



Thesis  
B.Sc.

Thesis  
M.Sc.

## Privacy Box – Local service tunneling

tl;dr: Build a better OnionPi

### Motivation

Our aim is to enable the average internet user (with regard to common services like the WWW, e-Mails, VoIP, file sharing...) to protect her privacy without having to rely on third party services which require payment as well as some amount of trust. We use a grass root approach where every user uses a *Privacy Box* which copes with all anonymization and traffic securing while the actual client device (computer, smart phone) does not need more setup than a VPN-connection.

### Problem

Enabling network services (e.g. web server) on local devices normally is not sufficient to allow access from the outside. Most times the home router has to be reconfigured for port forwarding. Furthermore access control has to be enforced on the application layer level (e.g. htaccess). Possibly, the configuration changes have to be undone again afterwards. When providing temporary services for a small group of users, this process is tedious and requires more knowledge than a normal Internet user has (don't think of yourself!).

### Your Task

We already have a Privacy Box concept which allows secured connections between different instances of such boxes. Users are able to establish trust connections between them and other users using their privacy box, they become "befriended". Nevertheless, connections to services in the network of a foreign Privacy Box is not yet possible.

Based on the existing infrastructure your task is to realize a module for the Privacy Box which allows the

- registration of local services at one's own Privacy Box using a given port.
- tunneling of incoming traffic and its redirect towards the target service inside the internal network
- access control using certificate-based trust connections between different Privacy Boxes.

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