

## Lab\* “Ad-Hoc Services” (4-6 People)

In the exercises of the lecture Mobile Computing we built a simple mobile wireless ad-hoc network. We implemented basic services for such a network, particularly a neighborhood discovery functionality, a (restricted) flooding/broadcasting mechanism, and a routing layer. These services form the basis for applications, such as our Instant Messenger application.

These services were designed and implemented in a real "ad-hoc" way, i.e. specifically for the scope of these exercises. The aim of this lab will now be to design and implement such services in a more generic way for use in a wide range of application types.



The collection of services will include

- a *neighborhood* service enabling a host to inspect its direct network environment,
- a *broadcast/multicast* service with which it will be possible to address a selected subset of the network nodes,
- a *routing* service allowing for communication even between not directly neighboring hosts, and
- a *discovery* service dedicated to network exploration.

Of course it will be possible to freely suggest additional services.

The main focus in this lab will lie on the genericity of these services. It will for instance be possible to easily exchange the currently used routing protocol.

In order to prove appropriateness for ad-hoc networks and correct operation of the implemented services, the lab will also include the implementation of a small number of simple applications.

### Skills

- Experience gained in exercises of lecture Mobile Computing

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\* For the new Major in Distributed Systems students have to complete one of our lab projects.