



Universitat de les
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escola politècnica superior

Network Simulator 3 (ns-3): Simulating 802.11 networks

Project Supervisors:

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Description .- The network simulators are actually tools that allow the creation of scenarios in a virtual manner in order to obtain statistics that mirror the reality. These tools can evaluate the scenarios without the need to deploy a real network and therefore they are used to save time and resources. This project aims to evaluate the functionality of the new simulator Network Simulator 3 in IEEE 802.11 wireless environments.

Project Objectives: The student taking up this project is expected to fulfil the following goals:

- Understand how ns-3 implements the main components involved in wireless simulations, such as the wireless node structure.
- Understand how obtaining and modifying information at different wireless node layers.
- Prepare a tutorial explaining how to build Wi-Fi scenarios (traffic and movement patterns, nodes configuration, etc), including the tools to obtain the statistics results (throughput, delay, energy consumption, etc).
- Write a technical report describing the work done.
- Make an oral presentation of the project.

Operating System: Linux

Tools: Network Simulator 3 (ns-3) (C++), others (Python/Perl/bashscript, gnuplot, kile), LaTeX

Bibliography:

1. ns-3 home page: <http://www.nsnam.org/>
2. T. Issariyakul and E. Hossain, Introduction to Network Simulator NS2, Springer, Nov. 2008, ISBN 978-0-387-71759-3
3. Python Manual: <http://docs.python.org/tutorial/index.html>
4. Gnuplot home page: <http://www.gnuplot.info/>
5. Aprende C++ como si estuviera en primer: <http://mat21.etsii.upm.es/ayudainf/aprendainf/Cpp/manualcpp.pdf>
6. PFC - Simulacions de xarxes IEEE 802.11 amb ns-3: <http://hdl.handle.net/2099.1/7709>