


Project were created on the "Flack" - flash-based map interface for allocating ProtoGENI and other supported GENI resources. There were reserved one slice with four nodes. Two of them are two LINC's installed on Ubuntu 12.04. The third one is a Network Manager. It is hosting the GUI to display all LINC's OpenFlow parameters. Also, Network Manger runs NETCONF over SSH Client that is needed to establish sessions with NETCONF Server on LINC's and retrieve XML configuration schemes. NETCONF over SSH Client/Server is a YANG-Based Unified Modular Automation Tool, that is basically plug-in to the OpenFlow framework, and it is used to push/pull configurations to /from switches and clients.

In order to retrieve data there should be connection to the Server ( yangcli> connect server=10.10.11.2 nport=1830). After the session is established configurations from the server can be pulled ( yangcli> @some-name.xml = get-config ) and store into some-name.xml file for future manipulations.

Then XML file is parsing and all the OpenFlow parameters that switches have is displaying in the User Interface.

Future deployment:

Ability to dynamically change switch configurations directly from the GUI.




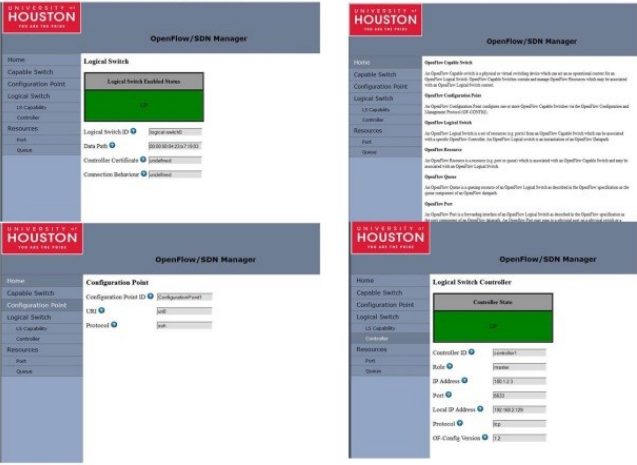
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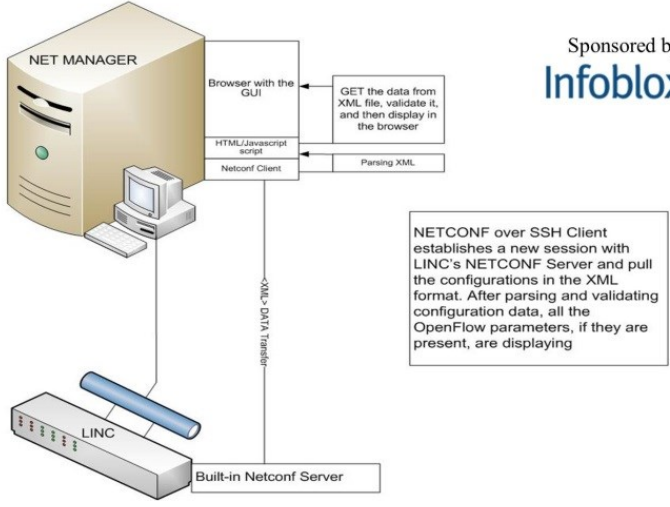
## OF-Config Protocol: Visualization of the Management Plane in OpenFlow/SDN Networks

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- Implemented on ProtoGENI
- OF-Config: Network Management for OpenFlow networks
- DEMO: Displaying LINC Switch configurations through NETCONF using OF-Config specification
- OF-Config Specification uses NetConf as transport
- YangCli (YUMA) mechanism is used to get switch configurations
- GREE 2013 work in progress paper

The data model for OF-Configurations Protocol is structured into classes and attributes of classes. Each class is described in a separate sub-section by XML, UML, and YANG. The core of the model is an OF Capable Switch that is configured by OF Configuration Points. Instances of OF logical switches are contained within the OF Capable Switch. A set of OF Controllers is assigned to each OF logical switch. When issuing a NETCONF "get-request" all elements in the requested sub-class or sub-tree must be returned in the result and then manipulation can be done.