

Project 2

Bitmessage – Communication Without Metadata

Christian Basler

April 22, 2015



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1. Synopsis

2. Basics

While encryption technology like PGP or S/MIME provides a secure way to protect content from prying eyes, we learned from Edward Snowden that metadata - information about who communicates with whom - is equally interesting and much easier to analyze.

With e-mail, we can only prevent this by encrypting the connection to the server as well as between servers. Therefore we can only hope that both our and the recipient's e-mail provider are both trustworthy and competent.

With Bitmessage we send a message to a sufficiently large number of participants, with the intended recipient among them. The message is encrypted such as only the person in possession of the private key can decrypt it. All participants try to do this in order to find their messages.

The protocol is described in detail in my Seminar paper.

3. Goal

At the moment, there aren't many implementations apart from the official clients. Especially two things are missing: a multi purpose Java library and a usable mobile client. My goal for my *Project 2* is to create the library, to be used next semester as a starting point for an Android[™] client in my Bachelor Thesis.

4. Issues

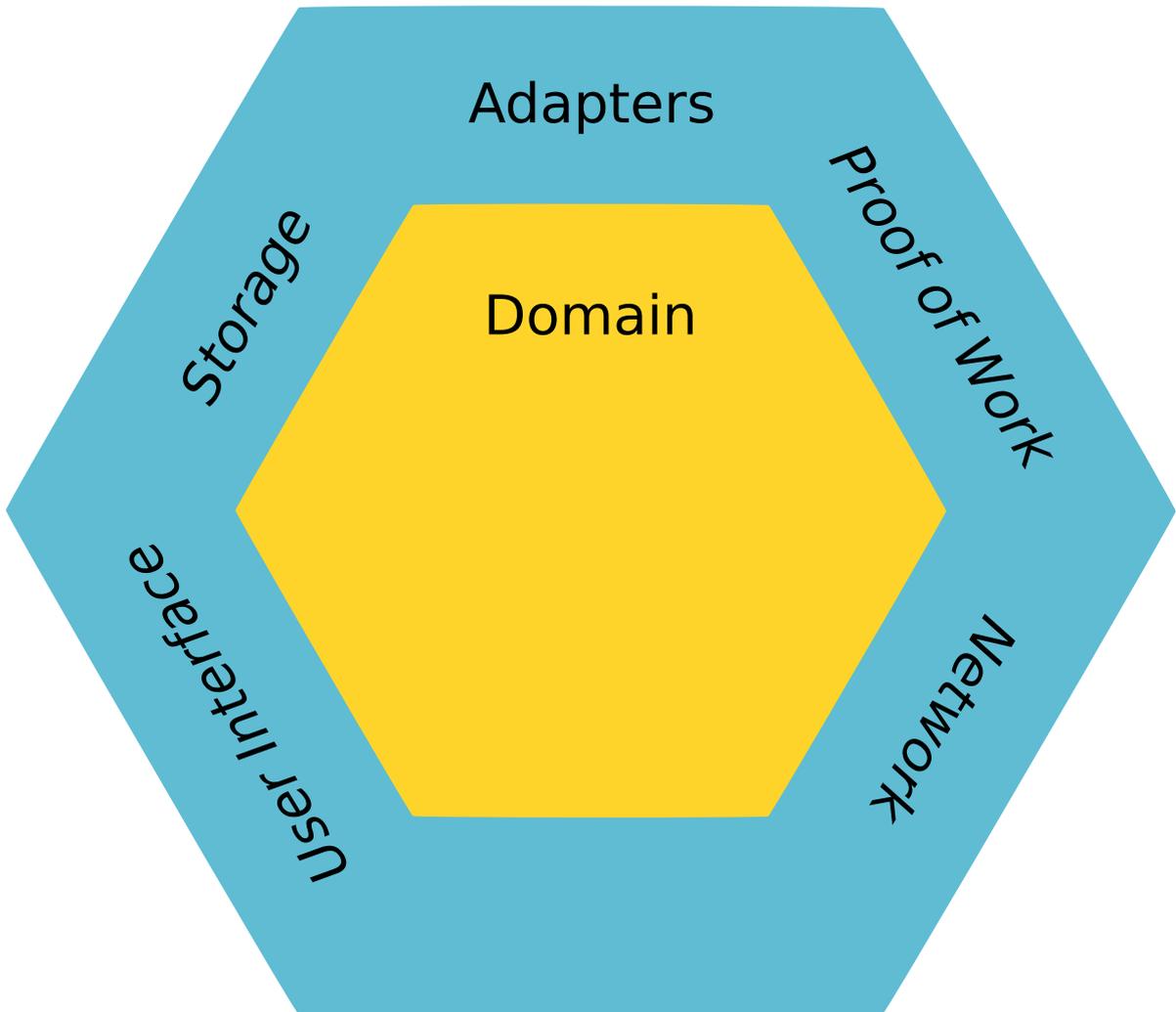
4.1. Proof of Work

Proof of work is needed for a message to be distributed within the Bitmessage network. This is to protect both the network itself from denial of service attacks and the users from spam.

5. Architecture

5.1. Ports and Adapters

The library uses a ports and adapters architecture, which allows us to easily replace some implementations that might be platform dependent, such as storage or proof of work calculation.



5.2. Network Management

6. Discussion

Appendix

A. JavaDoc Documentation

B. Literature