

An Integrated OMNeT++ Implementation of 802.11

Alfonso Ariza, Eduardo Casilari, J. Hurtado-López

UNIVERSITY OF MÁLAGA, SPAIN
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Departamento de Tecnología Electrónica. University of Málaga
ETSI de Telecomunicación, Campus de Teatinos, 29071 – Málaga- Spain
E-mail: mjmoron@uma.es, ecasilari@uma.es

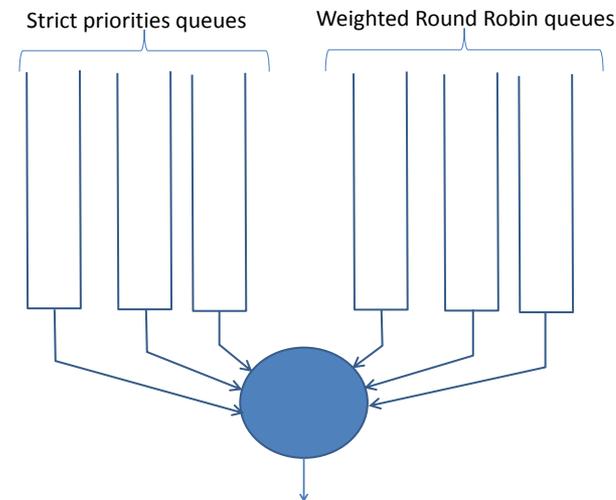
- Inet framework already includes several 802.11 transmission modes but implemented as separate models (802.11b,g,a,e,...)
 - Related problems:
 - Replication of the same code
 - Increase of the cost of maintaining and upgrading: any patch must be independently added to all implementations.
- Goal: to reorganize the code to integrate all the versions
 - Correct errors
 - Add new functionalities
- New module based on 802.11e/g model present in inetmanet and the Wi-Fi module available for NS-3 simulator (in turn derived from the implementation for YANS simulator)

2 new classes:

- ***ModulationType***: a structure with parameters describing the employed modulation
- ***WiFiModulationType***: to fill the fields of the `ModulationType` class. It offers a series of classes that enable the computation of the transmission time of the frames and headers of the Physical Layer.
- Different models for bit error probability have been incorporated (Yans, Nist, Table-based)

isMandatory	It indicates if the mode is designed as mandatory by the standard
bandwidth	Bandwidth (in MHz) utilized by each channel.
codeRate	Number of encoded bits per symbol
dataRate	Binary rate
phyRate	Speed of the physical layer, expressed in symbols per second
constellationSize	Constellation size of the modulation scheme
modulationClass	Type of modulation

- 802.11e QoS is now supported
- Two new configurable modules for classifying & queuing packets
- Management packets are prioritized
- Multi-queue classifier module for every traffic category (strict priority or Weighted Round Robin)
- Arbitrary number of classes/queues



- Algorithms to adapt binary rates
- Block-ACK mechanism
- New models for interference