

# About us

From our group's experience in developing software for smart phones, we've noticed a lack of tools to assist testing and debugging communication intensive applications. Most application developers use computer resident emulators to develop, analyze, and test new applications for mobile devices; however, the application's actual behavior is always different in the target device. So, our first aim was to obtain tools based on wireless devices (the emulator doesn't simulate everything).

On the other hand, traditional methods for analyzing mobile data communications' performance in realistic scenarios were based on trials, using mobile devices only as modems with the applications running in a laptop.

Measurements based on this scenario are no longer interesting because

- current devices have enough processing power to execute both the application and the monitoring software inside the terminal, and
- many applications have been specifically designed for mobile devices, and porting them to the modem+laptop scenario only for evaluation purposes is too costly.

## Communication awareness example

An example of communication awareness in mobile devices. Packet losses detection in handovers between General Packet Radio Service and Universal Mobile Telecommunications Systems could be used for cross-layer optimizations in heterogeneous networks.

We provide a uniform solution to both problems by designing and implementing middleware for wireless communication awareness that analyzes

- new communication protocols in mobile environments,
- correlation between mobility events (such as handover and roaming between different radio-access technologies) and communication performance,
- metrics for benchmarking communications in mobile applications, and
- security weakness and malicious applications in mobile devices.