GÉANT Open Call Projects

Open Call research is helping pave the way for the next generation of services, applications and uses for networking and supports the aims of Horizon 2020 and the challenges of the data deluge

www.geant.net/opencall

GÉANT
INNOVATION PROGRAMME

# MOTE | Multi-domain OpenFlow Topology Exchange

Project Brief

MOTE will research multi-domain topology descriptions supporting network provisioning for SDN technologies. It will bridge the intra-domain operations of OpenFlow with the inter-domain provisioning in the Network Service Interface (NSI) Framework. The methods for describing and exchanging topology descriptions will allow users to create and tune end-to-end network connections, even crossing many OpenFlow domains. This will certainly be the case in a highly collaborative environment as supported by the networks of the GÉANT community.

OpenFlow Topology Exchange?

Circuit based network provisioning is becoming a success, as can be seen by the popularity of for example AutoBAHN. Extending the performance of network circuits into the campus networks is still an open problem. OpenFlow, a Software Defined Networking (SDN) technology, is seen as a serious candidate to allow the extension of network circuits into the campus networks. In order to extend the network circuit provisioning from the circuit based networks into OpenFlow networks, some form of topology exchange is required.

Research Approach

There is only one way to make sure that the topology and flow descriptions created in the project can describe actual connected OpenFlow networks: apply them to connected OpenFlow networks. For this, we want to leverage an experimental testbed as well as the existing OpenFlow networks provided by both partners, as well as the GÉANT OpenFlow testbed. For this project to succeed, one or two slices of an existing OpenFlow testbed is not sufficient. Multiple connected OpenFlow networks with separate controllers are required.
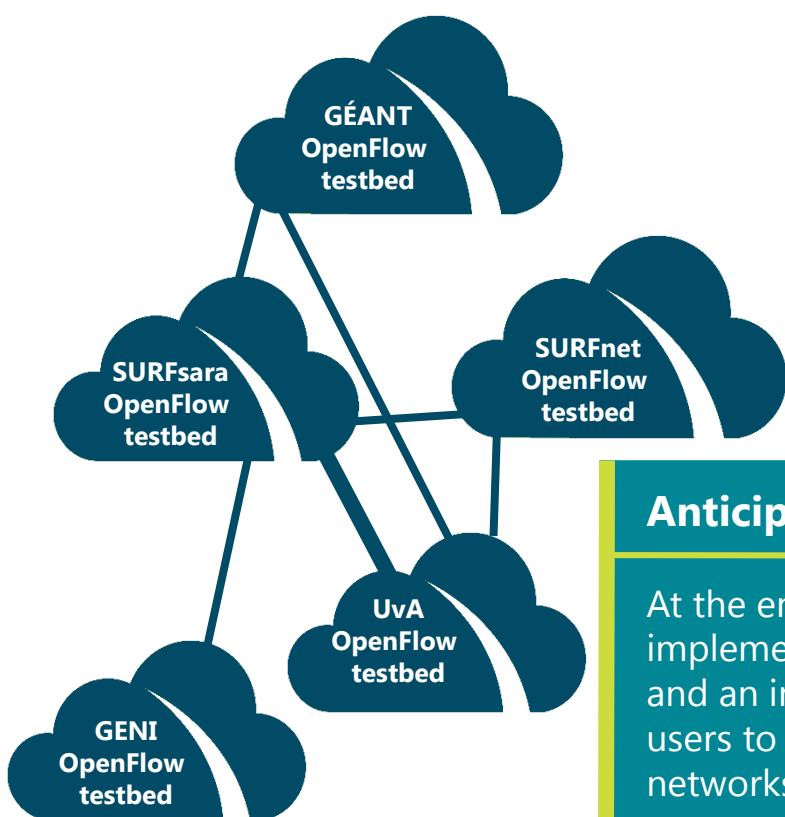
Anticipated Results

At the end of the project we will have a proof-of-concept implementation of interdomain topology exchange for OpenFlow, and an integration with the NSI Connection Service. This will allow users to seamlessly request and provision paths through OpenFlow networks, as well as NSI capable networks, such as AutoBAHN.

Participants:
University of Amsterdam, SURFsara