Privacy in the semantic Web

Social networks based on XMPP

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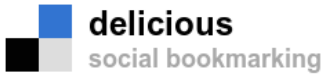
Why do I give this talk?

- Current ideas and work are based on my diploma thesis
- Open the project for non-academic users
- Discuss the approach with interested people

Overview

WHAT IS A SOCIAL NETWORK?



What is a social network?

Is a social network something new? What changed?

- Does it use revoloutionary technologies? Flash? JavaScript? AJAX? No!
- Is it social because it is written for the people? Unsure.
- It is social *because of* the people who use it.

What is a social network?

How differ the users today?

- Years ago, the internet was only available to academics and used by technology-geeks
- Today, all kinds of people use the internet
- Most users are not interested in technical details

What is a social network?

Why are social networks so attractive?

- Social applications are easy to use.
  - Your data are on the web, accessible from everywhere.
- Your real life and online life get connected
  - Real-life friends can easily be contacted
  - Make connections to thousands of new virtual friends.

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Many users do not know about security or privacy issues

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- My activity in the Internet
  - Doubleclick
  - Google analytics
- What others publish about me
  - your party photos on facebook ... is not technical issue!

WHAT IS THE SEMANTIC WEB?

- A vision of a machine–readable internet (T. Berners Lee)
- One (or the only) example: FOAF profiles
- Internet as one big database
- Aggregate and combine information from different sources

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Will the semantic web come? Should we be prepared?

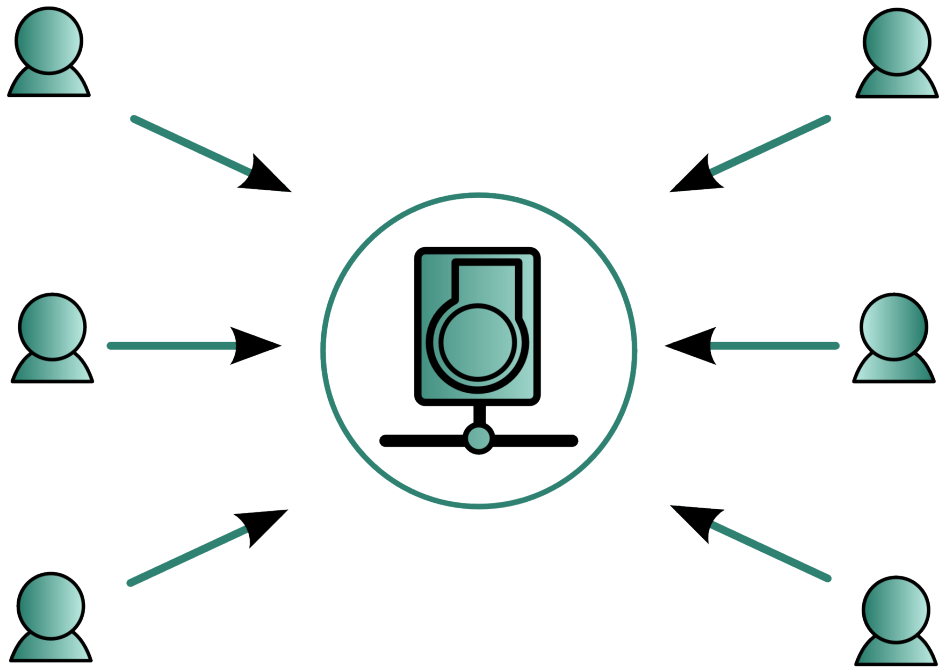
How can we protect our privacy today?

- Not using social networks is rarely an option
- The issue is the architecture:
  - Central databases store user information
  - The user doesn't know what the provider does with the information

We need another architecture

Web based social networks

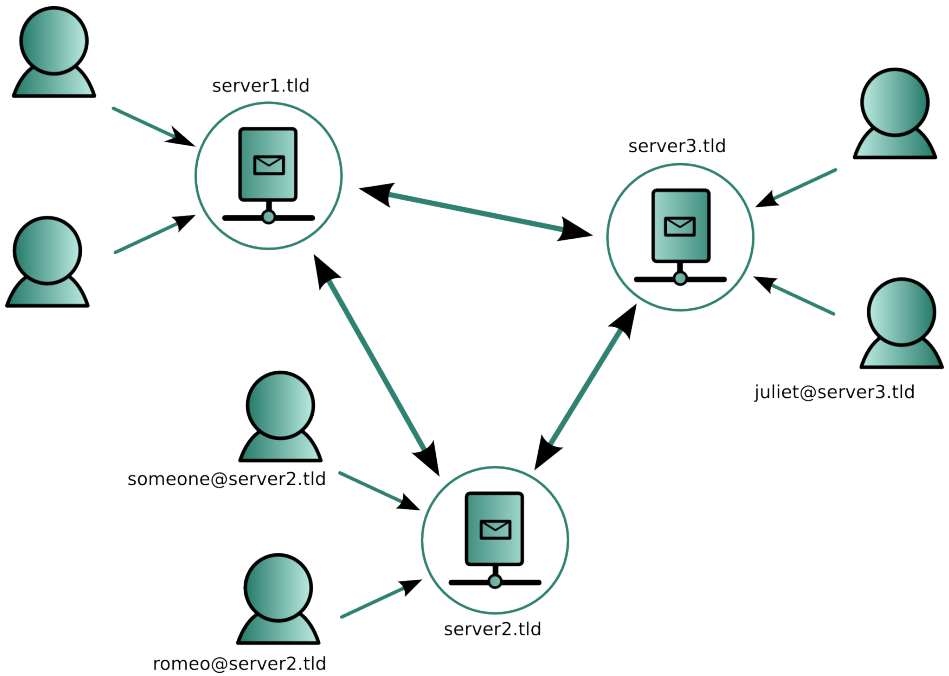
People store personal data on remote servers



What do we want to change?

1. Data must not be stored at a central place
2. Data exchange must be between friends only
3. Transmissions must be encrypted

XMPP Network



XMPP Network

- Extensible instant messaging protocol
- Is not true peer-to-peer but needs messaging servers
- Ensures communication between two peers even if they are hided between packet filters

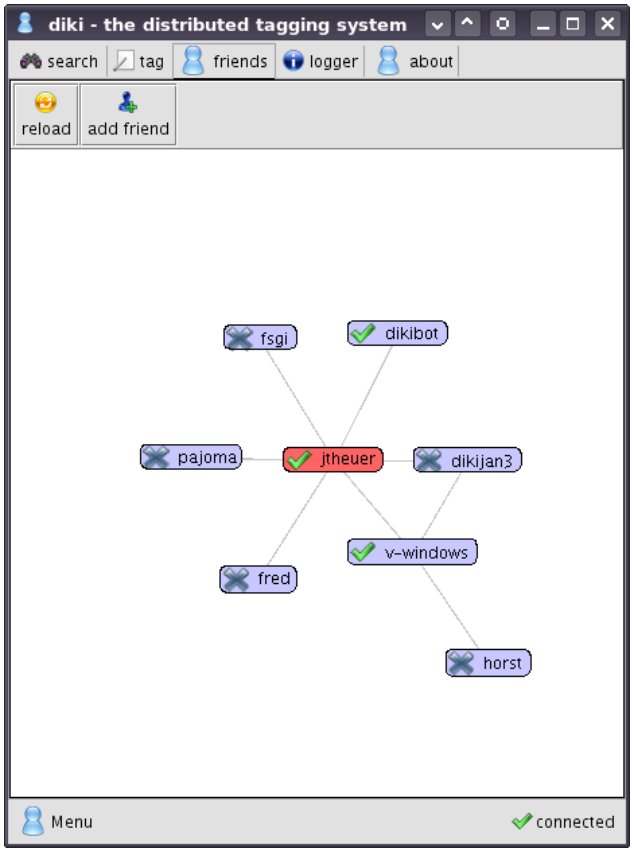
PGP encryption

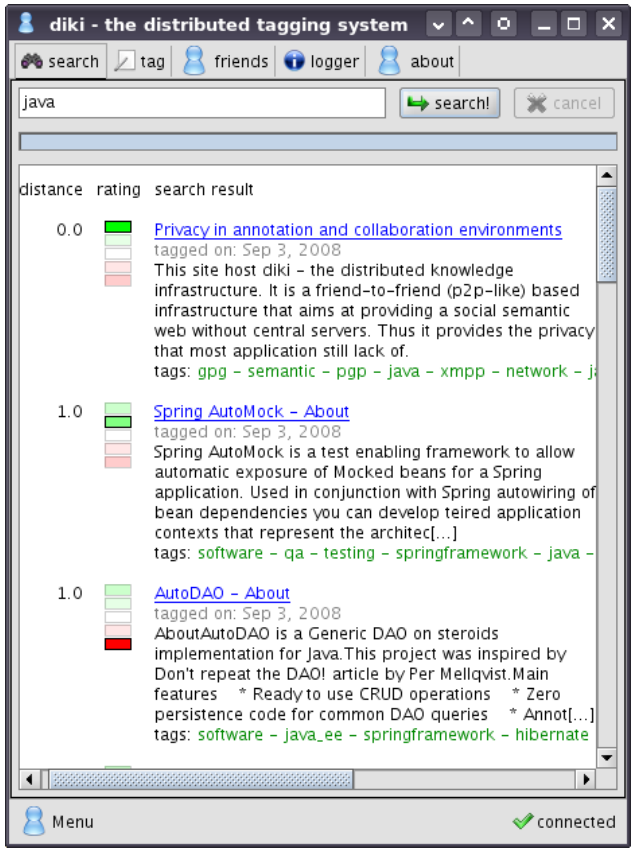
- PGP allows for secure end-to-end encryption
- Currently, PGP isn't widely used
- We need user-friendly PGP support!

Current prototype

- Social bookmark sharing application
- Create bookmarks and tag them
- Query your friends recursively for tagged bookmarks

Current prototype





Current prototype

- Java6 Webstart application
- Sesame RDF database
- Smack API
- prefuse.org visualization toolkit

Open Challenges

- How can a serverless network survive? What happens if too many clients are offline?
- How can PGP be implemented in a secure but user-friendly way?

Interested?

- Extend the current Java approach
- Create another client
  - Web interface
  - Instant Messenger extension (Pidgin, Kopete, ...)
  - Flash application
  - Mobile

THANKS FOR YOUR ATTENTION

- Questions?