

# LO3 MAC Simulator

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November 23, 2013

## 1 Compilation

The code is reasonably organized: you can find the source files in `src/`, header files in `inc/`, object files and binaries in `obj/` and `bin/` respectively, and so on. Files related to this report are present in `doc/`. Simulation results for the most recent run are in `tests/` and archived results in `archives/`. Compiling is simple:

- To compile the normal binary, do  
`make [norm]`  
This creates `bin/lo3mac`, which relies on a pre-created `recordFlow.txt`.  
To run it, do:  
`bin/lo3mac <error rate> <sim duration>`
- To compile the generator binary, do  
`make gen`  
This creates `bin/gen_lo3mac`, which generates `recordFlow.txt` for future use.  
To run it do:  
`bin/gen_lo3mac <error rate> <sim duration> <call interval> <call duration> <stored voice duration>`<sup>1</sup>
- To run the test simulation, do  
`make test`  
and then to update this document, do  
`make report`

For various reasons, I decided to let the default target of `make` be `bin/lo3mac` instead of this report.

## 2 Execution

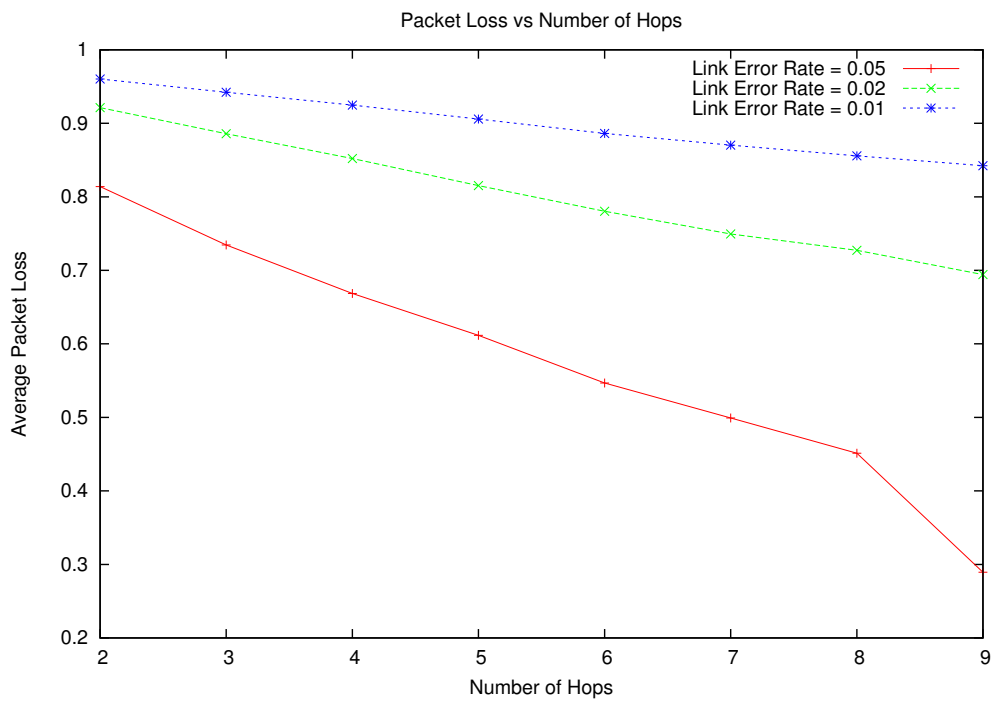
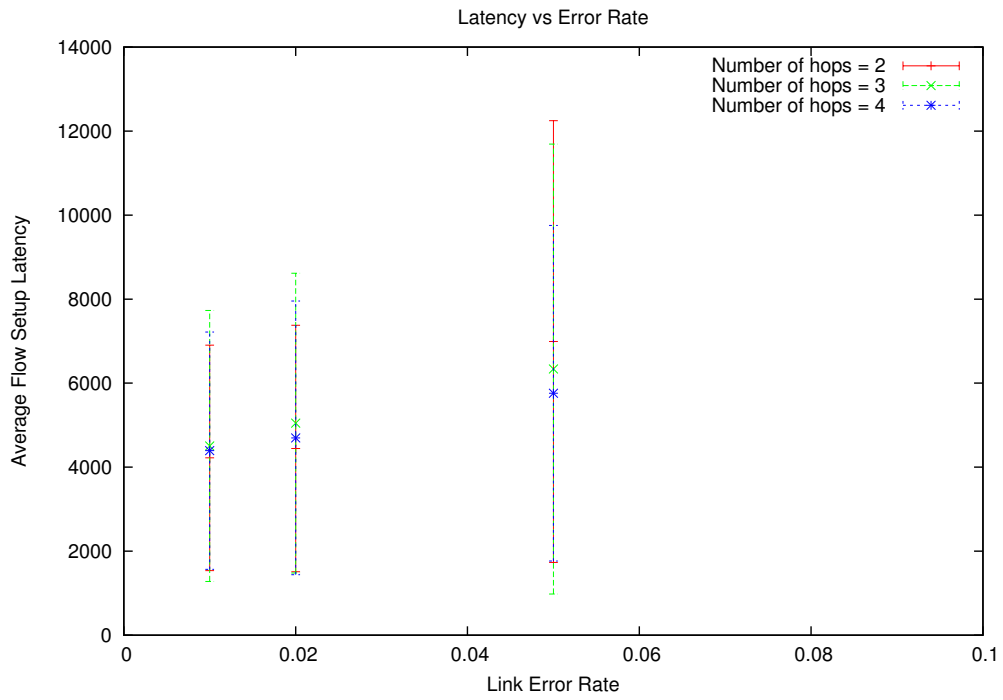
The `run_tests.sh`, `parse_output.sh` and `plot_data.sh` are various helper scripts:

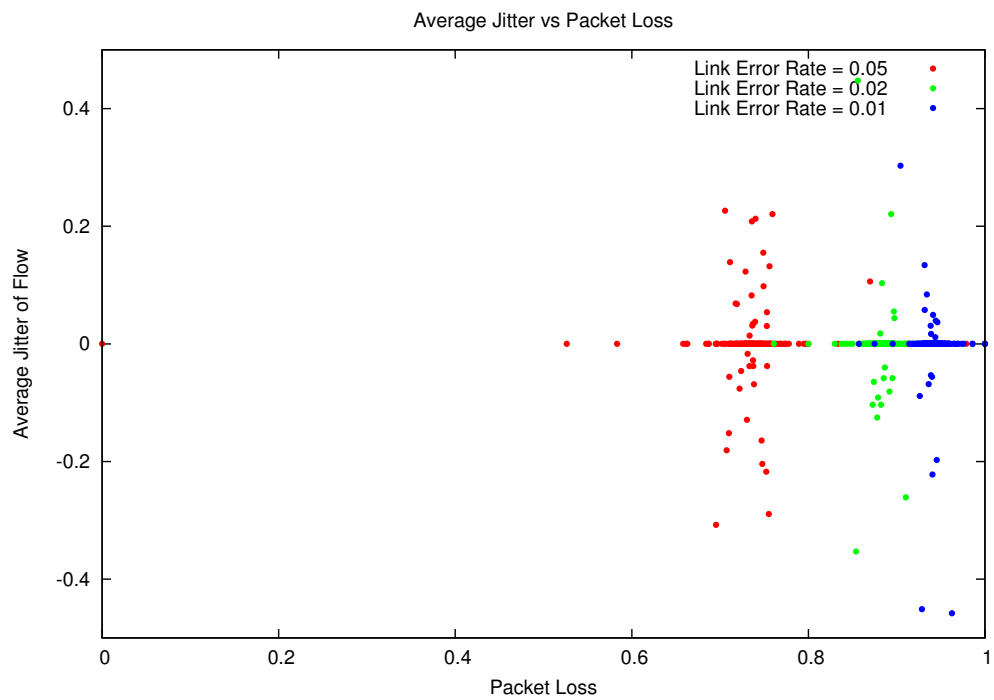
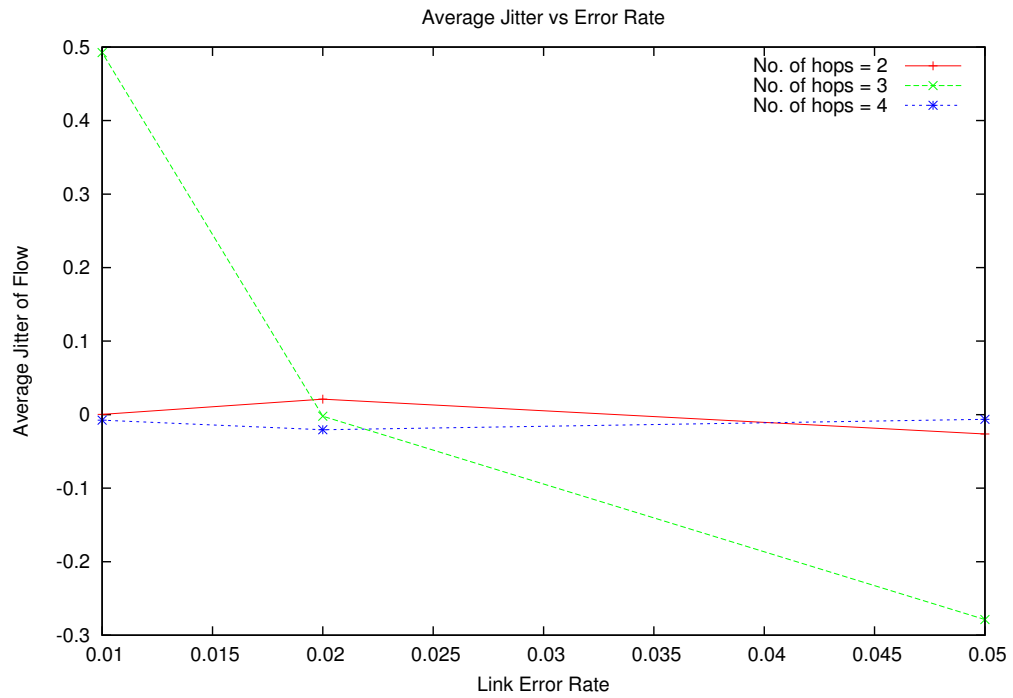
- `run_tests.sh` runs the simulator for various pre-set parameters,
- `parse_output.sh` sifts through the output of the simulator for the values we need, and
- `plot_data.sh` takes this data and runs various Python scripts on them and finally plots them.

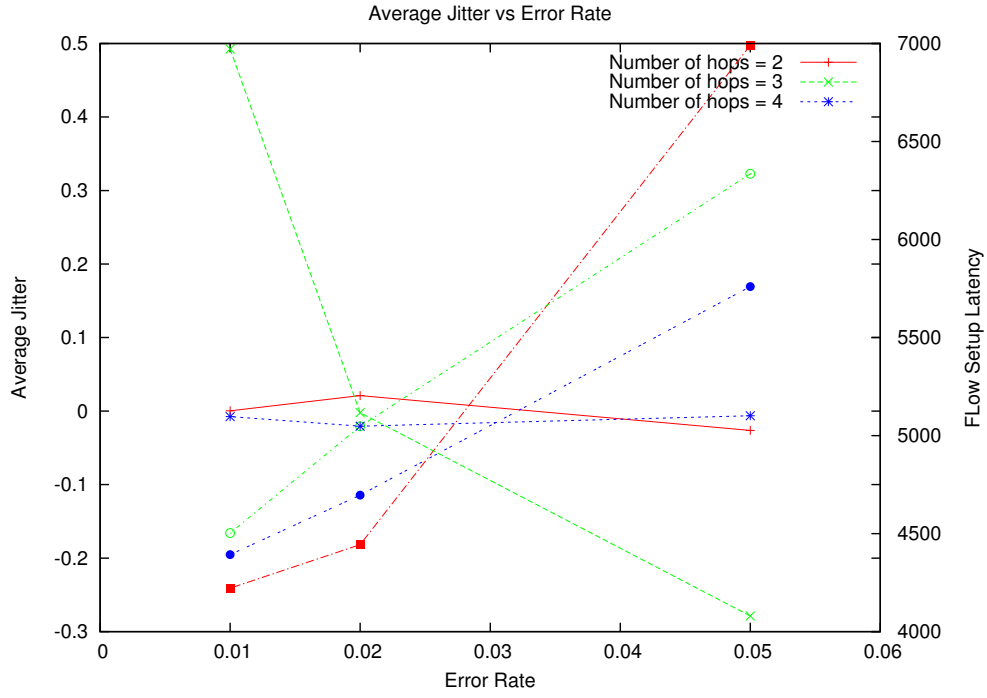
DO edit the shell scripts and change `$PROJDIR` to reflect the absolute path of the project directory before running them. The Python scripts in the badly-named `scripts` directory need not be modified.

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<sup>1</sup>Please refer to Table 1 for details on these parameters.







Parameter	Range	Unit
Error Rate	$[0, 1]$	(probability)
Simulation Duration	$(0, \infty)$	hours
Inter-Call DURATION	$[0, 3]$	hours
Call Duration	$[0, 4]$	minutes
Stored Voice Duration	$[0, 4]$	minutes

Table 1: Description of simulator parameters.