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

Design Description

Extended ICN Deployment Tool

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1. Overview

2. Zoned Deployment

1. Overview

This document describes the added extensions of the deployment tool, which has been developed in accommodations of the requirements of POINT IP-over-ICN network. With large scale network deployment, including also mininet emulation segments, it becomes essential to evolve the deployment method in ways that allow for better control over the network, easier management and less human-caused errors. The extensions are:

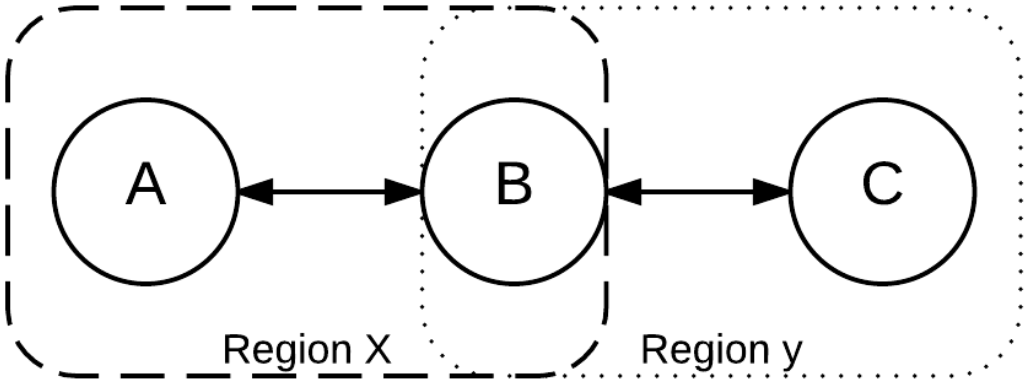
- Zoned deployment: from multiple configuration files
- Updated construction of flow rules for SDN networks
- Supported deployment of SDN through the ODL controller
- Deployment of the POINT applications: NAP, MONA, LSM
- Deployment of the TM with traffic engineering extensions

2. Zoned Deployment

As the network size and complexity grow, it becomes unfeasibly difficult to use conventional deployment with a single configuration file that represents the entire network. The zoned deployment allows to simplify the process by:

- Divide the one large graph into multiple sub-graphs, each of which is represented by a configuration file
    - The RV/TM node should only have the role of RV/TM set in one of the files where the node is present, not all.
- As a result multiple configuration files will be generated, all of which should be collected in one directory. Notice it is important that they are collected in one directory not multiples.
- The deployment tool will then merge the subgraphs into one graph, by identifying common joint nodes

Figure 1 shows how the tool merges two segment graph.



X.cfg

```
....
nodes = {
      {
            label = "A";
            ...
            connections = (
                  to = "B";
            );
      },
      {
            label = "B";
            ...
            connections = (
                  to = "A";
            );
      },

};
```

Y.cfg

```
....
nodes = {
      {
            label = "B";
            ...
            connections = (
                  to = "C";
            );
      },
      {
            label = "C";
            ...
            connections = (
                  to = "B";
            );
      },

};
```

Figure 1: Merging two subgraphs into one graph using the extended deployment tool.