

Scientific Report of Short Visit Grant to the Technion

José Mocito

University of Lisbon

Portugal

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1 Purpose of the Visit

The visit of José Mocito to the Technion - Israel Institute of Technology was mainly motivated by the opportunity to establish collaborating points between the research conducted by the University of Lisbon group and the Technion group in the area of wireless networks, namely in *wireless mesh networks*. The reason for choosing this topic is due to the fact that the visitor is pursuing a PhD in this subject.

A secondary reason that also motivated this visit was the opportunity to discuss the interest of the hosting institution in participating in a project proposal for the first call of the FP7 program.

2 Work Description

In the first days of the visit to the Technion the visitor had the opportunity to get familiar with the ongoing research topics addressed by the PhD students working in the Distributed Systems Laboratory under the supervision of Prof. Roy Friedman. These topics included byzantine fault tolerance in MANETs, random-walk based membership service for MANETs and optimized routing for hybrid networks. During these technical discussions several aspects related to wireless mesh networks were discussed and, eventually, an idea for improving throughput and scalability in this type of environments emerged.

The last days of the visit were devoted to discussing technical details of the joint FP7 proposal on the subject of *Wireless Mesh Networks*.

3 Results that Emerged from the Visit

From the visit two important results emerged: an idea to improve the scalability and throughput of wireless mesh networks and an outline of a joint FP7 project proposal.

The key idea behind the improvement to wireless mesh networks is to apply a topology control mechanism to mesh routers in order to reduce the number of mesh clients they can reach and therefore improve the contention originated by dense neighborhoods. Consequently, mesh clients also have routing capabilities, which they can use to build the MANET required for the mesh network to remain connected.

4 Future Collaboration with Host Institution

The future collaboration with the host institution will assume two forms:

- A paper that will detail and evaluate a routing solution based on the idea described above;
- A joint proposal for the first call of the FP7 program.

Obviously, if the proposal is successful, both institutions will begin collaborating in a more regular basis.

5 Planned Publications

As already stated, one of the future collaborations will be to co-write a paper. The plan is to push for publication early next year, in a specialized conference in the field of mobile networks. The conference and title of the paper are yet to be defined.