OppWireless Project Status Report

Period: Q1 2011

1. Major accomplishments
2. Milestones achieved

* Develop an emulation framework for a Pigeon Network of 3 nodes with a simple scheduling algorithm
* Migrate the source to ORBIT and test the GENI interface

1. Deliverables made

* The source code of the emulation programs
* Documentation on the source code
* Documentation on the development experience of ORBIT and NORBIT

1. Description of work performed during last quarter
2. Activities and findings
3. Built an emulation framework for Pigeon Networks using virtual machines (completed by 10-11-2010): Analyzed the role of different nodes in a pigeon network and designed the modules of each type of nodes. Emulated these nodes using multiple virtual machines.
4. Tweaked the emulation framework so that most of the code can be reused on the ORBIT lab (completed by 10-31-2010): Modified the design of the modules in a node so that we can easily migrate most of the code to ORBIT lab.
5. Used the ORBIT lab nodes to emulate a pigeon network (completed by 12-15-2010): The nodes communicate with each other via wireless connection. A patched version of the Madwifi driver was used to control the connectivity among nodes.
6. Used the omf interface and the oml library of NORBIT lab to emulate a pigeon network (completed by 1-31-2011): An ED (experiment description) script was executed via omf (version 5.3) to run the whole experiment. The nodes communicate with each other via an Ethernet. A packet filtering technique such as iptables was used to control the connectivity among nodes. The performance metrics were collected in the database server using the oml2 library, which are analyzed using a query language, sqlite3.
7. Used the omf interface and the oml library of ORBIT lab to emulate a pigeon network (completed by 3-23-2011): An ED (experiment description) script was executed via omf (version 5.2) to run the experiment. The nodes communicate with each other via wireless or Ethernet connection. A packet filtering technique such as iptables was used to control the connectivity among nodes. The performance metrics were collected in the database server using the oml2 library.
8. Project participants

Jiang Li (PI)

Sankardas Roy (Postdoc, part-time for the project)

1. Publications (individual and organizational)

None.

1. Outreach activities

None.

1. Collaborations

None (other than the discussion via emails and mailing list with the ORBIT and NORBIT team).

1. Other Contributions

None.