

WIMXCL Project Status Report
Period: 7/12/2012-10/25/2012 (GEC15)

I. Major accomplishments

This project will plan and deploy a multi-cell/multi-sector WiMAX network (three sectors total) in Greenville, SC, with coverage of highways and commercial district, based on base station kits provided by Rutgers. It will deploy a vehicular mobile station with handover features, and demonstrate multi-cell/multi-sector operation. It will collaborate with commercial WiMAX carrier Digital Bridge Communications (DBC) to explore and demonstrate (if possible) roaming and interoperability between GENI and commercial WiMAX networks. It will demonstrate experiments in automotive research and engineering.

During this period, key achievements include:

- a) Completed installation of one Airspan BS on Clemson campus
- b) Completed installation of local Netspan server at Clemson; configuration issue remains
- c) Completed preparation of two Greenville BS installation; the two BS, however, have encountered RF faults that need to be resolved
- d) Completed campus (Clemson + Greenville) vlan and Internet2 vlan setup
- e) Completed signal strength mapping for Clemson BS
- f) Confirmed DBC no longer plans to provide commercial WiMAX in Clemson and Greenville.

A. Milestones achieved

Milestones inherited from previous period:

- Complete installation of WiMAX base stations, plus associated servers and services. (by GEC14)
 - Completed one, two more to go (two BSs having RF fault).
 - Local Netspan server installed but having RF ranging error.
- Complete installation of access facilities and switches, to provide connectivity from your WiMAX base stations, through campus OpenFlow switches where available, to the GENI Internet 2 backbone. (by GEC14)
 - Completed tunnel connection to Rutgers, thereby reaching Internet2
 - Completed direct Internet2 VLAN access as well
- Configure the WiMAX base stations using OMF, and demonstrate connectivity to the GENI Internet 2 backbone. (by GEC14)
 - Waiting for OMF support for Airspan BS.
- Complete basic range and throughput tests of your WiMAX base stations using reference OMF/OML throughput experiment and a reference mobile station. (by GEC14)
 - Completed ranging (signal map) for Clemson BS.
- Complete extended deployment plan for Year 2, including any additional WiMAX base stations, and associated software. (by GEC14)
 - No extended deployment planned for upcoming Spiral 5; focus on getting existing BSs successful operation, enabling handover support, and support OMF and MobilityFirst experiments

No other milestones are due this period.

B. Deliverables made

GENI WiMAX at Clemson (1843C)

One installed BS. Tunnel and direct vlan to GENI WiMAX core.

II. Description of work performed during last quarter

A. Activities and findings

1. Completed one base station installation. Completed signal mapping
2. All installation preparation completed for remaining two BSs, simply waiting for Airspan resolution of RF fault problem

B. Project participants

The project team members are:

PI: Kuang-Ching Wang (ECE Associate Professor)

Co-PI: James Martin (CS Associate Professor), Jim Pepin (CTO)

IT: Dan Schmiedt (Director of Network Services and Telecommunications), Joseph Bernard (Network Engineer)

ECE graduate research assistant: Reece Johnson (MS)

C. Publications (individual and organizational)

Not available at this time.

D. Outreach activities

Not available at this time.

E. Collaborations

The project is conducted in collaboration with University of Wisconsin, Madison's GENI WiMAX project (PI: Parmesh Ramanathan) on support for mobility (handoff) on GENI WiMAX networks.

F. Other Contributions

None in this reporting period.