DS 593: Privacy in Practice

Open Source, DRM, and Right to Repair

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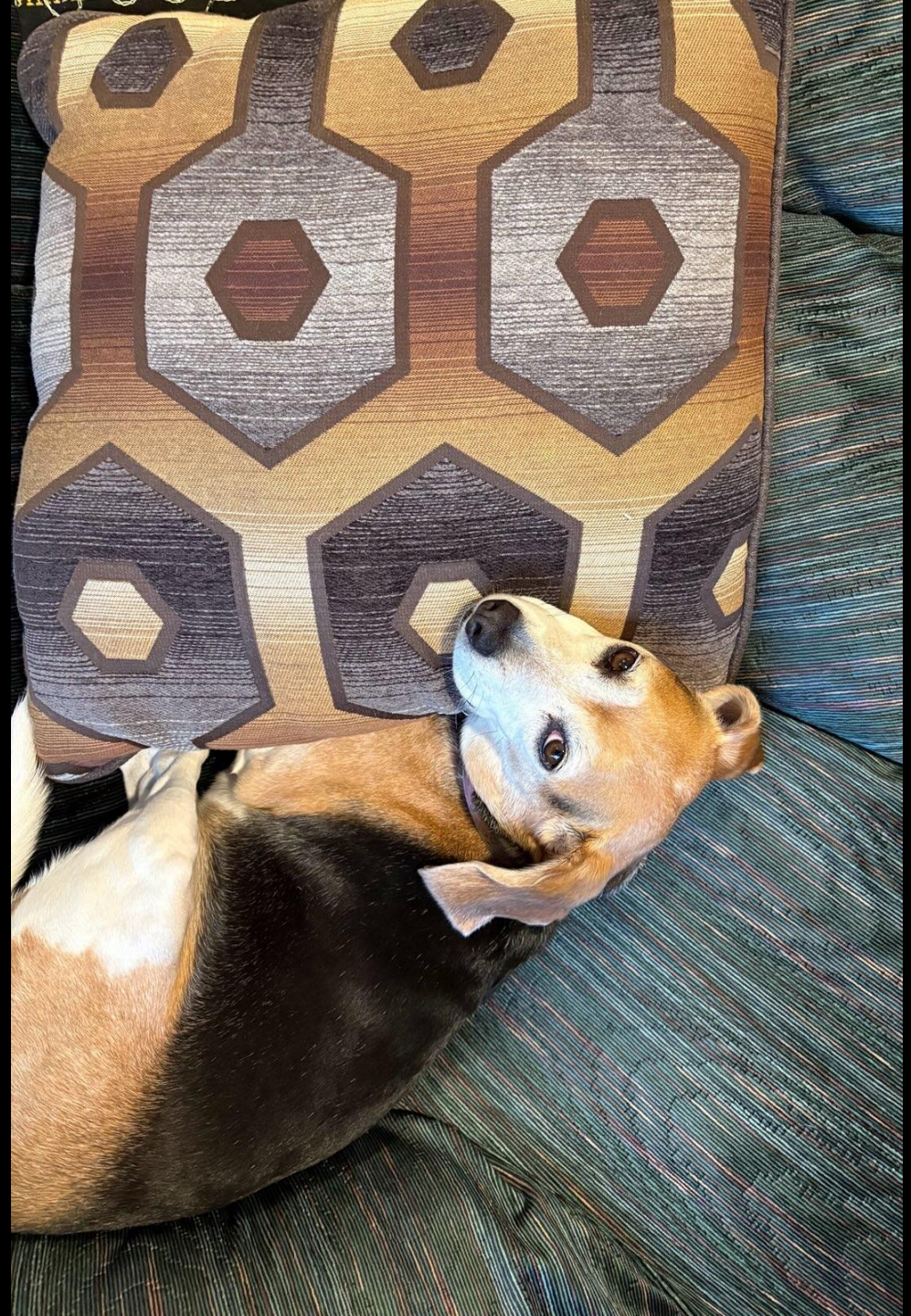
News?



Last time

- Blockchains
- Federated Networks

Today

- Open Source
- DRM
- Right to Repair

Supporting Decentralization

- Recall that decentralization has been seen as an approach to protecting privacy
- How do we ensure active maintenance and development of the software
  - How to support mass collaboration?
- How to guarantee interoperability
- How to achieve transparency
  - i.e. secondary use, exclusion, breach of confidentiality

The Fully Centralized World

- What does it mean to have ownership over something?
  - In particular, something digital?

Doctorow's Law: *Anytime someone puts a lock on something you own, against your wishes, and doesn't give you the key, they're not doing it for your benefit.*

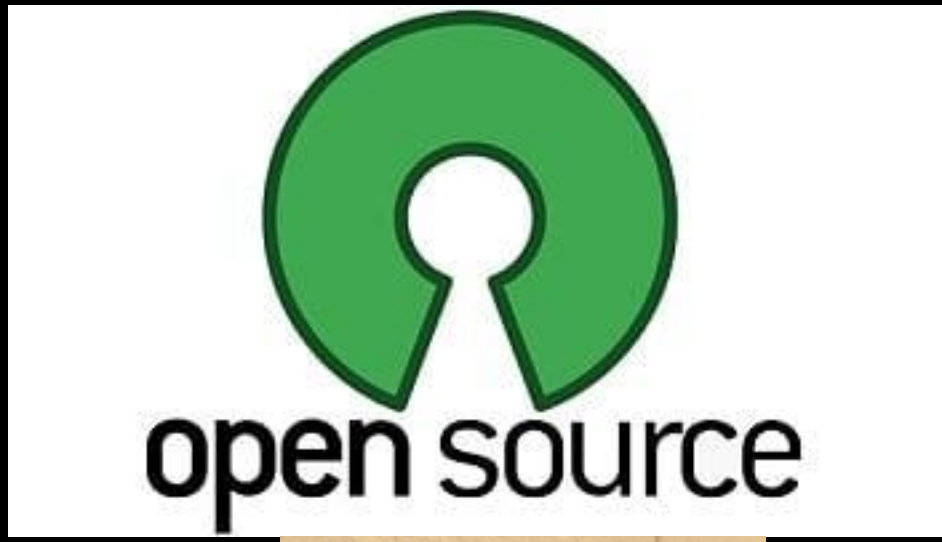
Corollary to Doctorow's law: *Anytime someones collect information about you, without your knowledge and against your wishes, they're not doing it for your benefit.*

Open Source Movement

- Movement to support open collaboration, access, development, modification, and redistribution of software

- Primarily governed through open source licenses

- Examples
  - GNU/Linux
  - Firefox
  - MediaWiki

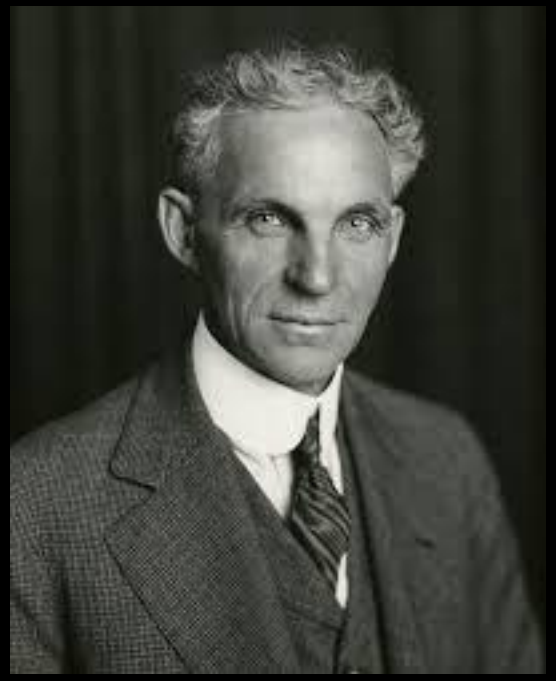


Quick Note on Copyright

- This is not going to be a deep dive into the mechanics of copyright, intellectual property, or trademarks

- For today, the main thing to keep in mind is that the law affords the creator/owner of something a lot of privileges on deciding how it can be used, modified, or shared

History of the Open Source Movement

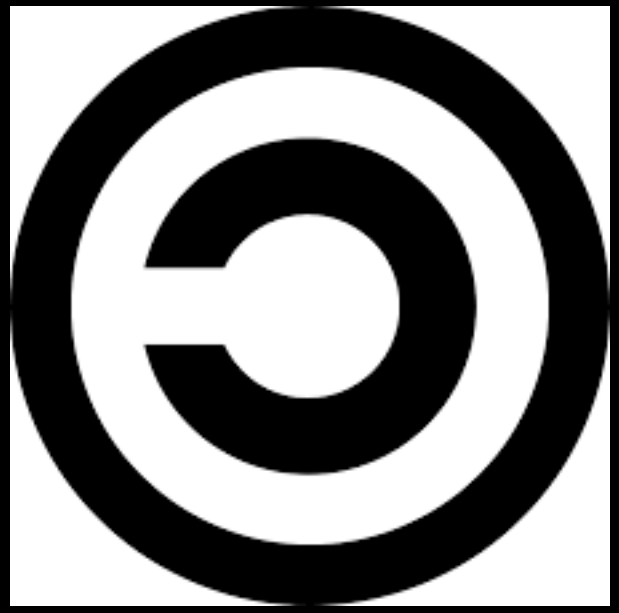


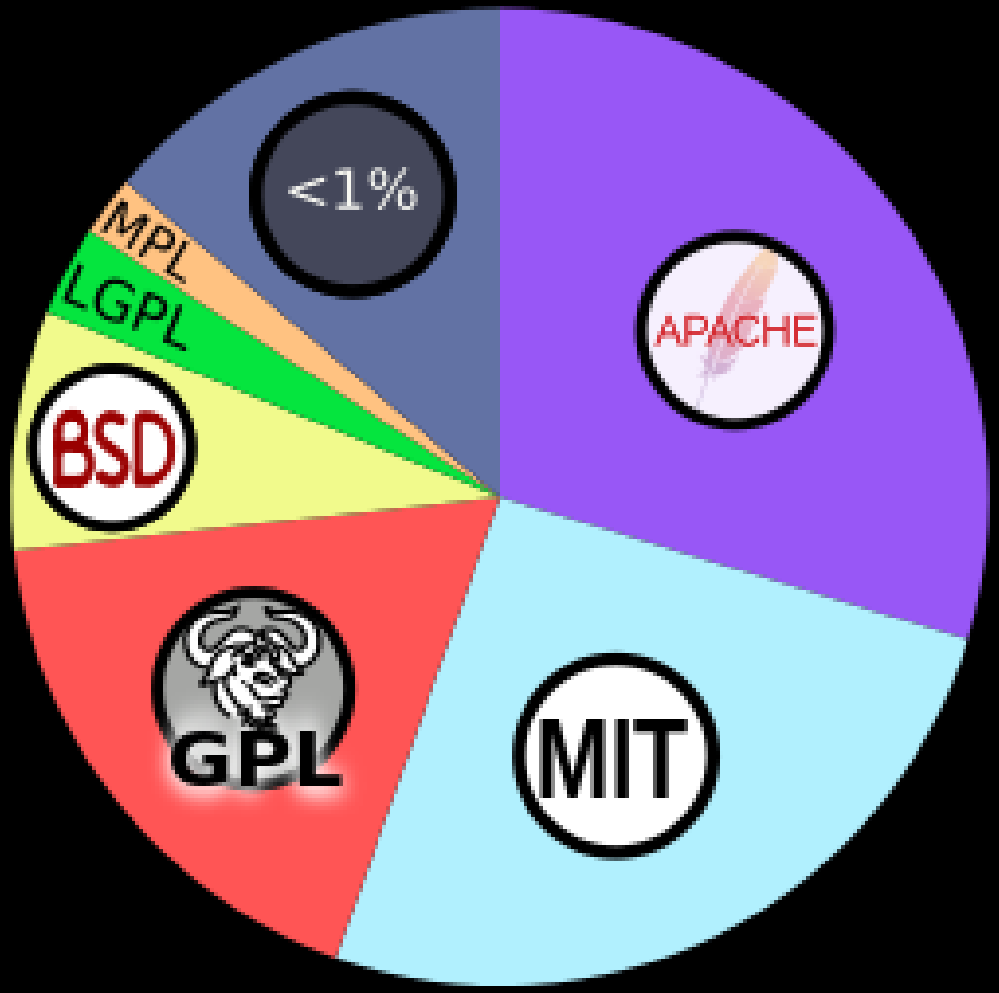
The GNU Manifesto

- Originally Users and Developers were the same people
- Operating systems and compilers lead to proliferation of proprietary software
- GNU was a reaction to this trend, to ensure a non- proprietary Unix alternative

What does free and open source mean?

Open Source Licenses

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MPL
LGPL
BSD
APACHE
GPL
MIT

Open Source Definition

- Free redistribution
- Source code must be accessible and the license must permit redistribution in the form of source code (rather than object code). In order to modify the software, access to source code is required.
- Derivative works must be allowed and able to be redistributed under the same licensing terms as the open-source product
- The license may require that the original software be distributed intact, but only if modifications are able to be distributed as patches without restriction.
- No discrimination between users
- No discrimination between uses, including commercial use
- Everyone who receives a copy of the program is granted all the open-source rights
- The license must cover all the code, not a particular product or distribution.
- There may not be restrictions on other software distributed at the same time
- Technological neutrality—cannot restrict use to any particular technology. For example, a license that requires a user to click a box agreeing to it is not free because the work cannot be distributed as a paper copy.

How does it work?

- Community forms around a project
  - Maintainers
  - Forks
  - Funds and support
- Email Lists or Wikis
- Version Control
- Bug trackers
- Testing tools
- Package Management

Does it work?

- Linus' Law: "given enough eyes, all bugs are shallow"
  - The Cathedral and the Bazaar

- Surprisingly yes
  - Altruism
  - Community sharing
  - Recognition
  - Ego
  - Creative expression

- Depends on level of engagement

Open Source Considerations

- Allows for a culture of collaboration and iteration
- Gives users control over the software they use
  - And as consequence the functions and interoperability of the software
- However licenses can be restrictive
- Not everyone contributes back
  - Cloud computing

Right to Repair

- Legal right for end-users to freely modify and repair devices and equipment

- When it comes to software, this critically intersects with open source

JOHN DEERE

Why restrict right to repair

- Part of a broader desire to opposed to *Open Access*
- Alleged Safety Concerns
- Monetary interests
- Control over end-use

Digital Rights Management (DRM)

- Access control technologies to restrict legal access to content
- Primarily justified to prevent copyright infringement
- Fear of the “Analog Hole”

Types of DRM

- Product Keys
- Persistent Online Connection
- Encryption
- Copy and Runtime restrictions
- Watermarks

Complaints about DRM

- Little evidence that it actually stops copyright infringement
- Deteriorates user experience
- Can exacerbate vendor lock-in
- Requires significant surveillance apparatus
- DMCA

Digital Millenium Copyright Act (DMCA)

- Anti-Circumvention provisions
- Safe harbor provision
- Extremely potent tool for enforcing copyright
- What happens when you combine it with DRM?

DMCA Complaints

- Chills Free Expression and Scientific Research
- Jeopardizes Fair Use
- Impedes Competition and Innovation
- Computer Intrusion Laws

The Case of Apple

- Uses this provisions in conjunction to control apps on its devices
- Claims this is necessary for safety, with limited evidence
- Used it to take down apps that do try to provide safety
  - Jailbreak detection
  - Privacy tools in China
  - Tool for organizing protests

Other Examples

- Tivoization and GPLv3
- Open Access and Aaron Swartz
- 6 Strikes Laws
- Blocking accessible reading tools

Bringing it all together

- We can’t have privacy without having control and awareness of how the tools we use work

- DRM and DMCA restrict the ability to exercise this right while giving the copyright holders significant control over users and their information
  - Necessitates lack of transparency and an adversarial relationship with users
  - Places them in the role of gatekeepers that decide what is best for users

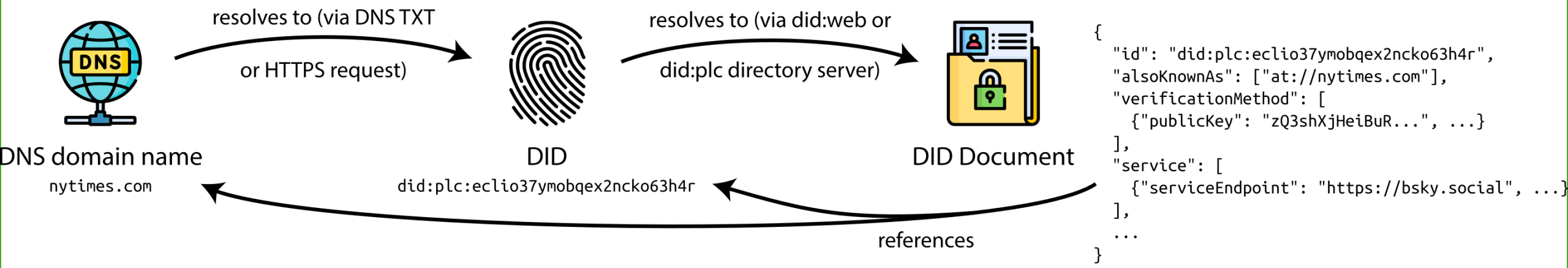
Next Time

Frontiers of Privacy

AT Protocol

- Alternative distributed social networking protocol developed by Bluesky
  - Plan is to transfer management to the IETF
  - Refers to its set of interoperable applications as the ATmosphere
- Originated as part of an internal research initiative within Twitter to explore decentralizing the network
- Rather than relying on instance specific servers, works through many microservices
- Not naturally compatible with the Fediverse but can interoperate through the use of a *bridge*

Identity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or HTTPS request)
resolves to (via did:web or
did:plc directory server)
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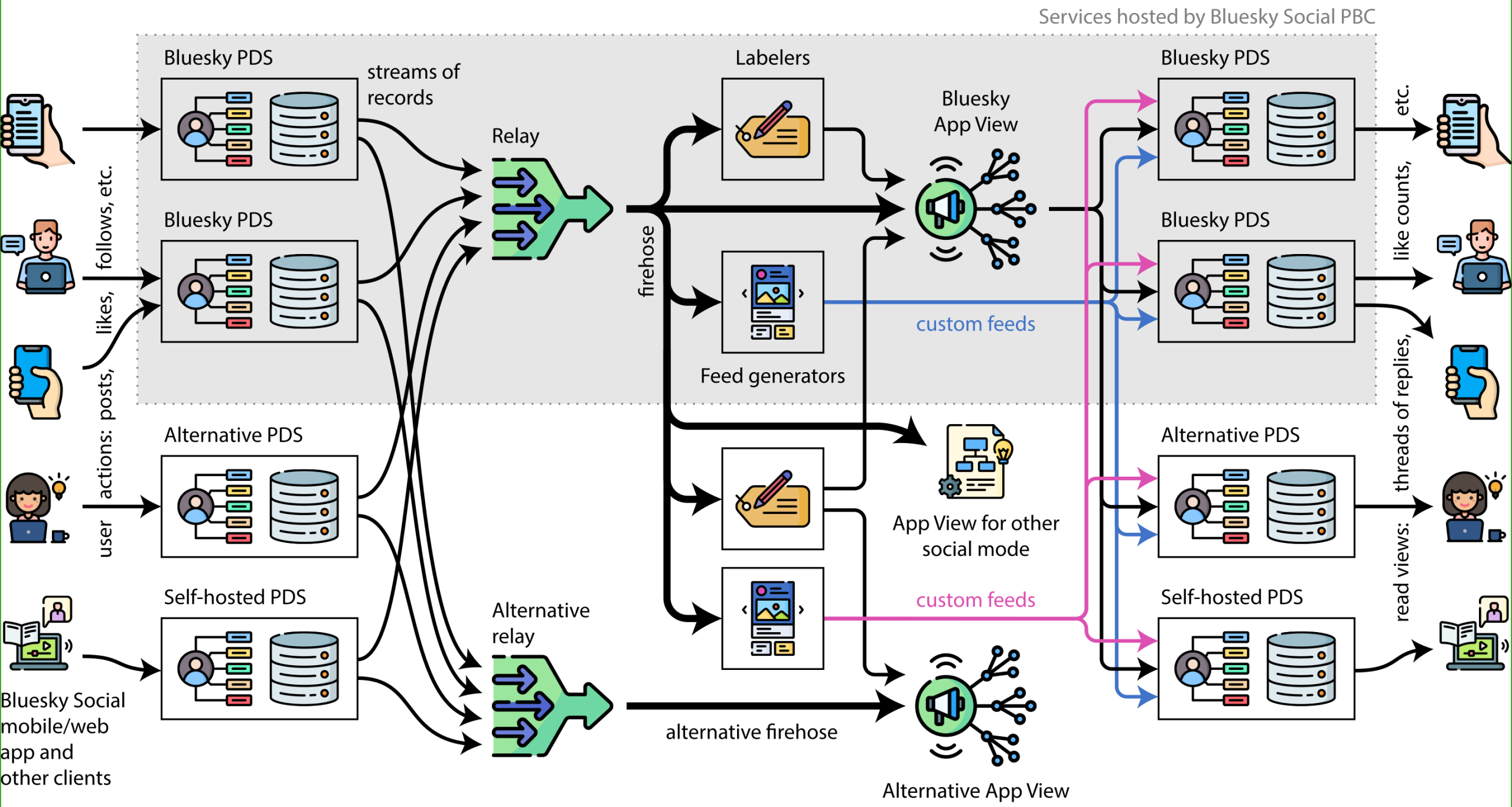
Services hosted by Bluesky Social PBC
Bluesky PDS
Bluesky PDS
streams of records
follows, etc.
likes, posts, actions:
user
Alternative PDS
Self-hosted PDS
Bluesky Social mobile/web app and other clients
Relay
Alternative relay
firehose
alternative firehose
Labelers
Feed generators
Bluesky App View
App View for other social mode
Alternative App View
custom feeds
custom feeds
Bluesky PDS
Bluesky PDS
Alternative PDS
Self-hosted PDS
etc.
like counts,
threads of replies,
read views: