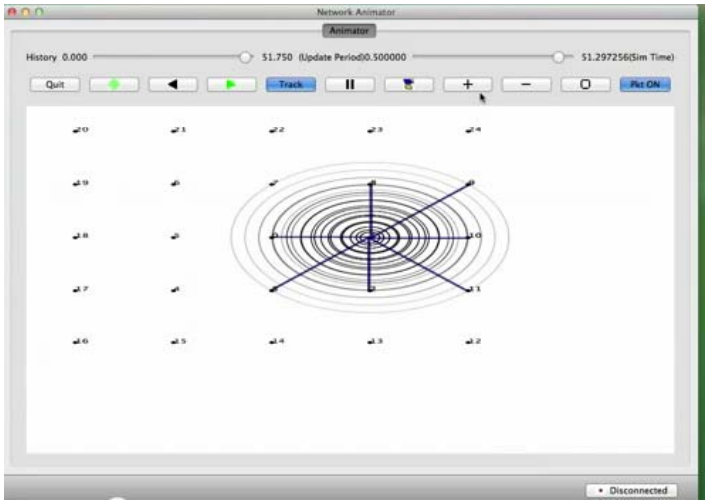
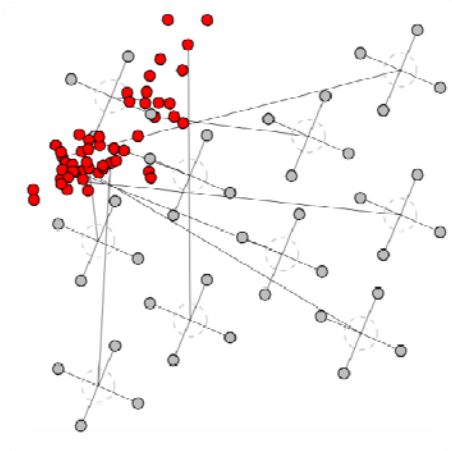
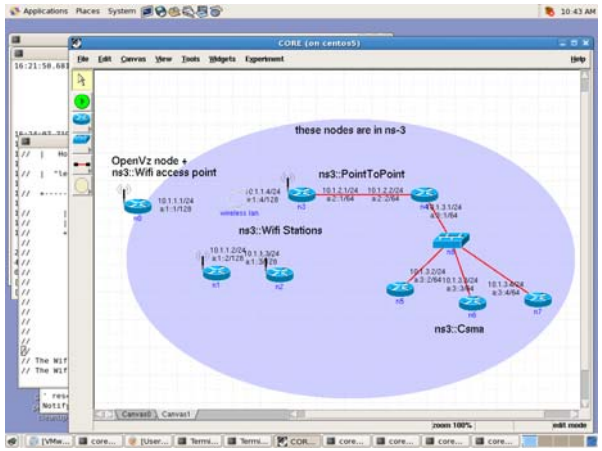
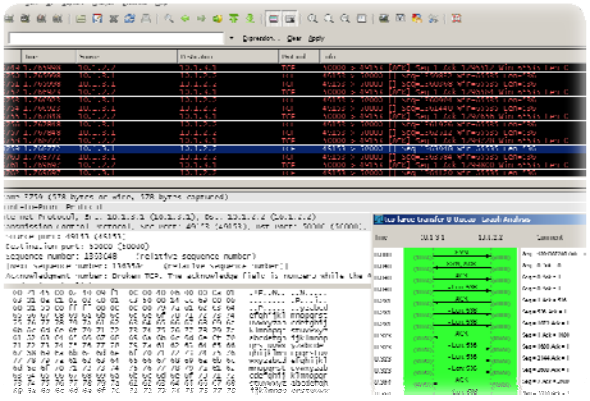
ns-3 developers meeting



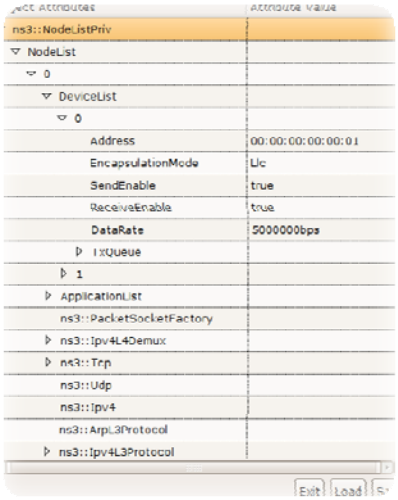






Tom Henderson

October 2011



Meeting goals (Tom)

- status updates from everyone
- review project happenings since March
- discuss six-month roadmap (and longer term wishlist)
- discussion topics introduced by others

ns-3 events since March 2011

- new Wordpress-based website launched
- not selected for GSoC 2011
  - ran an unfunded NSoC instead
- ns-3.11 release (May 2011)
  - modular build, Click, Open Flow Switch support, documentation work
- ns-3.12 release (August 2011)
  - mainly a maintenance release
- organization of WNS3-2012 (March 2012)

review of March ns-3 developers meeting

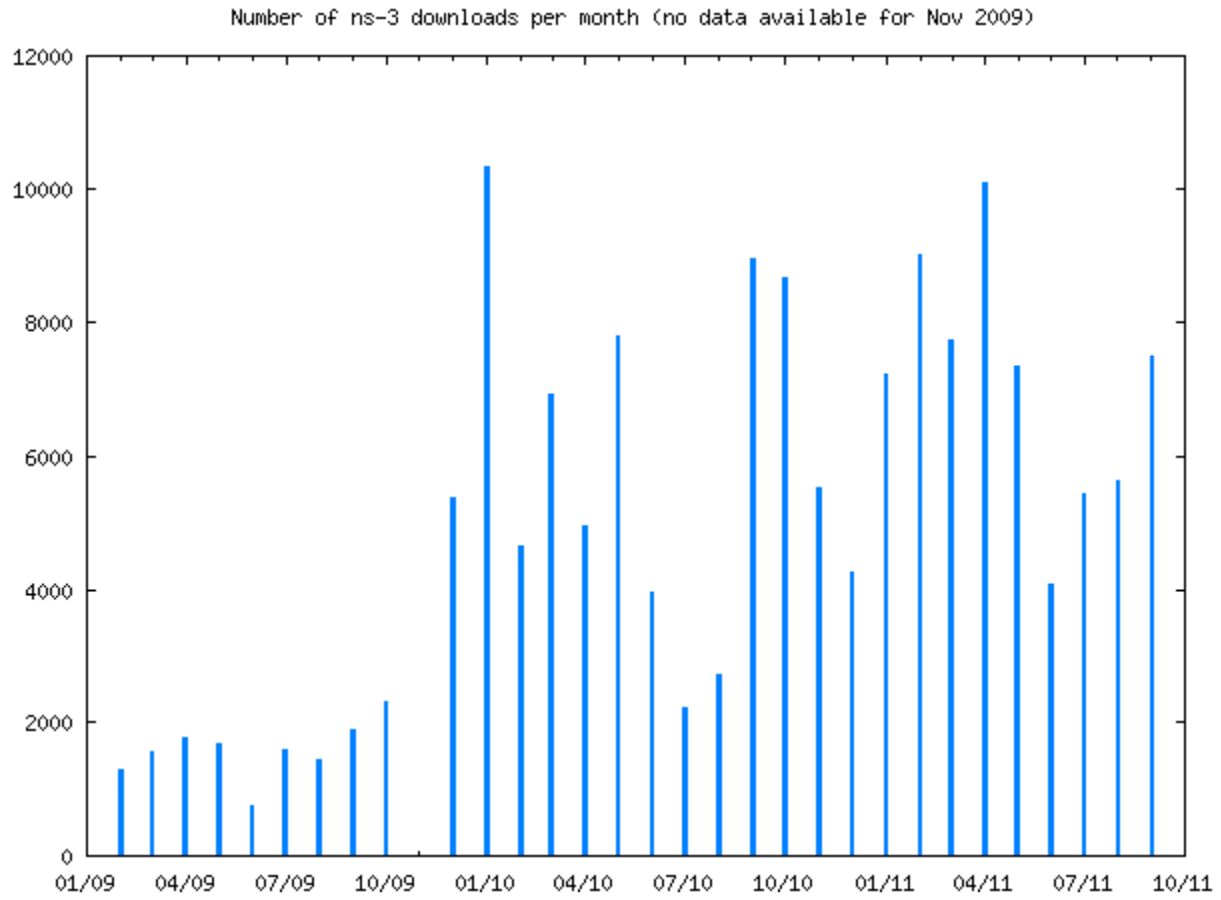
- data collection framework
- modular build system implemented phase 1 in ns-3.11
- new website review integrated search feature remains open
- ns-3 Summer of Code
- usability of ns-3 no progress
- documentation cheatsheets, some HOWTOs still not completed
- simpler mac/physical wireless models for new users TDMA model in review
- simple non-IP network layer examples

no progress yet; 802.15.4 is coming

Infrastructure plans (from March)

- Deploy analytics software, or move to hosted service (Google Analytics) remains open
- Server moving to RHEL pending
- require https for wiki and bugzilla done
- New buildslaves (gcc-4.6, Windows) new buildmaster purchased
- lcov/gcov coverage reports Re-enabled
- open issue: maintainer access to buildbot system remains open

usage statistics



lingering core issues

- need for node/device processing delays (bug 912)
- powering on/off nodes and other models in the middle of a simulation
- Doxygen warnings and errors (bug 938)
- best practices for unused variables (bug 1170)
- test cases fail to clean up properly (bug 1192)
- fixed streams for random variables (bug 101)
- NetDevice queue rework
- finishing off config-store
- support for distribution packaging
- usability/GUI integration

upcoming events

- Nov 23: ns-3.13 feature freeze
- Dec. 2: WNS-3 papers due
- Dec 14: ns-3.13
- March 23: WNS-3 (Sirmione, Italy)
- March 24: tentative developers meeting
- March: apply to GSoC
- April: ns-3.14?

Tom Henderson and Mitch Watrous work queue

- ns-3.13 core issues
  - random variable rework
  - move forward on modularization
- ns-3 code reviews and bug fixes
  - there are many; feature freeze is in 4 weeks
- NSF SAFE project milestones (Feb 2012)
- NRL protolib, SMF, MGEN for ns-3
- quagga for ns-3 DCE
- 802.15.4/ZigBee

random number rework

- Current random number generation is sensitive to order of initialization (bug 101 has details)
  - e.g. when changing a routing protocol, the mobility traces may change
- Solution being worked (with M. Weigle, M. Lacage, M. Watrous) is to create a new type of RandomVariableStream that allows user to (optionally) set the stream index deterministically
  - Uses same underlying L'Ecuyer generator
- If we deprecate RandomVariable, we'll have some backward compatibility issues

NSF SAFE February goals

The project is working on a prototype that will integrate initial pieces of the automation framework, including the following:

- a data collection framework to extract the data of interest, perhaps requiring some additions to how this data is accessed from the routing protocol implementations
- support to easily plot the data points using confidence intervals using a plotting program such as gnuplot or matplotlib
- ability to archive the complete state of the experiment so that it can be reproduced many years later
- a steady-state detector to look for reaching the time to start data collection (and data deletion prior to that time)
- a termination detector to terminate the program once the desired number of samples
- an experiment execution manager (outside of ns-3) to manage the serial or parallel execution of simulation runs to obtain data points for each configuration
- a basic wireless/mobility artificial scenario generator allowing the user to rerun the experiment with different numbers of nodes, node densities, and rate of link connectivity changes
- A stretch goal is to allow users to plot characteristics of the scenario according to a "god-like" view of the topology, using certain assumptions, such as:
- true shortest paths available to each application packet originated over all scenarios
- counts on the number of link connectivity changes