Lightnion: seamless anonymous communication from any web browser

Wouter Lueks[1], Matthieu Daumas[2], Laurent Girod[1], and Carmela Troncoso[1]

[1] École Polytechnique Fédérale de Lausanne, Switzerland
{wouter.lueks,carmela.troncoso}@epfl.ch
[2] matthieu@daumas.me

Abstract. Privacy-enhancing technologies often rely on anonymous communication systems to hide users' identities on the network layer. Such systems are difficult to integrate. Privacy-friendly applications therefore rely on other tools such as the Tor Browser to provide anonymous communication. This approach places a burden on users: They must install and use these tools correctly.

We present Lightnion, an anonymous communication library that can be easily integrated into web applications to enable seamless network anonymity for their users. Lightnion uses the existing Tor network. It consists of a Javascript library that runs in a user's web browser, and a proxy that facilitates the communication between the browser and the Tor network.

An example use case for Lightnion is Cryptpad[3]. CryptPad uses browser-side encryption to ensure that the CryptPad servers cannot see the *content* of documents. However, the servers can still see which user—identified by their IP address—edits which documents. When using Lightnion on the browser's side to interact with the CryptPad servers, the servers can longer see which user edits which documents.

Format: We propose a lightning talk to introduce Lightnion and its threat model, and a simple demo showing Lightnion in practice.

[3] https://cryptpad.fr