: I2df9cd9747ad5c9a05d567d9a71bab6184c53674

Revision d0c27c1e - 10/29/2019 09:20 PM - laforge
vty: Permit configuration of ASPs in SCTP client mode

The M3UA specification states that either of the two roles should be the SCTP client and the other the server. It also states that the default for the SG is to operate as server. However, it permits other configurations. Let's allow this to be configured by the VTY.

We need to ensure that while in ASP role, we don't send any NOTIFY messages to the peer SG.

Change-Id: I7452a862d45da35dcd58654ca17222eb52d26f1f
Closes: OS#2005

Revision 1a822635 - 11/05/2019 08:50 PM - laforge
Allow ASP role to be configured

So far, we had a static role model:
- SCTP servers (listening, such as OsmoSTP) are role SGW
- SCTP clients (connecting, such as OsmoMSC) are role ASP

While this is customary, it is not actually required by the specification. The SGW can establish the SCTP connection to an ASP but still remain "SG" role.

Let's make things more flexible by having the role configurable.

Related: OS#2005
Change-Id: I2df9cd9747ad5c9a05d567d9a71bab6184c53674

Revision b521a2ed - 11/05/2019 08:51 PM - laforge
vty: Permit configuration of ASPs in SCTP client mode

The M3UA specification states that either of the two roles should be the SCTP client and the other the server. It also states that the default for the SGP is to operate as server. However, it permits other configurations. Let's allow this to be configured by the VTY.

We need to ensure that while in ASP role, we don't send any NOTIFY messages to the peer SG.

Change-Id: I7452a862d45da35ddc58654ca17222eb52d26f1f
Closes: OS#2005

Revision 8e2fddc9 - 11/19/2019 12:12 AM - laforge
Don't forget to store the scp-role during writing config file

Related to Change-Id I7452a862d45da35ddc58654ca17222eb52d26f1f
Related: OS#2005

Change-Id: I14835a7df137e9d1fe9757a4ec57359d578446e

History
#1 - 07/10/2017 10:17 PM - laforge
- Related to Bug #2351: unify sccp instance configuration added

#2 - 07/10/2017 10:18 PM - laforge
- Assignee set to laforge

#3 - 10/11/2017 01:17 AM - laforge
- Assignee changed from laforge to dexter

I think this has long been resolved? We are using M3UA in ASP mode from osmo-bsc and osmo-msc. Please confirm.

#4 - 10/13/2017 01:23 PM - dexter

I am not sure. We never tried it or even thought about it. When I get it correct, this would be a configuration where e.g. two OsmoSTP are connecting to each other. This means that one of them must take the client role. The topology could be something like this:

```
  osmo-bsc (ASP) <-------- (STP) OsmoSTP (ASP) <-------- (STP) OsmoSTP (STP) <-------- (ASP) osmo-msc
```

I think this is something we have to test in order to be sure that it really works.

#5 - 10/29/2017 06:33 PM - laforge
- Priority changed from Normal to Low

#6 - 09/04/2019 09:26 AM - laforge
- Assignee changed from dexter to laforge

#7 - 10/08/2019 02:59 PM - laforge
- Tracker changed from Bug to Feature
- Assignee changed from laforge to pespin
- Priority changed from Low to Normal

The M3UA protocol defines various roles of M3UA endpoints: SGW, ASP and IPPSP.

osmo-stp currently implements only the SGW (Signaling Gateway) role, allowing external M3UA entities in ASP role to connect to it. It does not permit the SGW to operate in ASP role to connect to external SGWs

The implementation of this feature will include
1. Extension of the VTY interface to operate the osmo-stp send of the M3UA link in ASP mode
2. Extension of the osmo-stp internal implementation to behave accordingly
3. Implementation of automatic test cases in TTCN-3

#8 - 10/29/2019 09:13 PM - laforge
- Status changed from New to In Progress
- Assignee changed from pespin to laforge
- % Done changed from 0 to 30

I've made an initial implementation as part of laforge/wip, but it requires thorough testing before pushing for inclusion. There are two new VTY commands for specifying the SCTP role (client / server) and the xUA role (sg / asp).

#9 - 10/29/2019 09:20 PM - laforge
- File 20191029-m3ua_asp_side.pcap added

Initial testing shows that the ASP transitions through ASPUP and ASPAC as expected. However, both the ASP and the SG are sending NOTIFY to each other, which is probably not how it's supposed to be. We need to suppress NOTIFY generation if we're not in SG role.

#10 - 10/29/2019 09:30 PM - laforge
- File 20191029-m3ua_asp_side2.pcap added
- % Done changed from 30 to 60

NOTIFY problem has been fixed. They are now suppressed when operating in ASP role.

Attaching a new pcap file.

The ASP side config looked like this:

```plaintext
cs7 instance 0
  point-code format 24
  asp asp-sender 2905 9999 m3ua
    local-ip 127.0.0.1
    remote-ip 127.0.0.1
    role asp
    sctp-role client
    as as-sender m3ua
    asp asp-sender
    routing-key 1023 23
    route-table system
    update route 23 16777215 linkset as-sender
```

while the SG side looked like that:

```plaintext
cs7 instance 0
  point-code format 24
  asp asp-sender 9999 2905 m3ua
    local-ip 127.0.0.1
    remote-ip 127.0.0.1
    as as-sender m3ua
    asp asp-sender
    routing-key 1023 23
    route-table system
    update route 23 16777215 linkset as-sender
    listen m3ua 2905
    accept-asp-connections dynamic-permitted
```

the routing doesn't yet make sense in the above configs. I'm just pasting them to illustrate how to use the 'role' and 'sctp-role' commands to switch a given section into operating as client/ASP towards another SG.

#11 - 11/05/2019 04:27 PM - laforge
- % Done changed from 60 to 90

This is implemented in https://gerrit.osmocom.org/#/c/libosmo-sccp/+/15974/ and https://gerrit.osmocom.org/#/c/libosmo-sccp/+/15975/ - automatic tests (all passing) are in the laforge/wip branch of osmo-ttcn3-hacks.git.

Once it passes code review, it will be in master.
- Status changed from In Progress to Closed
- % Done changed from 90 to 100

all code / patches in master; tests are executed automatically and pass, see those including clnt in the name at
https://jenkins.osmocom.org/jenkins/job/ttcn3-stp-test/test_results_analyzer/

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