A Tutorial for Qualnet Simulator
Installation, Compilation & Simulation

CMPE252A Computer Networks
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Outline

1. Qualnet Review
2. Qualnet Installation
3. Qualnet Compilation
4. Qualnet Simulation
5. Qualnet Programming
Qualnet Review 1

- A discrete-event Network Simulator
- The successor of GloMoSim
- It was built particularly to simulate large scale networks
- It supports wireless, wired and mixed networks
Most of the models used are built to the IEEE standards, Design Documentations or RFCs

Layered Protocol Design: MAC, Routing, Transport, and Application Layers

Your design will be at one or multiple of these layers
MAC: 802.11x, TDMA, MACA, LLC

Network Layer (Routing & Forwarding): Many routing protocols

Transport Layer: TCP variants, IPv4 and IPv6

Application layer: Many traffic generating models (CBR, MCBR, VBR, VoIP)

Queuing: FIFO, RED variants

Mobility: Group mobility, random waypoint, Trace-based
- Stack design makes it similar to real implementations.
- Developing at the Network Layer means interfacing with the MAC and Transport layers.
Qualnet Installation

- Follow the tutorial.txt
Qualnet Compilation

- Follow the tutorial.txt
Qualnet Simulation 1

- Qualnet Files
  - .config (Simulation Configuration file)
  - .nodes (Node Placement file)
  - .app (Traffic Generation file)
Once you follow the tutorial.txt, all the environment variable should be set correctly.

Type:
- `qualnet default.config >default.debug`
This will generate two files:

- **default.stat**
  - Qualnet output file
  - Suggested way to obtain simulation metrics

- **default.debug**
  - Your own output, i.e. printf's
  - Suggested way to debug &
  - Suggested way to obtain simulation metrics
RIPconfig.tar

Follow tutorial.txt for simulating the files in the tar.

Check ~/Qualnet/scenarios/default folder.

default.config has all the explanations you need for tweaking the configuration files.

Likewise, .nodes, .app files exemplify all possible scenarios.
Check ~/Qualnet/libraries/developer/src
and the related files are routing_rip.cpp & routing_rip.h

In order to edit the protocol, use the programmers guide:

~/Qualnet/documentation/QualNet-5.2-ProgrammersGuide.pdf
That’s all folks!
Thank you!