

## What is the SNEP?

- An IP-based real-time emulator of satellite networks
- A flexible and accurate emulation environment supporting bi-directional satellite communications with multiple terminals
- A testing tool compliant with several standards and architectures, with customizable WEB interface and which can be integrated with other testbeds and real networks

## Why to use the SNEP?

- DVB-RCS system analysis
- Performance analysis of new protocols
- Validation of real applications and services (e.g., data transfer, multicast, VoIP, etc.)
- Support to security analysis, pre-deployment analysis, training and testing

## The Hardware

- Linux based
- COTS devices
- Small sized rack



Satellite  
Multimedia  
Group

Visit us at:

<http://www.tlcsat.uniroma2.it>



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The IP-based real time Emulator of  
Satellite Networks



Satellite  
Multimedia  
Group

## PLATFORM DETAILS

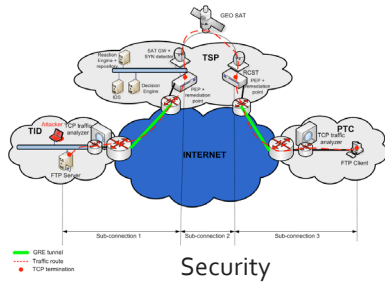
### Hardware

- 1 Server for NCC/HUB functions
- 1 Server for Satellite emulation
- 1 Quad-processor server for Satellite terminals emulation
- 1 Quad-processor server for virtual User Terminal
- 1 Server for IP services
- 1 Redundant server (High availability)
- 1 Access point for Wi-Fi connectivity
- 1 Sever VoIP
- 2 VoIP phones
- Wireless extensions

### Software

- Debian Lenny 5.0 OS
- Custom reconfig. network layout and routing (star, mesh)
- Software module for DAMA (client and server side)
- Software module for C2P support
- Software module for error application and delay generation
- Software module for XML based parsing (input/output interface)
- Centralized scheduler module
- TC based (iproute2) shaping and QoS
- PEP software modules in user-space
- Traffic generators in C

## Use cases



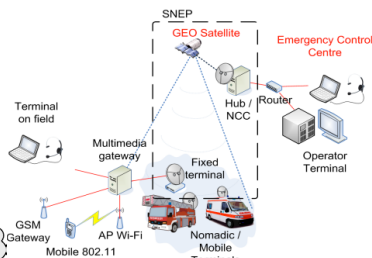
## SNEP modularity

SNEP is a distributed emulation platform, with a high level of flexibility and great extendibility. It is based on open source software and each element can be replaced by or integrated with real hardware, according to needs.

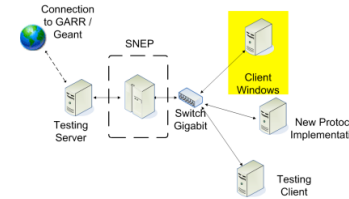
## SYSTEM CORE FEATURE LIST

- Centralized **WEB** interface
- XML-based configuration
- Interface with **real networks** (PSNT, GSM, Wi-Fi, etc.) and external testbeds
- DVB-RCS** standard compliance
- Skyplex** standard compliance (OBP)
- RCS-RCS** draft compliance (Mesh topology)
- DVB-S** and **DVB-S2** forward link
- Return channel via terrestrial link (wired, wireless)
- Multiple terminals** support, also in mesh (up to 6)
- IP data Multicast support in mesh/OBP topology
- IP Broadcast support in star topology

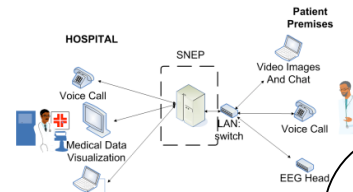
## Emergency



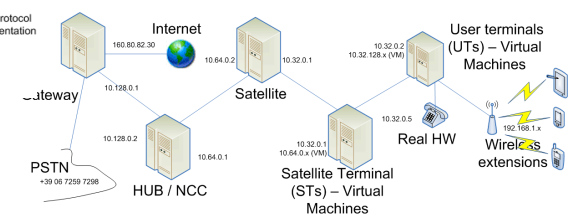
## Protocols / Applications testing



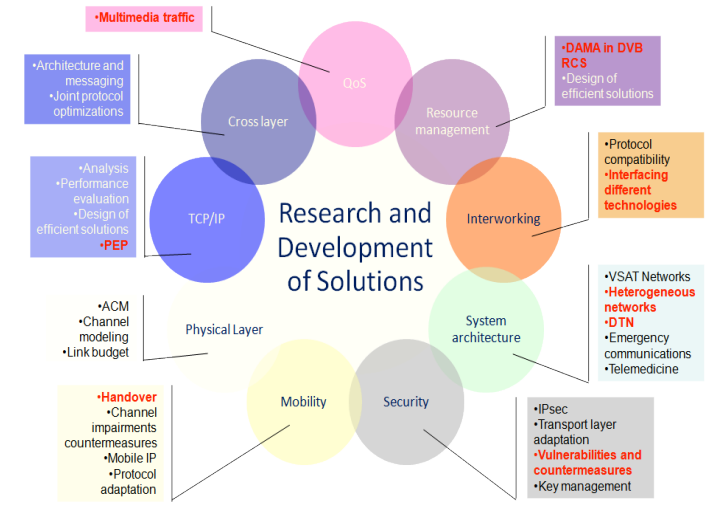
## Telemedicine



## Architecture



## MORE ABOUT OUR GROUP... ...areas of interest and...



## ...who we are



WE ARE GLAD TO SHARE OUR EXPERIENCE IN SATELLITE SYSTEMS ANALYSIS, SIMULATION AND EMULATION. PLEASE ASK!