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Thesis B.Sc.

Thesis M.Sc.

Privacy Box –
Secure file sharing and synchronization
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

Exchanging files over the internet between arbitrary users has been tedious from the beginning of the Internet and in consequence has led to several file-upload-platforms. Those, however, have several drawbacks:

- The integrity, confidentiality and privacy of the file are not necessarily preserved. The users have to trust the service provider that their data is not compromised nor stolen.

- Users have to be aware which rights concerning their data they are giving away when uploading it to a third-party service. Even providing usage rights can lead to problems in some cases.

- There might exist constraints with respect to the file size or the time frame of its availability

- In some constellations (e.g. whistleblower-journalist-scenario) neither a third party may have access to the data itself nor may the receiver be able to identify the sender.

Your Task

Instead of relying on third party services every user shall be able to share file via their Privacy Box. There are two dominant sharing modes which shall be realized:

- The files are hosted on A's Privacy Box and A allows other users to access those files with read (and write permissions) from their own computer via their own Privacy Box.

- A folder on A's Privacy Box is paired with a folder on B's Privacy Box. They are automatically kept in sync by the Privacy Boxes, each user is able to access her own copy of the sync folder.

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