H2020 i**P** **O**ver Ic**N**- the bet**T**er IP (POINT)

Examples

Deploy a POINT Network with Static Surrogacy for HTTP Services

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1. Overview

The NAP supports surrogacy by means of a dedicated interface available to tell the NAP that it is supposed to subscribe to a particular FQDN and the IP address the web server is reachable - and this at runtime while the network is fully operational. This particular NAP which acts as an sNAP for static surrogates is referred to as extended NAP (eNAP). More information on the mechanics within the NAP to support this functionality can be found in https://github.com/point-h2020/point-2.0.0/tree/master/doc/Design_Description/nap.pdf. Furthermore, a surrogate dummy module (called surrogate agent) is shipped within the POINT code release to demonstrate the NAP-SA interface.

2. Network Topology and Configuration

The network topology used for this example howto is illustrated in Figure 5.1. Following the examples in Section 3 and 4 each ICN node has a dedicated management interface on eth0 with the following IP configurations:

Table 1: IP configuration of management interfaces

Node Name	**IP Address/Subnet**
RV/TM	10.0.0.2/24
cNAP	10.0.0.3/24
sNAP	10.0.0.4/24
eNAP	10.0.0.6/24

All other required network configurations are given in Figure 5.1. The ICN topology for this example topology using the management IP addresses of Table 5.1 can be found in blackadder/deployment/surrogacy.tar.bz. This compresed tar ball comprises all required configuration files to deploy the topology drawn in Figure 5.1 and the corresponding NAP and HTTP proxy configuration files. Simply uncompress the tar file into your home folder and untar it:

```
~$ bunzip2 blackadder/deployment/examples/surrogacy.tar.bz2
~$ tar -xvf surrogacy.tar
```

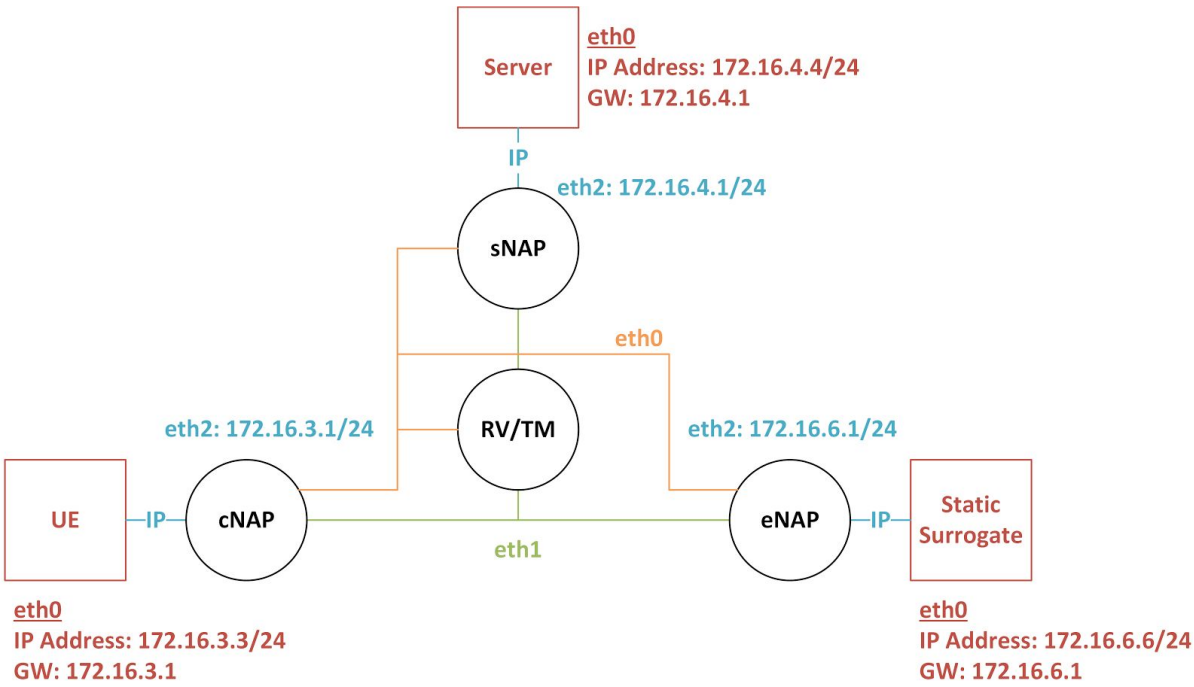

Figure 1: Network topology and interface configurations

Also ensure that the static surrogate server has apache installed and provides a different HTML page when calling index.html (e.g. change the headline to Surrogate).

Note, the UE requires a DNS entry for web.point which must exist in /etc/hosts. As the UE has the cNAP as its default GW and the NAP terminates the TCP session anyway in its HTTP proxy, it does not matter which IP is provided in /etc/hosts. However, in order to ping web.point (if required) it is advisable to provide the correct IP address of the video server, i.e. 172.16.4.4.

2.1 Deploy the Network

The deployment tool allows to start all required POINT software (RV, TM, NAP and its proxy) to the achieve the basic set up, as indicated in Figure 5.1. To do so just invoke:

```
~$ blackadder/deployment/deploy -c surrogacy/topology.cfg -l -n
```

2.2 Enable Surrogacy

Open your default browser on the UE and access web.point. The website from the server behind the sNAP should react and provide the index.html web page. The activation of the static surrogate can be achieved as follows: on the eNAP go to blackadder/examples/surrogacy and invoke

```
~$ sudo ./surrogateagent web.point 172.16.6.6 1
```

This uses the NAP-SA interface and tells the NAP to subscribe to /http/web.point and that it can find the server which hosts the FQDN on 172.16.6.6. The last argument indicates that this is an activation. In order to deactivate the surrogate again use `0` as the last argument.

Now issue an HTTP request to web.point again and the web page that shows up should have the customised headline from the surrogate instead of the default Apache start page.