OFCLEM Project Status Report
Period: 7/29/2011-11/4/2011 (GEC12)

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) Completed implementation of Steroid OpenFlow Service (SOS)
   b) Deployed IT use case: Data Analysis Network; user interface in progress
   c) Support for Plastic Slices and GENI experiments including Pathlet, MobilityFirst, and SOS
   d) 2nd phase OF campus wireless mesh network in progress (finalized campus facility deployment work order)
   e) Poster and Plenary demo at GEC12: "Steroid OpenFlow Service: An OpenFlow Service for Seamless Enhancement of Data Transport Throughput"

A. Milestones achieved

Two milestones were planned for this period. To our understanding, all are considered completed given the conditions specified below:

   1. OFCLEM: S3.c.2 Implement procedures for operational support (Due 08/31/11): We have listed campus contact on OpenFlow and MyPLC aggregate web pages.
   2. OFCLEM: S3.d Support at least four multi-site GENI experiments: We have supported PlasticSlices, Pathlet, MobilityFirst, and SOS multi-site experiments.

No other milestones are due this period.

B. Deliverables made

   a) Completed Steroid OpenFlow Service implementation
   b) Deployed Pronto Switches next to campus core routers for Data Analysis Network project

II. Description of work performed during last quarter

A. Activities and findings

   a) Completed implementation of Steroid OpenFlow Service (SOS)
      SOS is implemented across multiple OpenFlow campuses as a wide area seamless throughput enhancement service for large TCP-based data transport. The paradigm can be used for flexible plug-in of other services for different traffic classes. The solution also supports multipath transport. The service is meant to be a campus/enterprise use case that leverages OpenFlow to provide seamless service to its users.

   b) Deployed IT use case: Data Analysis Network; user interface in progress
      Two pronto switches in place and verified OpenFlow filtering and forwarding of selected traffic. Undergraduate student team working on Google map based interface for multiple IT services enabled by the Data Analysis Network.

   c) Support for Plastic Slices and GENI experiments including Pathlet, MobilityFirst, and SOS

Supported demos at GEC12.

d) 2nd phase OF campus wireless mesh network in progress (finalized campus facility deployment work order)
Campus facility has been unavailable during the summer due to multiple campus projects. Work on OpenFlow mesh deployment resumed and work plan signed off right before GEC12.

e) Poster and Plenary demo at GEC12: "Steroid OpenFlow Service: An OpenFlow Service for Seamless Enhancement of Data Transport Throughput"

B. Project participants

The project team members are:
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)

C. Publications (individual and organizational)

Not available at this time.

D. Outreach activities

a) Gave GENI/OpenFlow talks at EDUCAUSE '11 (Philadelphia, PA), and Internet2 Member Meeting (Durham, NC).
b) Participated in GENI-enabling campus visits to four universities: Duke University, University of Florida, University of Chicago, and University of Wisconsin-Madison.

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
c) Tsinghua University (Yong Li et al.)

F. Other Contributions

None in this reporting period.