Lockr
Social Access Control for Web 2.0

Amin Tootoonchian, **Kiran Gollu**,
Stefan Saroiu, Yashar Ganjali, Alec Wolman

University of Toronto
Microsoft Research

Huge Amounts of Personal Content

- People have tons of photos, videos, blog posts
- People need to manage their personal content
- Online sharing systems have became very popular

Sharing Personal Content is a Mess!

- Sites are content-specific: YouTube (videos), Flickr (photos)
  - Users' content are scattered across the Web
- Principals and access control are often site-specific
- Sites often require users to join & invite their friends
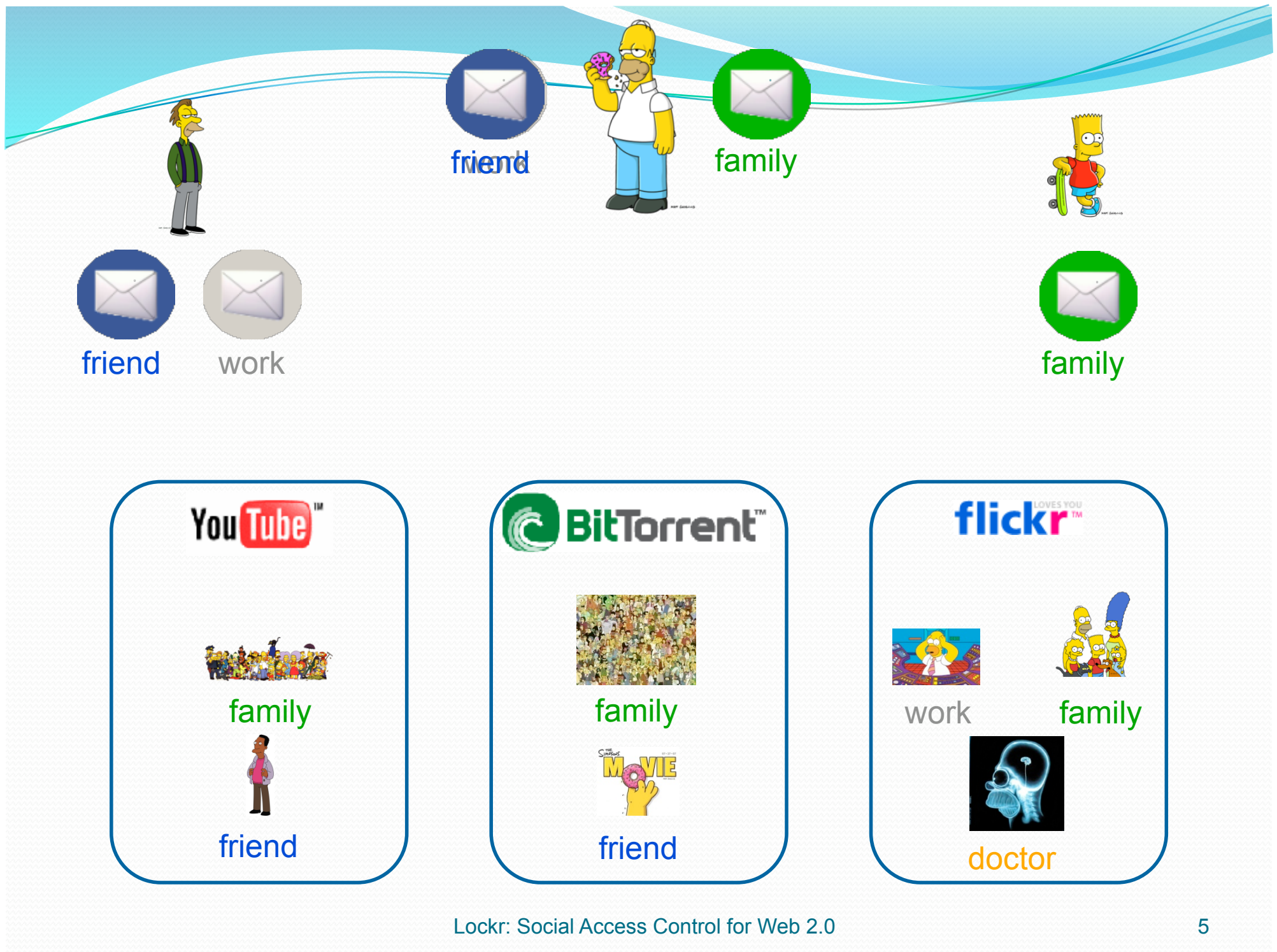 - Users need to reconcile their social network on each site

Burden of content/reg. mgmt. is on end users

Approach: Design an access control scheme

Making Content Sharing Easy

1. Use social relationships for access control
   - Fits people's mental model for sharing personal content

2. Decouple social networking and content sharing
   - Users manage social network & sites provide sharing
   - Eliminate need to manage multiple social networks
   - Reuse social information across different systems

Lockr: Web 2.0 access control based on 1, 2

friend

family

friend   work

family

YouTube™

family

friend

BitTorrent™

family

MOVIE

friend

flickr™ LOVES YOU

work   family

doctor

Lockr's Two Key Abstractions

- Pass
  - Encapsulates a relationship
  - Excludes access rights, app. semantics, object names

- Social Access Control List
  - Lists relationships authorized to access content

Lockr Implementation

- Lockr users need to use a pass manager
  - LockrCenter – pass manager for Facebook users

- Lockr can be added to different systems/applications
  - BitTorrent – a plugin for Vuze (formerly Azureus)
  - Flickr – a Firefox extension + an access control server
    - Our implementation bypasses Flickr's support

LockrCenter: Pass Manager

- Roles: storing, issuing and exchanging passes
- Facebook application

Lockr for BitTorrent

- Available as a plugin for Vuze (formerly Azureus)

- BitTorrent access control with social torrents
  - Social torrents contain social ACLs

- Protected content is exchanged only if both peers accept each others' passes

Lockr for Flickr

- Ideal implementation needs server support
  - A browser plugin sends passes to the server
  - Server verifies passes and reveals protected content

work   family

friend   work

family

Secret URL

work   family
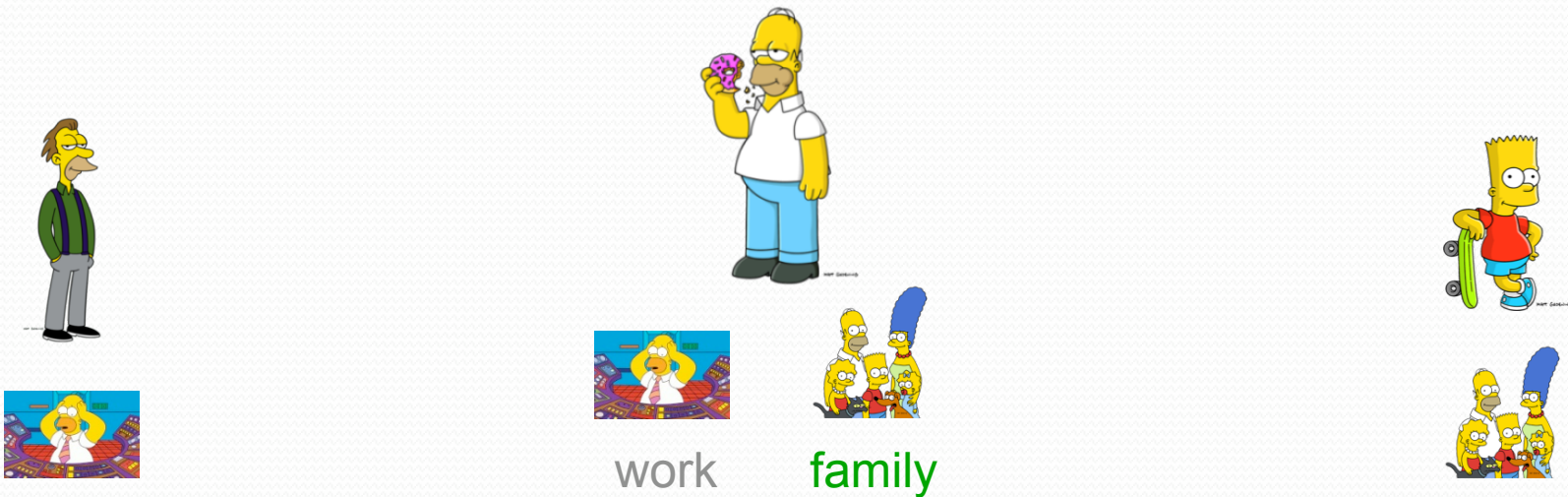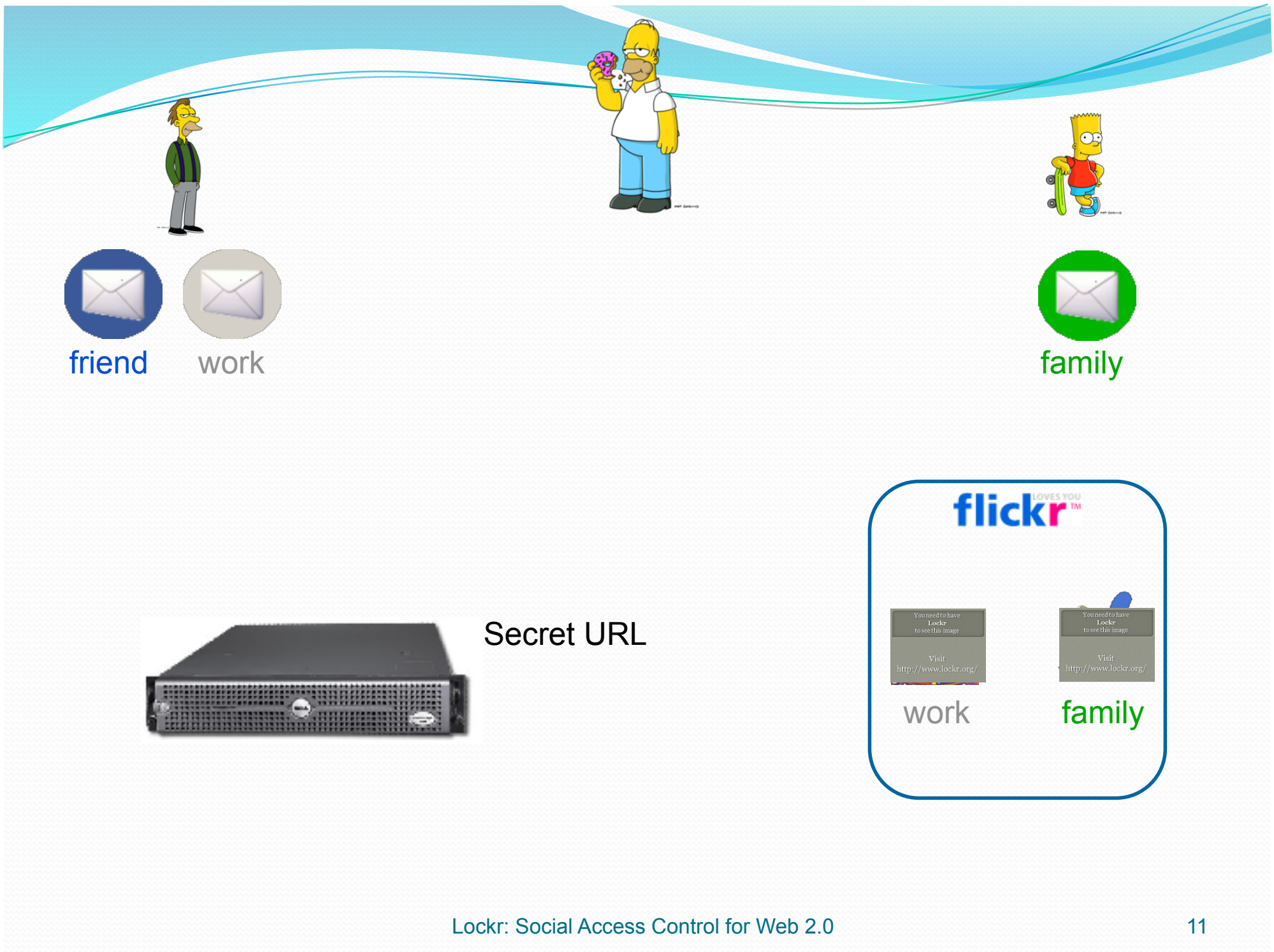
Lockr Makes Sharing Easy

- Same pass is valid across different systems

- Lockr eliminates redundant copies of one's social net.

- Lockr doesn't need a globally trusted party
  - No need for a third-party to authenticate/authorize
  - Users just need to trust content host to enforce ACLs

Conclusion

- Lockr makes sharing personal content easy
  - Lets users get rid of content/registrations mgmt. hassle

- Lockr's design is based on two simple observations
  - Social relations should describe access control policies
  - Social networks & content sharing should be decoupled

http://www.lockr.org/

Questions?

http://www.lockr.org/

amin@cs.toronto.edu