Social Networks and Privacy Models

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What this talk is and isn't

What it is

- Review the way the Big Three of social networks handle privacy

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- Discuss the kinds of privacy we'd want to have

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- Review the way the Big Three of social networks handle privacy
- Review the differences and similarities with offline privacy
- Discuss the kinds of privacy we'd want to have
- Cover how operating system security can inspire social media privacy

What this talk is and isn't

What it ain't

- a full design of a new social network

What this talk is and isn't

What it ain't

- a full design of a new social network
- the solution to all of our problems

What this talk is and isn't

What it ain't

- a full design of a new social network
- the solution to all of our problems
- a heartbreaking work of staggering genius

Defining Our Terms

- Social network

Defining Our Terms

- Social network
- Post

Defining Our Terms

- Social network
- Post
- Sharing

Defining Our Terms

- Social network
- Post
- Sharing
- Commenting

Defining Our Terms

- Social network
- Post
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- Commenting
- Conversing

Defining Our Terms

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- Commenting
- Conversing
- Replying

Feeling Safe

The Problem

In order to continue using social networks, we need better ways of controlling conversations. The current state isn't sustainable.

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The Hope

Operating system security and offline courtesy might inspire social media privacy solutions.

The Big 3

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- Facebook

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- Facebook
- Twitter

The Big 3

- Facebook
- Twitter
- Tumblr

Facebook

- Most flexible of the Big Three

Facebook

- Most flexible of the Big Three
    - Allows you to create custom filters

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  - Allows you to create custom filters
  - Allows friends, friends of friends, and public as tiers

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  - Allows you to create custom filters
  - Allows friends, friends of friends, and public as tiers
- Viewing and commenting and sharing are entangled

Twitter

- only two privacy methods

Twitter

- only two privacy methods
  1. blocking
  2. locking down

Twitter

- only two privacy methods
    1. blocking
    2. locking down
- No way to control sharing of a public tweet

Tumblr

- only two privacy methods

Tumblr

- only two privacy methods
    1. really mediocre blocking

Tumblr

- only two privacy methods
    1. really mediocre blocking
    2. completely making your site inaccessible from the web

Face-to-face conversations

Expectations

Conversations in person, even in public, have an expectation of privacy

Interrupting Strangers

Restaurant

Imagine you're overhearing strangers in a restaurant, talking about a topic you have strong opinions on. You walk over and start talking to them.

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Imagine you're overhearing strangers in a restaurant, talking about a topic you have strong opinions on. You walk over and start talking to them.

Hackathon

Imagine you're overhearing strangers at a hackathon, talking about a topic you have strong opinions on. You scooch your chair over and start talking to them.

Social Contracts

Social contracts mediate small communities, but is this sufficient for social networks?

Small Scale vs. Large Scale Responses

- One person misunderstands your point

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- One person calls you an asshole

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- One person calls you an asshole
- One person yells at you for being wrong
- What about thousands?
- In a few minutes?

A Polite Society

- Large scales

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- Loose knit semi-anonymous clusters

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- Social exclusion isn't a penalty

A Polite Society

- Large scales
- Loose knit semi-anonymous clusters
- Social exclusion isn't a penalty
- Inapppropriate behavior should be discouraged by system

Current Social Media

- Mostly all or nothing

Current Social Media

- Mostly all or nothing
- No equivalent of public but inaccessible

Current Social Media

- Mostly all or nothing
- No equivalent of public but inaccessible
- All possible ways of interacting are lumped together

Role Based Access Control

- Control access by assigning roles

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- Groups in Linux

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- Groups in Linux
- Databases

Role Based Access Control

- Control access by assigning roles
- Groups in Linux
- Databases
- Permissions-by-job

Role Based in Social Media

- Facebook's custom groups

Role Based in Social Media

- Facebook's custom groups
- Google+'s circles

Role Based in Social Media

- Facebook's custom groups
- Google+'s circles
- Dreamwidth/LJ custom groups

Role Based in Social Media

- Facebook's custom groups
- Google+'s circles
- Dreamwidth/LJ custom groups
- Still no disentangling of permissions

Permissions in Social Media (A First Pass)

- Seeing

Permissions in Social Media (A First Pass)

- Seeing
- Conversing

Permissions in Social Media (A First Pass)

- Seeing
- Conversing
- Replying

Permissions in Social Media (A First Pass)

- Seeing
- Conversing
- Replying
- Sharing/Reblogging

Permissions in Social Media (A First Pass)

- Seeing
- Conversing
- Replying
- Sharing/Reblogging
- Sharing w/ Comment

Role Based + Fine-Grained Permissions

- Massive improvement

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- Make it easier to protect data

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- Not the best though

Role Based + Fine-Grained Permissions

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- Make it easier to protect data
- Not the best though
  - When I share I "own" it

Focusing on Posts

- What if we focused on permissions attached to the post

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- Better enforceable policies

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- Better enforceable policies
- Principle of least privilege

Capabilities in Operating Systems

- special pointers to resources

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- contain permissions for how to access the resource

Capabilities in Operating Systems

- special pointers to resources
- contain permissions for how to access the resource
  - reading

Capabilities in Operating Systems

- special pointers to resources
- contain permissions for how to access the resource
  - reading
  - writing

Capabilities in Operating Systems

- special pointers to resources
- contain permissions for how to access the resource
    - reading
    - writing
    - sharing

Capabilities Don't Need To Be Checked

- possession is 9/10 of the law

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- sharing hands over a capability

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- sharing is itself a permission

Capabilities Don't Need To Be Checked

- possession is 9/10 of the law
- sharing hands over a capability
- sharing is itself a permission
- changing permissions is itself a permission

Posts as Capabilities

- followers get pointers to posts with permissions

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- a capability

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- a capability
- permissions include

Posts as Capabilities

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- a capability
- permissions include
  - share

Posts as Capabilities

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- a capability
- permissions include
  - share
  - conversing

Posts as Capabilities

- followers get pointers to posts with permissions
- a capability
- permissions include
    - share
    - conversing
    - reply

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  - share
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  - reply
  - share with comment

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    - change permissions

Posts as Capabilities

- followers get pointers to posts with permissions
- a capability
- permissions include
    - share
    - conversing
    - reply
    - share with comment
    - change permissions
    - tag-searchable

Getting the capabilities

- Viewing is the odd duck

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- Two options

Getting the capabilities

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- Two options
  1. Handling viewing through roles

Getting the capabilities

- Viewing is the odd duck
- Two options
  1. Handling viewing through roles
  2. Per post view lists

Per Post Block Lists

1. a user receives a post

Per Post Block Lists

1. a user receives a post
2. a user shares a post

Per Post Block Lists

1. a user receives a post
2. a user shares a post
3. user chooses who views

Per Post Block Lists

1. a user receives a post
2. a user shares a post
3. user chooses who views
4. take the union of the block lists

Revokable

- Posession of capabilities can be revoked at any point

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- Tree of sharing is already tracked in most sites

Revokable

- Posession of capabilities can be revoked at any point
- Tree of sharing is already tracked in most sites
- Choose a place and cut it

This Message Will Self-Destruct

- Controlling the depth of the graph

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- Controlling the depth of the graph
- Count down until it can no longer be shared

This Message Will Self-Destruct

- Controlling the depth of the graph
- Count down until it can no longer be shared
- Light-weight way to control spread of information

Capabilities Don't Ensure Security

- resource with permissions

Capabilities Don't Ensure Security

- resource with permissions
- policy determines how permissions are given

Capabilities Don't Ensure Security

- resource with permissions
- policy determines how permissions are given
- policy is created separately

Creating Policy

- a matter of UI

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- a matter of UI
- user definable defaults

Creating Policy

- a matter of UI
- user definable defaults
  - public

Creating Policy

- a matter of UI
- user definable defaults
    - public
    - work

Creating Policy

- a matter of UI
- user definable defaults
    - public
    - work
    - secure

Creating Policy

- a matter of UI
- user definable defaults
    - public
    - work
    - secure
    - near private

Creating Policy

- a matter of UI
- user definable defaults
  - public
  - work
  - secure
  - near private
- should be simple and flexible

Not Piling On

- I reblog something where I want to make a comment

Not Piling On

- I reblog something where I want to make a comment
- I know that there are people who follow me who'd pick a fight

Not Piling On

- I reblog something where I want to make a comment
- I know that there are people who follow me who'd pick a fight
- I downgrade the permissions so it is no longer commentable

Making An Announcement

- I want to let my followers and only my followers know something

Making An Announcement

- I want to let my followers and only my followers know something
- It is unshareable and unreply-able

Preventing Harassment

- I want to comment on a sensitve topic without being harassed

Preventing Harassment

- I want to comment on a sensitve topic without being harassed
- I make these posts unsearchable

Preventing Harassment

- I want to comment on a sensitve topic without being harassed
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- I make the posts unreplyable, unshareable, uncommentable but conversable

Preventing Harassment

- I want to comment on a sensitve topic without being harassed
- I make these posts unsearchable
- I make the posts unreplyable, unshareable, uncommentable but conversable
  - a public conversation with an expectation of privacy

Conclusion

- Separate different permissions and functions

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- Capability-like view of posts

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- Separate different permissions and functions
- Capability-like view of posts
- Something needs to change