

OpenFlow Campus Trials at Clemson University (1833A)

OFCLEM Project Status Report

Period: 3/16/2012-7/11/2012 (GEC14)

I. Major accomplishments

The project will deploy an OpenFlow (OF) testbed on the Clemson University campus and connect with wireless mesh access points and mobile terminals. This trial will conduct OF experimentation focused on OF enabled network operation solutions as a precursor to deployment into Clemson research and production networks.

During this period, key achievements include:

- a) Developed and delivered “Getting Started” tutorial at GENI Summer Camp at RIT
- b) Prepared video presentation on OpenFlow application for US Ignite White House launch
- c) Continued meso-scale support for GENI experiments
- d) Clemson IT outreach: CC-NIE proposal development and data center integration planning
- e) Recruited two new REU students

A. Milestones achieved

No milestones are due this period.

B. Deliverables made

- a) GENI summer camp tutorial
- b) OpenFlow application video for US Ignite

II. Description of work performed during last quarter

A. Activities and findings

- a) Developed and delivered “Getting Started” tutorial at GENI Summer Camp at RIT
Developed tutorial includes an instruction booklet, a set of accompanying slides, and sample GENI Rspec, OpenFlow controller code, and software agent code for running experiments on myplc nodes and meso-scale OF switches across GENI core.
- b) Prepared video presentation on OpenFlow application for US Ignite White House launch
Delivered SDN presentation in US Ignite White House launch technology session.
- c) Continued meso-scale support for GENI experiments
- d) Clemson IT outreach: CC-NIE proposal development and data center integration planning
Proposal development effort identifies new IT organization and roadmap for deploying, operating, research/education support, and student engagement plans. In addition to submitting the proposal, the team has begun engaging IT software development staff to explore roadmap for integrating OpenFlow into our Palmetto HPC cluster’s file system.
- f) Recruited two new REU students
David Reynolds and James Kurtz joined team as REU students in 2012 summer, learning OpenFlow and supporting outreach OpenFlow development

B. Project participants

The project team members are:

OpenFlow Campus Trials at Clemson University (1833A)

PI: Kuang-Ching Wang (ECE Associate Professor)

Co-PI: Jim Pepin (CTO)

IT: Dan Schmiedt (Director of Network Services and Telecommunications), Wayne Ficklin (Network Engineer), Brian Parker (Network Engineer)

ECE graduate research assistant: Aaron Rosen (MS), Fan Yang (PhD)

ECE undergraduate student: Benjamin Ujcich (sophomore), Jeff Heider (senior), Scott Groel (sophomore), Ryan Izard,

C. Publications (individual and organizational)

1. A. Rosen and K.-C. Wang, "Steroid OpenFlow Service: Seamless Network Service Delivery in Software Defined Networks," in Proceedings of the First GENI Research and Educational Experiment Workshop, pp.1~5, March 2012.
2. G. Stabler, S. Goasguen, A. Rosen, and K.-C. Wang, "OneCloud: Controlling the network in an OpenFlow cloud," in Proceedings of the First GENI Research and Educational Experiment Workshop, pp.1~6, March 2012.
3. G. Stabler, A. Rosen, K.-C. Wang, and S. Goasguen, "Poster Abstract: Dynamic virtualized networking in the cloud using OpenFlow," in Proceedings of IBM Cloud Academy Conference, April 2012.

D. Outreach activities

- a) Campus IT SDN roadmap, team building, and HPC integration discussion
- b) US Ignite OpenFlow presentation

E. Collaborations

The project is conducted in collaboration with campuses and backbone providers on the OpenFlow trial. We have so far worked more closely with:

- a) Nick McKeown, Guru Parulkar, and the Stanford OpenFlow group, assisting us in the acquisition, installation, configuration, and testing of OpenFlow software.
- b) GENI Project Office

F. Other Contributions

None in this reporting period.